



**LIST OF COURSES RELEVANT TO PROFESSIONAL ETHICS,
GENDER, HUMAN VALUES, ENVIRONMENT AND
SUSTAINABILITY INTO THE CURRICULUM
-SUPPORTING DOCUMENTS**

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR UNDER GRADUATE PROGRAMMES IN

B.A English

UNDER CHOICE BASED CREDIT SYSTEM (UG CBCS) 2017

2017 ADMISSIONS ONWARDS

MAHATMAGANDHIUNIVERSITY
SYLLUBUS FOR ENGLISH LANGUAGE AND LITERATURE (MODEL1)
2017 ADMISSIONSONWARDS
SCHEME

Semester	Title	Course Category/Code	Hours Per Week	Credits	Internal Assessment	External Exam
1	Fine-tune YourEnglish	Common Course-1 EN1CCT01	5	4	20	80
1	Pearls fromthe Deep	Common Course-2 EN1CCT02	4	3	20	80
1	Second Language	Common Course	4	4	20	80
1	Methodologyof Literary Studies	Core Course-1 EN1CRT01	6	4	20	80
1	History/Political Science/ Sociology/ Psychology	ComplementaryCourse	6	4	20	80
2	Issues that Matter	Common Course-3 EN2CCT03	5	4	20	80
2	Savouring the Classics	Common Course-4 EN2CCT04	4	3	20	80
2	Introducing Language and Literature	Core Course -2 EN2CRT02	6	4	20	80
2	Second Language	Common Course	4	4	20	80
2	History /Political Science / Sociology/ Psychology	ComplementaryCourse	6	4	20	80
3	Literature and/as Identity	Common Course-5 EN3CCT05	5	4	20	80
3	Second Language	Common Course	5	4	20	80
3	Harmonyof Prose	Core Course -3 EN3CRT03	4	4	20	80
3	Symphonyof Verse	Core Course -4 EN3CRT04	5	4	20	80
3	Evolution ofLiterary Movements:the Shapers of Destiny	ComplementaryCourse3 - EN3CMT03	6	4	20	80
4	Illuminations	Common Course-6 EN4CCT06	5	4	20	80
4	Second Language	Common Course	5	4	20	80
4	Modes of Fiction	Core Course -5 EN4CRT05	4	4	20	80
4	Language andLinguistics	Core Course -6 EN4CRT06	5	4	20	80
4	Evolution ofLiterary	ComplementaryCourse4	6	4	20	80

	Movements:the Cross Currents of Change	- EN4CMT04				
5	Open Course	EN5CROP01 Appreciating Films EN5CROP02 TheatreStudies EN5CROP03 English forCareers	4	3	20	80
5	Acts on the Stage	Core Course -7 EN5CRT07	6	5	20	80
5	LiteraryCriticismand Theory	Core Course -8 EN5CRT08	5	4	20	80
5	Indian Writing in English	Core Course -9 EN5CRT09	5	4	20	80
5	Environmental Science and Human Rights	Core Course EN5CRENT0	5	4	20	80
6	Choice Based Course	EN6CBT01Comparative Literature EN6CBT02 Modern Malayalam Literaturein Translation EN6CBT03 Regional Literatures in Translation EN6CBT04 Voices from the Margins	4	4	20	80
6	PostcolonialLiteratures	Core Course -10 EN6CRT10	5	4	20	80
6	Women Writing	Core Course -11 EN6CRT11	5	4	20	80
6	AmericanLiterature	Core Course -12 EN6CRT12	5	4	20	80
6	Modern World Literature	Core Course -13 EN6CRT13	5	4	20	80
6	Project	EN6PR01	1	2	20	80

MAHATMAGANDHIUNIVERSITY
SYLLABIFORCOMMONCOURSES-UGPROGRAMMES
2017ADMISSIONSONWARDS
COURSE2-PearlsfromtheDeep

Course Code	EN1CCT02
Title of the Course	PearlsfromtheDeep
Semester in which the Course is to be taught	1
No. of Credits	3
No. of Contact Hours	72

AIM OF THE COURSE

To introduce students to the different genres of literature and to the niceties of literary expression.

OBJECTIVES OF THE COURSE

On completion of the course, the student should be able to:

1. appreciate and enjoy works of literature.
2. appreciate the aesthetic and structural elements of literature.

COURSE OUTLINE

Module 1 [Fiction] (18 hours)

Ernest Hemingway: *The Old Man and the Sea*

Module 2 [One Act Plays] (18 hours)

Susan Glaspell: Trifles
 Asif Currimbhoy: The Refugee
 A. A. Milne: The Boy Comes Home

Module 3 [Short Stories] (18 hours)

Guy De Maupassant: Two Friends
 O. Henry: The Gift of the Magi

K. A. Abbas: Sparrows
Flora Annie Steel: Valiant Vicky, the Brave Weaver

Module 4 [Poems]

(18 hours)

Rumi: The Chance of Humming
Walter Scott: Lochinvar
John Keats: La Belle Dame sans Mercy
Robert Frost: After Apple Picking
Chinua Achebe: Refugee Mother and Child
Kamala Das: My Grandmother's House
Ted Hughes: Jaguar
Pablo Neruda: Tonight I can Write the Saddest Lines
P. P. Ramachandran: How Simple!

Core Text: *Pearls from the Deep*. Cambridge University Press and Mahatma Gandhi University

Core Courses

MAHATMA GANDHI UNIVERSITY

SYLLABUS FOR CORE COURSES-UG PROGRAMMES

2017 ADMISSIONS ONWARDS

COURSE 1-Methodology of Literary Studies

Course Code	EN1CRT01
Title of the course	Methodology of Literary Studies
Semester in which the course is to be taught	1
No. of credits	4
No. of contact hours	108

AIM OF THE COURSE

The course seeks to introduce the student to the major signposts in the historical evolution of literary studies from its inception to the current postcolonial realm.

OBJECTIVES OF THE COURSE

On completion of the course, the student should be able to discern the following:

1. The emergence of literature as a specific discipline within the humanities.
2. The tenets of what is now known as 'traditional' approaches and also that of 'formalism.'
3. The shift towards contextual-political critiques of literary studies.
4. The questions raised by Cultural Studies and Feminism(s)
5. The issues of subalternity and regionality in the literary domain.

COURSE OUTLINE

Module 1 (18 hours)

Part A: W. H. Hudson: —Some Ways of Studying Literature from *An Introduction to the Study of Literature*.

Part B: William Shakespeare: Sonnet 116 – —Let Me Not to the Marriage of True Minds

Module 2 (18 hours)

Part A: Cleanth Brooks: —The Formalist Critics from the *My Credo* series: *The Kenyon Review*

Part B: Emily Dickinson: —Because I could not stop for Death (poem 479)

Module3 (18hours)

PartA: Terry Eagleton: —What is Literature? from *Literary Theory: An Introduction*.

PartB: Mahasweta Devi: —Kunti and the Nishadin

Module4 (18hours)

PartA: Lois Tyson: —Feminist Criticism

PartB: Sara Joseph: —Inside Every Woman Writer

Module5 (18hours)

PartA: Peter Barry: Postcolonial Criticism

PartB: 2 Poems in tandem: Mahmoud Darwish: —Identity Card and S. Joseph: —Identity Card

Module6 (18hours)

PartA: Pradeepan Pampirikunnu: —What did Literary Histories Say to You?

PartB: Poikayil Appachan: —No Alphabet in Sight

Approaching the Course:

Ideally this paper should have a consistent linearity from Module 1 to 6; such a step-by-step progression will help trace the following trajectory effectively: **Traditional to Formalist to Political-Contextual to Feminist to Postcolonial to Regional-Subaltern** methodologies.

Core Text: *Nuances: Methodology of Literary Studies*. Macmillan and Mahatma Gandhi University

MAHATMAGANDHIUNIVERSITY
SYLLABIFORCOMMONCOURSES-
UGPROGRAMMES2017ADMISSIONSONWARDSCOURSE
3-ISSUESTHATMATTER

CourseCode	EN2CCT03
Titleofthecourse	ISSUESTHATMATTER
Semesterinwhichthecourseistobet aught	2
No.ofcredits	4
No.ofcontacthours	90

1.AimoftheCourse:

To sensitize the learners about contemporary issues of concern; to enhance their linguistic skills in English language.

Objectives:

By the end of the course, the learner is able to

- identify major issues of contemporary significance
- respond rationally and positively to the issues raised
- internalise the values imparted through the excerpts
- re-orient himself/ herself as conscious, cautious, concerned, conscientious and concerned human being and
- articulate these values in error free English.

2.CourseOutline:

Module1

(18hours)

1. The Unsundered People - Kenzaburo Oe
2. The Old Prison – Judith Wright
3. War– Luigi Pirandello

Module2**(18hours)**

4. Persuasions on the Power of the Word - Salman Rushdie

Peril - Toni Morrison

5. The Burning of the Books- Bertolt Brecht

6. The Censors - Luisa Valenzuela

Module3**(18hours)**

7. "The Poisoned Bread" – Bandhumadhav

8. *A Westward Trip*-ZitkalaSa

9. "The Pot Maker" – TemsulaAo

Module4**(18hours)**

10. Does it Matter – Richard Leaky

11. On Killing A Tree - Gieve Patel

12. Hagar: A Story of a Woman and Water (Gift in Green [chapter 2]) – Sarah Joseph

Module5**(18hours)**

13. Understanding Refugeeism: An Introduction to Tibetan Refugees in India

14. Refugee Blues – W. H. Auden

15. The Child Goes to the Camp(from Palestine's Children)– GhassanKanafani

CoreText:ISSUESTHATMATTER

MAHATMAGANDHIUNIVERSITY
SYLLABIFORCORECOURSES-UGPROGRAMMES
2017ADMISSIONSONWARDS
COURSE3–HarmonyofProse

Course Code	EN3CRT03
Title of the course	HarmonyofProse
Semesterinwhichthecourseistobe taught	3
No. of credits	4
No. of contact hours	90

AIMOFTHECOURSE

The student is given space to mature in the presence of glorious essays, both Western and Non-Western.

OBJECTIVESOFTHECOURSE

On completion of the course, the student shall be:

1. familiar with varied prose styles of expression.
2. aware of eloquent expressions, brevity and aptness of voicing ideas in stylish language.

COURSEOUTLINE

Module1 **(18hours)**

Francis Bacon: Of Friendship

Jonathan Swift: The Spider and the Bee

Joseph Addison: Meditations in Westminster Abbey

Module2 **(18hours)**

Samuel Johnson: Death of

Dryden Charles Lamb: Dream Children; a
 reverie

William Hazlitt: The Fight

Module3

(18hours)

Robert Lynd:Forgetting

Virginia Woolf: A Room of One's Own (an extract)

Aldous Huxley:The Beauty Industry

Module4

(18hours)

Nirad C. Choudhari: Indian Crowds (extract from *The Autobiography of an Unknown Indian*)

Amartya Sen: Sharing the World

A. K. Ramanujan: A Flowery Tree: A Woman's Tale

Module5

(18hours)

Kamau Brathwaite: Nation Language

Pico Iyer: In Praise of the Humble Coma

William Dalrymple: The Dancer of Kannur (extract from *Nine Lives*)

Core Text: *Harmony of Prose*

MAHATMAGANDHIUNIVERSITY
SYLLABIFORCOMMONCOURSES-UGPROGRAMMES
2017ADMISSIONSONWARDS

COURSE5-Literatureand/asIdentity

Course Code	EN3CCT05
Title of the course	Literatureand/asIdentity
Semesterinwhichthecourseistobe taught	3
No. of credits	4
No. of contact hours	90

AIMOFTHECOURSE

The courseis intended to sensitivise students to thevarious ways in which literature serves as a platform for forming, consolidating, critiquing and re-working the issue of identity‘at various levels.

OBJECTIVESOFTHECOURSE

On completion of the course, the student should beaware of thefollowing:

1. Thesubtle negotiations of Indigenous and Diasporic identities with-inLiterature.
2. Thefissures, the tensions and the interstices present in South Asian regional identities.
3. The emergence of Life Writing and alternate/alternative/marginal identities.

COURSEOUTLINE

Module1(DiasporicIdentities) (18hours)

Agha Shahid Ali: **ISeeKashmir from New Delhi at Midnight**

M.G. Vassanji: Leaving

ImtiazDharker: At theLahoreKarhai

ChitraBanerjee Divakaruni:Indian Movie, New Jersey

Module2(SouthAsianIdentities) (18hours)

C. V. Velupillai: **No State, No Dog**

SadaatHasanManto: The Dog of Tetwal

IntizarHussain: A Chronicle of the Peacocks

Selina Hossain: **Double War**

Module3(LifeWritings)**(18hours)**

Malcolm X: —Nightmare, excerpt from *TheAutobiographyofMalcolmX*.
Sashi Deshpande: Learning to be a Mother in *Janani– Mothers, Daughters, Motherhood*,
(ed.) RinkiBhattacharya.

Module4(IndigenousIdentities)**(18hours)**

Excerpts from *Binti*, the Santhal creation song of cosmology, the *Bhilli Mahabharat* and
Garhwali Songs in Painted Words- An Anthology of Tribal Literature- Edited by G.N. Devy.
Amos Tutuola: *The Palm- Wine Drinkard*. [Excerpt]

Module5(AlterIdentities)**(18hours)**

Nathaniel Hawthorne: The Birth Mark
John Henrik Clarke: The Boy Who Painted Christ Black
Ruskin Bond: The Girl on the Train

CoreText: *Literature and/as Identity*

MAHATMAGANDHIUNIVERSITY
SYLLABIFORCORECOURSES-UGPROGRAMMES
2017ADMISSIONSONWARDS
COURSE4–SymphonyofVerse

Course Code	EN3CRT04
Title of the course	SymphonyofVerse
Semesterinwhichthecourseistobe taught	3
No. of credits	4
No. of contact hours	90

AIMOFTHECOURSE

To acquaint the studentwith the rich texture of poetryin English.

OBJECTIVESOFTHECOURSE

On completion of the course the students shall have:

1. an understanding of the representation of poetryin various periods of the English tradition.
2. an awareness of the emerging cultural andaesthetic expressions that poetrymakespossible.

COURSEOUTLINE

Module1(RenaissanceandRestoration)

(18hours)

Edmund Spenser: OneDay IWrote Her Name

WilliamShakespeare: Sonnet 130

John Donne: Canonization

John Milton: Lycidas

John Dryden: A Songfor St. Cecilia’s Day

Module2(RomanticRevival)

(18hours)

WilliamWordsworth:LucyGray

Samuel Taylor Coleridge: Christabel (Part I)

PercyBysshe Shelley: Ode to the West Wind

John Keats: To Autumn

Module3(Victorian)**(18hours)**

Alfred, Lord Tennyson: Ulysses
Robert Browning: Porphyria's Lover
Matthew Arnold: Dover Beach
Christina Rossetti: A Hope Carol

Module4(TwentiethCentury)**(18hours)**

W. B. Yeats: Easter 1916
T S Eliot: The Love Song of J Alfred Prufrock
Philip Larkin: The Whitsun Weddings
Sylvia Plath: Lady Lazarus

Module5(Contemporary)**(18hours)**

A. D. Hope: Australia
Maya Angelou: Phenomenal Woman
Seamus Heaney: Digging
Carol Ann Duffy: Stealing

CoreText: *Symphony of Verse*

MAHATMAGANDHIUNIVERSITY
SYLLABIFORCOMPLEMENTARYCOURSES-UGPROGRAMMES
2017ADMISSIONSONWARDSSEMES
TER4(BAEnglishModel1&Model2)

COURSE4:TheEvolutionofLiteraryMovements:TheCrossCurrentsofChange

Course Code	EN4CMT04
Title of the course	TheEvolutionofLiteraryMovements:TheCrossCurrentsofChange
Semesterinwhichthecourseistobe taught	4
No. of credits	4
No. of contact hours	108

AIMOFTHECOURSE

To enable students to have a notion of the evolution of literature and to help them perceive the interplay of social processes and literature

OBJECTIVESOFTHECOURSE

By the end of the course it is hoped that:

1. students will be competent to understand literature against the backdrop of history.
2. students will be inspired to contribute dynamically to historical and literary processes.

COURSEOUTLINE

Module1[LiteratureandRevolution] (36hours)

- a. The interaction between the French Revolution and the literature of the age
- b. Literature in the context of the Russian Revolution

Module2[LiteratureandRenaissance] (18hours)

- a. The social context of the burgeoning of literature in Latin America
- b. Kerala at the dawn of awakening

Module3[LiteratureandLiberation] (36hours)

a. Literature and feminism

b. Dalit writing

Module4[LiteratureandtheThirdWorld]

(18hours)

a. Articulatingthe Postcolonial Experience

b. An overview of NewLiteratures

CoreText:DrB Keralavarma. *EvolutionofLiteraryMovements:TheCross-currentsofChange.*

MAHATMAGANDHIUNIVERSITY
SYLLABIFORCOMMONCOURSES-UGPROGRAMMES
2017ADMISSIONSONWARDS

COURSE6–Illuminations

Course Code	EN4CCT06
Title of the course	Illuminations
Semester in which the course is to be taught	4
No. of credits	4
No. of contact hours	90

AIM OF THE COURSE

To acquaint the learners with different forms of inspiring and motivating literature.

OUTLINE OF THE COURSE

At the end of the course, the student shall be able to: 1.

maintain a positive attitude to life.

2. evaluate and overcome setbacks based on the insights that these texts provide.

COURSE OUTLINE

Module 1 [Life Sketches]

(18 hours)

Helen Keller: Three Days to See

Jesse Owens: My Greatest Olympic Prize

Dominic Lapierre: Mother Teresa

Module 2 [Essays]

(18 hours)

Lafcadio Hearn: On Reading

Stephen Leacock: Are the Rich Happy?

A.G. Gardiner: On Courage

Module 3 [Speeches]

(18 hours)

J.K. Rowling: The fringe benefits of failure and the importance of imagination

Malala Yousafzai: Nobel Lecture

Module 4 [Short Stories]

(18 hours)

Oscar Wilde: The Nightingale and the Rose

George Orwell: The Miser

John Galsworthy:Quality
Paolo Coelho: The Beggar and the Baker

Module5[Poems]

(18hours)

William Ernest
Henley:InvictusRobert Frost:
TheRoad Not Taken Kahlil
Gibran: OfGood and Evil
JoyceKilmer: Trees

CoreText:*Illuminations*

MAHATMAGANDHIUNIVERSITY
SYLLABIFORCORECOURSES-UGPROGRAMMES
2017ADMISSIONSONWARDS
COURSE5–ModesofFiction

Course Code	EN4CRT05
Title of the course	ModesofFiction
Semesterinwhichthecourseistobe taught	4
No. of credits	4
No. of contact hours	90

AIMOFTHECOURSE

To acquaint students with various modes of fiction.

OBJECTIVESOFTHECOURSE

On completion of the course, the student will have comprehended the categories of British and non- British short fiction, and also the novel as a form of literaryexpression.

COURSEOUTLINE

Module1[ShortFiction:British] (36hours)

MaryShelley: The MortalImmortal
 Jerome K.Jerome: The Dancing Partner
 H. G. Wells: The Stolen Body
 Somerset Maugham: Rain
 G. K. Chesterton: The Blue Cross
 JamesJoyce: Araby
 Muriel Spark: TheExecutor
 A. S. Byatt: On the Day E. M.Forster Died

Module2[ShortFiction:NonBritish] (36hours)

HenryLawson: The Drover’s Wife
 MaximGorky: Mother of a Traitor
 Stephen Crane: A Dark Brown Dog
 Katherine Mansfield: A Cup of Tea
 Pearl S Buck: Once upon a Christmas
 Gabriel Garcia Marquez:A VeryOld Man with Enormous Wings

Mary Lerner: *Little Selves*

Nadine Gordimer: *Once Upon a Time*

Module 3 [Fiction]

(18 hours)

Charles Dickens: *Great Expectations*

Core Text for Modules 1 and 2: *Modes of Fiction*

MAHATMAGANDHIUNIVERSITY
SYLLABIFORCORECOURSES-UGPROGRAMMES
2017ADMISSIONSONWARDS
COURSE9–IndianWritinginEnglish

Course Code	EN5CRT09
Title of the course	IndianWritinginEnglish
Semesterinwhichthecourseistobe taught	5
No. of credits	4
No. of contact hours	90

AIMOFTHECOURSE

The course is intended to sensitise students to the various ways in which literature written in English, in the Indian sub-continent serves as a platform for forming, consolidating, critiquing and re-working the issue of national ‘identity’ at various levels.

OBJECTIVESOFTHECOURSE

On completion of the course, the student should be aware of the following:

1. The subtle flavours that distinguish the ‘Indian’ quotient in English writings from India.
2. The different concerns that Indian English writers share, cutting across sub-nationalities and regionalities.
3. The *locus standi* of diasporic ‘Indian’ writers.

COURSEOUTLINE

Module1(Poetry)

(18Hours)

Henry Derozio: The Harp of India

Nissim Ezekiel: The Patriot

Jayanta Mahapatra: Freedom

Kamala Das: Introduction

Dom Moraes: Absences

Module2(Fiction)

(18Hours)

Anita Nair: *Ladies Coupe*

Module3(Drama)

(18Hours)

GirishKarnad: *Tughlaq*

Module4(ShortFiction)

(18Hours)

R. K. Narayan: The Antidote

Salman Rushdie: The Free Radio

JhumpaLahiri: The Interpreterof Maladies

ChitraBanerjee Divakaruni:Mrs Dutta Writes a Letter

Module5(Prose)

(18Hours)

Rabindranath Tagore: Nationalism in India

B. R. Ambedkar: Back from the West and Unable to FindLodging inBaroda

Satyajit Ray:Odds Against Us

Amitav Ghosh: The Imam and theIndian

CoreText:Indian WritinginEnglish

MAHATMAGANDHIUNIVERSITY
SYLLABIFORCORECOURSES-UGPROGRAMMES
2017ADMISSIONSONWARDS

COURSE–EnvironmentalScienceandHumanRights

Course Code	EN5CRENT01
Title of the course	EnvironmentalScienceandHumanRights
Semesterinwhichthecourseistobe taught	5
No. of credits	4
No. of contact hours	90

CoremodulesyllabusforEnvironmentalStudies&HumanRightsforunder-graduatecoursesofallbranchesofhighereducation

VISION

The importance of environmental science and environmental studies cannot be disputed. The need for sustainable development is a key to the future of mankind. Continuing problems of pollution, solid waste disposal, degradation of environment, issues like economic productivity and national security, Global warming, the depletion of ozone layer and loss of biodiversity have made everyone aware of environmental issues. The United Nations Conference on Environment and Development held in Rio de Janeiro in 1992 and World Summit on Sustainable Development at Johannesburg in 2002 have drawn the attention of people around the globe to the deteriorating condition of our environment. It is clear that no citizen of the earth can afford to be ignorant of environment issues.

India is rich in biodiversity which provides various resources for people. Only about 1.7 million living organisms have been described and named globally. Still many more remain to be identified and described. Attempts are made to conserve them in ex-situ and in-situ situations. Intellectual property rights (IPRs) have become important in a biodiversity-rich country like India to protect microbes, plants and animals that have useful genetic properties. Destruction of habitats, over-use of energy resource and environmental pollution has been found to be responsible for the loss of a large number of life-forms. It is feared that a large proportion of life on earth may get wiped out in the near future.

In spite of the deteriorating status of the environment, study of environment has so far not received adequate attention in our academic programme. Recognizing this, the Hon'ble Supreme Court directed the UGC to introduce a basic course on environment at every level in college education. Accordingly, the matter was considered by UGC and it was decided that a

six months compulsory core module course in environmental studies may be prepared and compulsorily implemented in all the University/Colleges of India.

The syllabus of environmental studies includes five modules including human rights. The first two modules are purely environmental studies according to the UGC directions. The second two modules are strictly related with the core subject and fifth module is for human rights.

OBJECTIVES

Environmental Education encourages students to research, investigate how and why things happen, and make their own decisions about complex environmental issues by developing and enhancing critical and creative thinking skills. It helps to foster a new generation of informed consumers, workers, as well as policy or decision makers.

Environmental Education helps students to understand how their decisions and actions affect the environment, builds knowledge and skills necessary to address complex environmental issues, as well as ways we can take action to keep our environment healthy and sustainable for the future. It encourages character building, and develops positive attitudes and values.

To develop the sense of awareness among the students about the environment and its various problems and to help the students in realizing the inter-relationship between man and environment and helps to protect the nature and natural resources.

To help the students in acquiring the basic knowledge about environment and the social norms that provides unity with environmental characteristics and create positive attitude about the environment.

Module I

(18 hours)

Unit 1: Multidisciplinary nature of environmental studies- Definition, scope and importance
Need for public awareness.

Unit 2: Natural Resources: Renewable and non-renewable resources: Natural resources and associated problems.

a) Forest resources: Use and over-exploitation, deforestation: case studies- Timber extraction, mining, dams and their effects on forest and tribal people.

b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams- benefits and problems.

c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources: case studies.

d) Food resources: World food problems - changes caused by agriculture and overgrazing - effects of modern agriculture – fertilizer & pesticide problems – water logging – salinity: case studies.

e) Energy resources: Growing energy needs - renewable and non-renewable energy sources - use of alternate energy sources: case studies.

f) Land resources: Land as a resource- land degradation - man induced landslides – soil

erosion and desertification.

Role of individual in conservation of natural resources- Equitable use of resources for sustainable lifestyles.

Unit3: Ecosystems

Concept of an ecosystem- Structure and function of an ecosystem- Producers, consumers and decomposers - Energy flow in the ecosystem.

Ecological succession- Food chains, food webs and ecological pyramids.

Introduction, types, characteristic features, structure and function of the given ecosystem- Forest ecosystem

Module II

(26 hours)

Unit1: Biodiversity and its conservation

Introduction - Bio-geographical classification of India

Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values.

India as a mega-diversity nation.

Hot-spots of biodiversity

Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts -

Endangered and endemic species of India

Unit2: Environmental Pollution

Definition - Causes, effects and control measures of: Air pollution - Water pollution - Soil pollution - Marine pollution - Noise pollution - Thermal pollution - Nuclear hazards
Solid Waste Management: Causes, effects and control measures of urban and industrial wastes

Role of an individual in prevention of pollution- Pollution case studies

Disaster management: floods, earthquake, cyclone and landslides

Unit3: Social Issues and the Environment

Urban problems related to energy- Water conservation, rain water harvesting, watershed management

Resettlement and rehabilitation of people: its problems and concerns: case studies

Environmental ethics: Issues and possible solutions

Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust: case studies - Consumerism and waste products

Environment Protection Act - Air (Prevention and Control of Pollution) Act - Water

(Prevention and Control of Pollution) Act- Wildlife Protection Act- Forest Conservation Act

Issues involved in enforcement of environmental legislation- Public awareness

Module III

(10 hours)

Jean Giono: *The Man Who Planted Trees*

K. Satchitanandan: Hiroshima Remembered

Module IV

(10hours)

Bessie Head: Heaven is not Closed

Safdar Hashmi: Machine

Module V

(26hours)

Unit1: Human Rights

An Introduction to Human Rights: Meaning, concept and development-Three Generations of Human Rights (Civil and Political Rights, Economic, Social and Cultural Rights).

Unit2: Human Rights and United Nations

Contributions, main human rights related organs -UNESCO, UNICEF, WHO, ILO, Declarations for women and children, Universal Declaration of Human Rights.

Human Rights in India –Fundamental rights and Indian Constitution, Rights for children and women, Scheduled Castes, Scheduled Tribes, Other Backward Castes and Minorities

Unit3: Environment and Human

Rights Right to Clean Environment and Public Safety

Issues of Industrial Pollution- Prevention, Rehabilitation and Safety Aspect of New Technologies such as Chemical and Nuclear Technologies -Issues of Waste Disposal - Protection of Environment

Conservation of natural resources and human rights: Reports, Case studies and policy formulation.

Conservation issues of Western Ghats: Mention Gadgil committee report, Kasthuri Rangan report.

Over-exploitation of ground water resources, marine fisheries, sand mining, etc.

Internal: Field study

Visit to a local area to document environmental grassland/hill /mountain

Visit a local polluted site: Urban/Rural/Industrial/Agricultural Study of common plants, insects, birds, etc

Study of simple ecosystem: pond, river, hill slopes, etc

(Field work Equal to 5 lecture hours)

REFERENCES

Bharucha, Erach. *Text Book of Environmental Studies for Undergraduate Courses*. University Press, 2nd Edition 2013 (TB)

Clark, R. S. *Marine Pollution*, Oxford: Clarendon (Ref)

ChoiceBasedCourses

MAHATMAGANDHIUNIVERSITY

SYLLABIFORCHOICEBASEDCOURSES-UGPROGRAMMES

2017ADMISSIONSONWARDS

COURSE1–ComparativeLiterature

Course Code	EN6CBT01
Title of the course	ComparativeLiterature
Semesterinwhichthecourseistobe taught	6
No. of credits	4
No. of contact hours	72

AIMOFTHECOURSE

To introducethe student to the various conceptsrelating to comparative studyof literature and to promote an international approach to the studyof literature.

OBJECTIVESOFTHECOURSE

On completion of the course, the student should beable to:

1. Develop strategies andmethodologies in thestudyof literatures in comparison.
2. Undertake a methodological investigation of problems involving morethan one literature so that she/he mayacquire a broader sense of literaryhistoryand tradition.
3. Criticallyanalyze literarytexts in a broader perspective of WorldLiterature. .

COURSEOUTLINE

Module1[ThemesandContexts] (18hours)

K. M. Krishnan: _Introduction‘in the anthology*BetweentheLines*

Susan Bassnett: _Whatis Comparative Literature

Today‘ from*ComparativeLiterature:AnIntroduction*

Module2[Envisioning] (18hours)

PartA:Writing

Ted Hughes: The Thought Fox

Seamus Heaney: Personal Helicon

PartB:DeathWish

Sylvia Plath: Tulips

DorothyParker: Resume

PartC:Hamlets

Anna Akhmatova: Reading Hamlet

C. P. Cavafy: KingClaudius

Salman Rushdie: Yorick

Module3[Nuance]

(18hours)

PartA:Myth

Rabindranath Tagore: KarnaKuntiSamvadG.

Sankarapilla: WingsFlapping, Somewhere

PartB:Sleuthing

Arthur Conan Doyle: The Adventureof theBlue Carbuncle

V. K. N.: Sherlock Holmes

Module4[Motif]

(18Hours)

Carlo Collodi: The Adventures of Pinocchio

Nikolai Gogol : The Nose

Vaikom Muhammad Basheer: TheWorld Renowned Nose

CoreText:ComparativeLiterature

MAHATMAGANDHIUNIVERSITY
SYLLABIFORCORECOURSES-UGPROGRAMMES
2017ADMISSIONSONWARDS
COURSE12–AmericanLiterature

Course Code	EN6CR12
Title of the course	AmericanLiterature
Semesterinwhichthecourseistobe taught	6
No. of credits	4
No. of contact hours	90

AIMOFTHECOURSE

To enable the students to have a holistic understanding of the heterogeneity of American culture and to study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts.

OBJECTIVESOFTHECOURSE

At the end of the course, the student shall be:

1. familiar with the evolution of various literary movements in American literature.
2. acquainted with the major authors in American Literary History.

COURSEOUTLINE

Module1[Prose] (18hours)

M. H Abrams: Periods of American Literature in *A Glossary of Literary Terms*
 Robert E. Spiller: The Last Frontier in *The Cycle of American Literature* Ralph
 Waldo Emerson: Gifts
 James Baldwin: If Black English isn't Language, then Tell me, What is?

Module2[Poetry] (18hours)

Walt Whitman: I Hear America Singing
 Emily Dickinson: I dwell in Possibility
 Robert Frost: Love and a Question
 e. e. cummings: Let's Live Suddenly without Thinking
 Langston Hughes: Let America be America Again
 Allen Ginsberg: A Supermarket in
 California Adrienne Rich: In a Classroom

Marianne Moore: Poetry

Module3[ShortStory]

(18hours)

Nathaniel Hawthorne: My Kinsman, Major Molineux

Edgar Allan Poe: The Purloined Letter

Mark Twain: How I Edited an Agricultural Paper

Leslie Marmon Silko: Lullaby

Kate Chopin: A Respectable Woman

Module4[Drama]

(18hours)

Arthur Miller: *The Crucible*

Module5[Novel]

(18hours)

Harper Lee: *To Kill a Mockingbird*

Core Text: American Literature

MAHATMAGANDHIUNIVERSITY
SYLLABIFORCORECOURSES-UGPROGRAMMES
2017ADMISSIONSONWARDS
COURSE11–WomenWriting

Course Code	EN6CRT11
Title of the course	WomenWriting
Semesterinwhichthecourseistobe taught	6
No. of credits	4
No. of contact hours	90

AIMOFTHECOURSE

To introducethe theoretical and literaryresponsesbywomen and the concerns that govern feminist literature.

OBJECTIVESOFTHECOURSE

On completion of the course, the students will be able to:

1. critically respond to literature from a feminist perspective.
2. realize how the patriarchal notions pervade in the social and cultural scenario and how feminism exposes these notions.
3. identifyhow stereotypical representations of women were constructed and how theseare subverted byfeminist writing

COURSEOUTLINE

Module1[Essays]

(36hours)

BettyFriedan: TheProblem that has No Name (Chapter1 of *TheFeminineMystique*)

ElaineShowalter: Towards a Feminist Poetics

PatriciaHill Collins:Mammies, Matriarchs and Other Controlling Images (Chapter 4 of *BlackFeministThought*pp. 79-84

Module2[Poetry]

(18hours)

Anna Akhmatova: Lot's Wife

Mamta Kalia: After Eight Years of Marriage
Julia Alvarez: Women's Work
Meena Alexander: House of a Thousand Doors
Sutapa Bhattacharya: Draupadi
Kristine Batey: Lot's Wife
Vijayalakshmi: Bhagavatha

Module 3 [Short Fiction]

(18 hours)

Charlotte Perkins Gilman: The Yellow Wallpaper
Willa Cather: A Wagner Matinee
Isabel Allende: And of the Clay We Created
Sara Joseph: The Passion of Mary

Module 4 [Fiction]

(18 hours)

Alice Walker: *The Color Purple*

Core Text: Women Writing

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR POST GRADUATE PROGRAMMES IN

M.A ENGLISH

UNDER CREDIT AND SEMESTER SYSTEM (PG CSS) 2019

2019 ADMISSIONS ONWARDS

7. THE PROGRAMME STRUCTURE

Course Code	Title of the Course	Type of the Course	Hours per week	Credits
FIRST SEMESTER				
EN010101	Up Until Chaucer: Early Literatures in English	CORE	5	4
EN010102	Literatures of the English Renaissance	CORE	5	4
EN010103	Literatures of the English Revolution/ Enlightenment	CORE	5	4
EN010104	19 th Century English Literatures	CORE	5	4
EN010105	Literary Criticism	CORE	5	4
SECOND SEMESTER				
EN010201	Modernity and Modernisms	CORE	5	4
EN010202	Postmodernism and Beyond	CORE	5	4
EN010203	American Literatures	CORE	5	4
EN010204	English Language History and Contemporary Linguistics	CORE	5	4
EN010205	Thinking Theory	CORE	5	4
THIRD SEMESTER				
EN010301	Reading India	CORE	5	4
EN010302	Post Colonial Fiction	CORE	5	4
EN010303	Body, Text and Performance	CORE	5	4
EN010304	Literature and Gender	CORE	5	3
EN010305	Ethics in/as Literature	CORE	5	3
FOURTH SEMESTER				
EN010401	Cultural Studies	CORE	5	4
EN010402	Post Colonial Poetry	CORE	5	3
	<Elective>	ELECTIVE	5	3
	<Elective>	ELECTIVE	5	3
	<Elective>	ELECTIVE	5	3
Project				3
Viva				2
National/ International Seminar (Presented in any one of the semesters)				1

ELECTIVES

+3 Electives [Choose **One** from the **Four Clusters** given below]:

Cluster 1	Cluster 2	Cluster 3	Cluster 4
18. Post Colonial Theatres - [EN800401]	21. Trauma Narratives and Memory [EN810401]	24. Modern European Fiction [EN820401]	27. English Language Teaching (ELT) [EN830401]
19. Shakespeare Across Cultures [EN800402]	22. The Island in Literature [EN810402]	25. Modern European Drama [EN820402]	28. Translation Studies [EN830402]
20. Public Domain Writings [EN800403]	23. Literature and Film [EN810403]	26. Indian Poetics: Theories and Texts [EN820403]	29. Dalit Studies [EN830403]

Special Note:

Quite a few of the papers whose syllabi are given below have a special interim section titled ‘**Specific Additional Readings**’ that comes before the final ‘**Texts for Consultation**’ lists. The teachers/facilitators and the learners/students are hereby entreated to seriously treat this section as a ‘**resource-pool/tool-kit**’ that is specifically oriented towards the texts included within the ambit of the respective papers.

Semester 1 - Core Course 2:
[EN010102] -Literatures of the English Renaissance

Total Credits: 4

Total Hours: 25

Weightage:

Objectives:The course is designed to familiarise the students with the literature, thought and culture of the Renaissance period in England, a historical watershed marking the transition from the medieval to the modern. It is also designed as a theoretical/critical reading of the era and the texts in the light of recent theoretical interventions like New Historicism and Cultural Materialism which had a special interest in Renaissance texts. Representative works of the period have been selected with a view to instilling in the students a capacity to appreciate Renaissance writings bearing the stamp of radical changes in the outlook and ways of life.

Course Description:The course comprising major genres like Drama, Poetry and Prose provides an introduction to the literature of the English Renaissance studied in a variety of historical contexts and discusses how the confluence of social, political and economic forces culminated in conditions conducive to the creation of an impressive volume of literature. It highlights how literary luminaries like William Shakespeare and Christopher Marlowe emerged and influenced each other leaving their mark on their own time and the time to come. The completion of the course has to enable the students to imbibe the true spirit of Renaissance and Humanism making them capable of identifying the relationship between Renaissance writings and its socio-political context.

Module I:

- 1.1 Wilson Knight: “The Shakespearean Metaphysic” Chapter 13 of *The Wheel of Fire*.
- 1.2 Jonathan Dollimore and Allan Sinfield: “Culture and Textuality: Debating Cultural Materialism” *Textual Practice*, vol 4, 1990
- 1.3 Stephen Greenblatt: “Improvisation of Power”, Chapter 6 of *Renaissance Self Fashioning*.

Module 2:

- 2.1 William Shakespeare: *Hamlet*
- 2.2 “Hamlet and His Problems” Essay by T.S. Eliot

Seminar:

- 2.3 William Shakespeare: *The Tempest*

Module 3:

- 3.1 William Shakespeare: *Hamlet*
- 3.2 “A Psycho-analytic Study of Hamlet” Essay by Ernest Jones

Seminar:

3.3 William Shakespeare: *King Henry IV Part I*

Module 4:

4.1 Christopher Marlowe: *Doctor Faustus*

4.2 Ben Jonson: *The Alchemist*

Seminar:

4.3 Thomas Kyd: *The Spanish Tragedy*

Module 5:

5.1 William Shakespeare: Sonnets - 18, 73, 98, 129

5.2 Edmund Spenser: *Prothalamion*

5.3 John Donne: *Canonization*

5.4 Andrew Marvell: *To his Coy Mistress*

5.5 Francis Bacon: *Of Studies, Of Marriage and Single Life*

Seminar:

5.6 Thomas More: *Utopia*

Texts for Consultation

1. J.R. Brown: *Discovering Shakespeare*
2. EMW Tillyard: *Shakespeare's Last Plays*
3. A C Bradley: *Shakespearean Tragedy*
4. Harold Bloom: *Elizabethan Drama*
5. John Dover Wilson: *What Happens in Hamlet*
6. G. Wilson Knight: *The Imperial Theme*
7. Caroline Spurgeon: *Shakespearean Imagery*
8. Jocelyn Hunt: *The Renaissance*
9. Graham Holderness: *Nine Lives of Shakespeare*
10. Terry Eagleton: *Shakespeare and His Age*
11. Ania Loomba: *Race, Gender and Renaissance Drama*
12. C. Marydass. *Shakespearean Aesthetics for University Wits*
13. John Fuller: *The Sonnet*

Semester 1 - Core Course 4:
[EN010104] -Nineteenth Century English Literatures

Total Credits: 4

Total Hours: 25

Weightage:

Objectives:

The course aims to familiarize students with the fundamental premises of the Romantic Movement and Victorian literature, their theoretical and ideological frameworks, and the major trends and offshoots across various genres. A rough time span of one and a half century which witnessed an initial flowering of Romanticism, followed by the rapid growth of industrialization, scientific thinking and materialism all of which find expression in the texts chosen for study.

Course Description:

The first module introduces the theoretical premises of the British Romantic Movement as well as the Victorian Age that chronologically follows the Romantic Era. The second module throws light on the historical significance of the Ode as a poetic form best suited to examine the subjective and individualistic imagination of the romantic poet which finds expression as most of the poems in this section are odes. The Third Module marks the shift to the Victorian Sensibility with increased attention being paid to the decline of the romantic sensibility, the growth of reason, ascent of materialism etc. The fourth module deals with the best novels in the English language while the last one focuses on prose and Drama

Module 1:

1.1C.M. Bowra: The Romantic Imagination

2.2Raymond Williams: “The Romantic Artist” *Culture and Society, 1780-1950*

3.3Isobel Armstrong: “Introduction: Rereading Victorian Poetry” *Victorian Poetry: Poetry, Poetic, politics*, London, 1993

Module 2:

2.1Wordsworth: Immortality Ode

2.2Coleridge: Dejection: An Ode

2.3Shelley: Ode to the Skylark

2.4 John Keats: Ode on a Grecian Urn

Seminar:

2.5William Blake: “The Tyger”, “The Lamb”

Module 3:

3.1Lord Tennyson: The Lotos Eaters

3.2Robert Browning: Andrea Del Sarto

3.3 Matthew Arnold: The Scholar Gypsy

3.4 D.G. Rossetti: The Blessed Damozel

Seminar:

3.5 Elizabeth Barrett Browning:

“If thou must love me”(Sonnet 14),

“When our two souls stand up erect and strong” (Sonnet 22)

Module 4:

4.1 Jane Austen: Mansfield Park

4.2 Charles Dickens: A Tale of Two Cities

4.3 Emily Bronte: Wuthering Heights

4.4 Thomas Hardy: Tess of the d’Urbervilles

Seminar:

4.5 Charlotte Bronte: Jane Eyre

Module 5:

5.1 Charles Lamb: Old China & “A Dissertation Upon A Roast Pig”

5.2 William Hazlitt: On Reading Old Books

5.3 Lytton Strachey: Thomas Arnold (From *Eminent Victorians*)

5.4 Oscar Wilde: The Importance of Being Earnest

Seminar:

5.6 Carlyle: Hero as Poet

Texts for Consultation:

1. M.H. Abrahms: *The Mirror and the Lamp*

2. C.M. Bowra: *The Romantic Imagination*

3. Duncan (ed): *A Companion to Romanticism*, Blackwell, 1998

4. Walter Allen: *The English Novel*

5. Terry Eagleton: *The English Novel: An Introduction*

6. Hugh Walker: *The English Essay and Essayists*

7. Graham Hough: *The Last Romantics*

8. Boris Ford (ed): *From Blake to Byron: The New Pelican Guide to English Literature* (Vol 5)

9. M.H. Abrams (ed); *English Romantic Poets: Modern Essays in Criticism*. OUP London, 1975

10. Harold Bloom: *The Visionary Company*, Cornell University Press, 1971

11. Patricia Meyer Spacks: *The Female Imagination*

12. Joseph Bristow (ed); *The Cambridge Companion to Victorian Poetry*, 2000

13. Dierdre David (ed): *The Cambridge Companion to Victorian Novel*, 2001

**Semester 2 – Core Course 8:
[EN010203] -American Literatures**

Total Credits: 4

Total Hours: 25

Weightage:

Course Objectives:

This course seeks to introduce the students to the most important branch of English literature belonging to the non- British tradition, The course attempts to provide detailed information to the student regarding the processes and texts chiefly responsible for the evolution of American Literature as a separate branch possessing characteristic features which sets it apart from others

Course Description:

To acquaint the students with some of the major conflicts, struggles and movements that are closely connected with the experiences of a group of people struggling to establish themselves as a nation

Module One:

- 1.1 Robert E. Spiller: “Architects of Culture: Edwards, Franklin, Jefferson” (Chapter 1 of *The Cycle of American Literature*)
- 1.2 Leslie Fiedler: *Love and Death in American Fiction* (Chapter I)
- 1.3 John Paul Pritchard: ‘The Early Nineteenth Century Cultural Scene’, chapter I of *Criticism in America* (3-13)

Module Two:

- 2.1 Edgar Allen Poe: “Raven”
- 2.2 Walt Whitman: “Out of the Cradle Endlessly Rocking”
- 2.3 Emily Dickinson:
 “The Soul Selects Her Own Society”
 “Success is Counted Sweetest”
 “Safe in Their Alabaster Chambers”
 “A Narrow Fellow in the Grass”
- 2.4 Robert Frost: “Birches”
- 2.5 Wallace Stevens: “The Emperor of Ice-cream”
- 2.6 Marge Tindal: “Cherokee Rose”
- 2.7 e. e. cummings : “Anybody Lived in a Pretty How Town”
- 2.8 Gloria Anzaluda: “To live in the Borderlands”

Seminar:

- 2.9 Edgar Allen Poe: “Philosophy of Competition”

Module Three:

3.1 Arthur Miller: *Death of a Salesman*

3.2 Eugene O'Neill: *Emperor Jones*

Seminar:

3.3 Amiri Baraka: *Dutchman*

Module Four:

4.1 Herman Melville : “Bartleby the Scrivener”

4.2 Nathaniel Hawthorne: “Young Goodman Brown”

4.3 Ernest Hemingway: “The Snows of Kilimanjaro”

4.4 Mark Twain: *Adventures of Huckleberry Finn*

4.5 Saul Bellow: *Herzog*

Seminar:

4.6 Susan Abulhawa: *Mornings in Jenin*

Module Five:

5.1 Ralph Waldo Emerson : “Self-Reliance”

5.2 Martin Luther King: “I Have A Dream”

5.3 Henry David Thoreau: *Walden* (Chapter 1 &2)

Seminar:

5.4 Ralph Ellison: *Invisible Man*

Texts for Consultation:

1. George Parker Anderson: *American Modernism*
2. Daniel Hoffman: *The Harvard Guide to Contemporary American Writing*
3. Linda Tihn Morser: *Contemporary Literature: 1970 to the Present*
4. Jennifer Ashton: *From Modernism to Postmodernism*
5. Alan Bilton: *An Introduction to Contemporary American Fiction*
6. Robert .E. Spiller: *The Cycle of American Literature*
7. F.O. Matthiessen: *The American Renaissance*
8. Marcus Cunliffe: *The Literature of the United States*
9. Ihab Hassan: *Radical Innocence*
10. Paul .C. Conkins: *Puritans and Pragmatists*
11. C. W. Bigsby: *Modern American Drama 1945- 2000*
12. Leslie. A. Fiedler: *Love and Death in the American Novel*

Semester 2– Core Course 7:
[EN010202] –Postmodernism and Beyond

Total Credits: 4

Total Hours: 25

Weightage:

Objectives: This course aims to acquaint the learners with the postmodern works of literature which defy categorisation and prove to be experimental in nature, subverting what is conventionally revered as the norm. The learners are to be familiarised with the eclectic dimensions of postmodern thought as reflected in these literary works in which the boundaries that demarcate the different genres are often blurred. Such literature eludes fitting into the rigid frames of nomenclature and rejects the concepts of objectivity, absolute truth and the notion of the stratification into the high and the low culture. Further, it is keenly perceptive and critical of the underlying ideologies that nurture oppressive institutions. The emphasis is on acknowledging the heterogeneity of thought and articulation.

Course Description: Module I familiarises the learners with the theoretical concepts of postmodernism drawing upon Jean Francois Lyotard’s notions. Barry Lewis’s essay dwells on the stylistic aspects of postmodern literature. Jeffrey T. Nealon’s “Preface” considers the concept of post-postmodernism and briefly explores the current scenario. The second module offers a compilation of the diverse postmodern poetry by Frank O’Hara, John Ashberry, Tony Harrison, Michael Palmer, Allen Ginsberg, Carol Ann Duffy and Adrienne Rich. The third and the fourth modules present novels by writers from Kurt Vonnegut to William Gibson, which facilitate the learners to trace the evolution of postmodern fiction over the decades with its culmination in the cyberpunk. The fifth module presents postmodern plays by Edward Bond, Sam Shepard and Tom Stoppard, which employ significant themes and novel techniques.

Module 1:

- 1.1 Jean Francois Lyotard: “Answering the Question: What is Postmodernism?” from *The Postmodern Condition: A Report on Knowledge*. Trans. Regis Durand (pp.71-82)
- 1.2 Barry Lewis: “Postmodernism and Literature (or: Word Salad Days, 1960-1990)” from *The Routledge Companion to Postmodernism*. Ed. Stuart Sim (pp. 121-133)
- 1.3 Jeffrey T. Nealon: “Why Post-Postmodernism?” Preface to *Post-Postmodernism: Or, The Cultural Logic of Just-in-Time Capitalism* (ix-xii)

Module 2:

- 2.1 Frank O’Hara : “The Day Lady Died”
- 2.2 John Ashberry : “But What Is the Reader to Make of This”

2.3 Tony Harrison : “National Trust”

2.4 Michael Palmer : “Sun”

Seminar:

2.5 Allen Ginsberg : “Homework”

2.6 Carol Ann Duffy : “Anne Hathaway”

2.7 Adrienne Rich : “Diving into the Wreck”

Module 3:

3.1 Kurt Vonnegut: *Slaughterhouse- Five*

3.2 John Fowles : *The French Lieutenant’s Woman*

Seminar:

3.3 Milan Kundera: *The Joke*

Module 4:

4.1 Angela Carter: *Nights at the Circus*

4.2 Ishmael Reed: *Mumbo Jumbo*

Seminar:

4.3 William Gibson: *Neuromancer*

Module 5:

5.1 Edward Bond: *Lear*

5.2 Sam Shepard: *The God of Hell*

Seminar:

5.3 Tom Stoppard: *Arcadia*

Specific Background Reading:

1. Jonathan Holden: “Postmodern Poetic Form: A Theory” from *New England Review and BL Quarterly* Vol.6, No.1 (Autumn 1983), pp.1-22

2. Keith Booker: “Technology, History and the Postmodern Imagination: The Cyberpunk Fiction of William Gibson” from *Arizona Quarterly* Vol.50, No.4 (Winter 1994), pp.63-87

3. Bran Nicol: *The Cambridge Introduction to Postmodern Fiction*

4. Stephen Watt: *Postmodern/Drama: Reading the Contemporary Stage*

Semester 2 – Core Course 6:
[EN010201] – Modernity and Modernisms

Total Credits: 4

Total Hours: 25

Weightage:

Objectives:

To familiarize the students with the literary trends of the early twentieth century in the context of the sensibility of literary modernism in the wake of the World War.

Course description:

The course includes an introduction to the changed literary perspectives in the twentieth century, along with the social, economic and political background. Imperial expansion which had reached a boiling point, the onset of the World War I coupled with the attempts at creating a new world order remained some of the key issues. The impact of the Soviet experiment at the global level that needs to be read against the backdrop of the spread and influence of Marxism on a global scale calls for a radical review of world politics. This was followed by the rise of Fascism and Nazism, followed curiously by the shadow of doubt cast over communism. In the literary field reaction against Romanticism and Victorianism led to experimentation in writing in all genres. Starting from the poetry of World War I the movement traverses a wide range of concerns topics and forms of writing. The discussion also includes movements like the Avant Garde, the Pink Decade and so forth.

Module I:

1.1 Georg Lukacs: “The Ideology of Modernism”

1.2 Malcolm Bradbury and James McFarlane: “The Name and Nature of Modernism” (Ch. 1 of Modernism: A Guide to European Literature 1890-1930)

1.3 David Harvey: “Modernity and Modernism” [in David Harvey: The Condition of Postmodernity – An Enquiry into the Origins of Cultural Change (Blackwell); also available in Tim Middleton (ed.): Modernism – Critical Concepts in Literary and Cultural Studies (Routledge)]

Module 2:

2.1 G.M. Hopkins :The Windhover

2.2 Wilfred Owen :Strange Meeting

2.3 W.B. Yeats :Easter 1916

2.4 W.H. Auden :In Memory of W.B. Yeats

2.5 Dylan Thomas :Poem in October

2.6 Philip Larkin : Next, Please

Seminar:

2.7 Ted Hughes : Thrushes

Module 3:

2.1 T.S.Eliot : The Waste Land

Seminar:

2.2 Robert Graves : Ulysses

Module 4:

4.1 Bernard Shaw : The Apple Cart

4.2 Samuel Beckett : Waiting for Godot

Seminar:

4.3 J.M.Synge : Riders to the Sea

Module 5:

5.1 Virginia Woolf : Mrs. Dalloway

5.2 James Joyce : A Portrait of the Artist as Young Man

5.3 D.H.Lawrence : Rainbow

Seminar:

5.4 Joseph Conrad : Heart of Darkness

Texts for Consultation:

1. James Frazer: The Golden Bough
2. Frank Kermode: The Sense of an Ending: Studies in the Theory of Fiction
3. Malcolm Bradbury and James McFarlane: Modernism 1890-1930
4. D. H. Lawrence: Selected Literary Criticism
5. G M Hopkins: The Wreck of the Deutschland
6. George Orwell: 1984
7. Louis MacNiece: Snow
8. Tim Middleton (ed.): Modernism – Critical Concepts in Literary and Cultural Studies
Vols.1-5 (Routledge)]

**Semester 3 - Core Course 11:
[EN010301] -Reading India**

Total Credits: 4

Total Hours: 25

Weightage:

Objectives:

The course is intended to provide an insight to the historical, cultural and literary heritage of India by acquainting the students with major movements and figures of Indian literature in English. Questions of language, nation and aesthetics figure prominently among the objectives of this course.

Course Description:

The course explores the origin and growth of Indian writing in English especially in the colonial and post colonial context. Representative selections from all the four major genres of Poetry, Prose, Novel and Drama which highlight the evolution of the coloniser's language in the native soil, the differences in the thematic and stylistic aspects between the pre independence and post independence periods will be studied in detail. The problem of modernisation in Indian writing in English, the Diaspora and the quest for identity also will be focussed. A close study of select literary texts including translations of regional literatures is expected to acquaint the students with the cultural diversity of the country as well as the Indian philosophy reflected in these writings.

Module 1 [Essays]:

1.1 A.K. Ramanujan: "Is there an Indian Way of Thinking?"

1.2 P.P Raveendran: "Genealogies of Indian Literature". Economic and Political Weekly. Vol 41. No. 25. June 24-26, 2006. Pp 2558-2563.

1.3 Meenakshi Mukherjee: "The Anxiety of Indianness" in *The Perishable Empire*. PP 166-185.

Module 2 [Poems]:

2.1 Toru Dutt: Our Casuarina Tree

2.2 Sarojini Naidu: An Indian Lovesong

2.3 Rabindranath Tagore: The Child, *Gitanjali* (section 35)

2.4 Nissim Ezekiel: Minority Poem

2.5 K. Sachidanandan: How to go to the Tao Temple

2.6 Jayanta Mahapatra: The Whorehouse in a Calcutta Street

2.7 Kamala Das: The Old Playhouse

2.8 Ranjit Hosekote: Madman

2.9 C.P. Surendran: At the Family Court

Seminar:

- 2.10 Syed Amaruddin: *Don't Call Me Indo-Anglian*
 2.11 Sujata Bhatt: *Muliebrity*

Module 3 [Plays]:

- 3.1 Girish Karnad: *The Fire and the Rain*
 3.2 Mahesh Dattani: *Tara*

Seminar:

- 3.3 G.P. Deshpande: *A Man in Dark Times*

Module 4 [Fiction]:

- 4.1 R.K. Narayan: *The Guide*
 4.2 Salman Rushdie: *Midnight's Children*
 4.3 Amitav Ghosh: *The Shadow Lines*
 4.4 Arundhati Roy: *God of Small Things*

Seminar:

- 4.5 Living Smile Vidya: *I am Vidya: A Transgender's Journey*

Module 5 [Regional Writings]:

- 5.1 Bankim Chandra Chatterjee: *Ananda Math*
 5.2 U.R. Ananthamurthy: *Samskara*
 5.3 Anand: *Vyasa and Vigneshwara*
 5.4 Sharan Kumar Limbale: *Akkarmashi*

Seminar:

- 5.5 K.R. Meera: *Hangwoman*

Texts for Consultation:

1. K.R Sreenivasan Iyengar : *Indian writing in English*
2. Salman Rushdie: *Imaginary Homelands*
3. Meenakshi Mukherjee: *Twice Born Fiction : Indian Novel in English*
4. Rajeswari Sunder Rajan: *Lie of the Land*
5. Susie Tharu: *Subject to Change: Teaching Literature in the Nineties*
6. Ashish Nandi: *The Intimate Enemy*
7. G N Devy: *After Amnesia*
8. Sujit Mukherjee: *Translation as Discovery*
9. R. Pardhasaradhy (ed.): *Ten Twentieth Century Indian Poets*
10. A K Mehrotra (ed.): *An Illustrated History of Indian Literature in English*
11. Eunice D' Souza (ed.): *Nine Indian Women Poets: an Anthology*
12. M.K.Naik: *Aspects of Indian Writing in English*

**Semester 3 - Core Course 12:
[EN010302]-Postcolonial Fiction**

Total Credits: 4

Total Hours: 25

Weightage:

Objectives:

To introduce the students to the discursive nature of colonialism, and the counter-discursive impulses of postcolonial theory, narratives and texts.

Course Description:

The course attempts to cover through representative texts the writing, reading and critical-theoretical practices based on the (post)colonial experience. While a segment of the course addresses the consequences of European expansion and the creation and exploitation of the 'other' worlds, the course also addresses 'internal colonisations' of diverse kinds.

Module 1 is a conceptual orientation; it includes extracts from three of the 'seminal' writings on what 'postcoloniality' is all about.

Module 2 is India-specific; it has a slight slant towards 'hybridity' 'spectrality' and 'subalternity' - as the texts by Gayatri Spivak, Homi Bhabha, Salman Rushdie, and C Ayyappan would amply attest.

Module 3 is a choice take on West Asia; alongside the unavoidable Edward Said, this section tries to tease out a familiarity with 'Arabic' literature as it engages itself in postcolonial concerns.

Module 4 is on Africa. It might appear that this section is in a curious sense 'patriarchal'! However, the selection-choice has to do with the weight of cultural capital that these authors bring, and also the understanding that non-male voices have adequate representation in other courses within the same syllabus.

Module 5 is on South America/Caribbean. Here the effort is to try and wrench this writing corpus from the analytical frame that reduces it to the Magic Realist/Fabulist mode.

Module 1 [Conceptual]:

- 1.1 Bill Ashcroft, Gareth Griffiths & Helen Tiffin: "Cutting the Ground: Critical Models of Post-Colonial Literatures" in *The Empire Writes Back: Theory and Practice in Post-Colonial Literatures*. Routledge, 1989. (Chapter 1 PP.15-37)
- 2.2 Dipesh Chakrabarty: "Introduction: The Idea of Provincialising Europe" in *Provincialising Europe: Postcolonial Thought and Historical Difference*
- 3.3 Ania Loomba: "Feminism, Nationalism and Postcolonialism" in *Colonialism/Postcolonialism*

Module 2 [India]:

- 2.1 Homi K. Bhabha: "Of Mimicry and Man: The Ambivalence of Colonial Discourse" in Homi K. Bhabha. *Location of Culture*. Routledge, 1994. (PP.85-92)
- 2.2 Gayatri Chakravorty Spivak: "The Burden of English" in Gregory Castle (ed) *Postcolonial Discourses: An Anthology*

Seminar:

- 2.3 Salman Rushdie: *East, West* [“The Prophet’s Hair” & “Yorick”]
 2.4C Ayyappan: “Spectral Speech” & “Madness” [V. C. Harris translation...]

Module 3 [West Asia]:

- 3.1 Edward W. Said: “Narrative and Social Space” in *Culture and Imperialism*
 3.2 Tayeb Salih: *Season of Migration to the North*

Seminar:

- 3.3 Assia Djebar: *Women of Algiers in Their Apartment* [“Day of Ramadan”]
 3.4 Najwa Qa’war Farah: *For Whom Does Spring Come* [“The Worst of Two Choices or The Forsaken Olive Trees”]
 3.5 Khayriyah Ibrahim as-Saqqaf: “The Assassination of Light at the River’s Flow”

Module 4 [Africa]:

- 4.1 Frantz Fanon: “On National Culture” in *The Wretched of the Earth*.
 4.2 Chinua Achebe: “An Image of Africa: Racism in Conrad’s *Heart of Darkness*” in *Hopes and Impediments*.

Seminar:

- 4.3 Ngugi wa Thiong’o: *Secret Lives and Other Stories* [“Minutes of Glory”] & Hellen Nyana [“Waiting”]
 4.4 J.M. Coetzee: *Waiting for the Barbarians*

Module 5 [Americas/Carribbean]:

- 5.1 José Rabasa: Allegories of Atlas in *The Postcolonial Studies Reader*
 5.2 Juan Rulfo: *Pedro Páramo*

Seminar:

- 5.3 Clarice Lispector (Brazil): “Looking for Some Dignity” & Maria Virginia Estenssoro (Bolivia): “The Child That Never Was” in Celia Correás de Zapata (ed): *Short Stories by Latin American Women: The Magic and the Real*
 5.4 Jean Rhys: *Wide Sargasso Sea*.

Specific Additional Readings:

1. Wail S. Hassan: “Postcolonial Theory and Modern Arabic Literature: Horizons of Application”, *Journal of Arabic Literature*, Vol. 33, No. 1 (2002), pp. 45-64
2. Wail S. Hassan: “Postcolonialism and Modern Arabic Literature: Twenty-First Century Horizons” in Anna Ball, Karim Mattar (eds): *The Edinburgh Companion to the Postcolonial Middle East*
3. Graham Holderness: “Arab Shakespeare: Sulayman Al-Bassam’s *The Al-Hamlet Summit*”, *Culture, Language and Representation*, Vol IV, 2007, pp. 141-150
4. Graham Huggan: “Decolonizing the Map” in *The Postcolonial Studies Reader*
5. Gayatri Chakravorty Spivak: “A Literary Representation of the Subaltern” in *In Other Worlds/ Subaltern Studies 5*
6. Gayatri Chakravorty Spivak: “Can the Subaltern Speak?”

**Semester 3 - Core Course 13:
[EN010303] -Body, Text and Performance**

Total Credits: 4
Total Hours: 25
Weightage:

Objectives:

The objectives of the course include facilitating an understanding of the basic structural, thematic and theoretical patterns which govern the poetic process, especially in its relation to the performative or the theatrical.

Course Description:

The interface between the verbal and the visual is the area under discussion here. Drama, Theatre, Body, Performance and performativity need to undergo close scrutiny here. The way the aspects of power and powerlessness are constructed and performed have to be analyzed. One cannot disregard the cinematic medium in a study of performance. Theatres, dealing with issues like gender, ethnicity, caste etc. need to be introduced. Anti-Aristotelian notions like Alienation Effect, modern dramatic modes like Comedy of Menace, the techniques of cinematic adaptations, etc. are also to be discussed in connection with the texts. Though seemingly different, Expressionism and similar modes of theatrical performance should be made part of classroom discussion. Other performance patterns like dance, performance in the form of gender/transgender/autobiography have also to be seriously considered within the gamut of this paper.

Module 1 [Theoretical]:

Discusses the theories of body, performance, gender, power needed for critical deliberations in the ensuing modules.

- 1.1 Richard Schechner: "What is Performance Studies?" & "What is Performance?"
(Performance Studies: An Introduction (Third Edition), Chapter 1, PP. 1-5 & Chapter 2, PP 28-31)
- 1.2 Judith Butler: Performative Acts and Gender Constitution: An Essay in Phenomenology and Feminist Theory (Theatre Journal, Vol.40 PP. 519-531)
- 1.3 Jen Pylypa: Power and Bodily Practice: Applying the Work of Foucault to an Anthropology of the Body (Arizona Anthropologist, Vol. 13, PP. 21-36, 1998.)

Module 2 [Desire]:

Here is desire dramatized in terms of expressive, subtle and didactic modes. The first play presents elements of Expressionism, the second gives an idea of Comedy of Menace, and the third introduces Epic Theatre, Alienation Effect and the musical Opera. They all speak about violence on the body and mind of desire in myriad forms.

- 2.1 Tennessee Williams: *A Street Car Named Desire*
- 2.2 Harold Pinter: *The Birthday Party*

Seminar:

2.3 Bertolt Brecht: *The Three-penny Opera*

Module 3 [Gender/Transgender]:

This module is about gender/transgender and its theatrical dimensions. “Lysistrata” provides a slice of the classical Greek comedy playing again in an arguably subversive mode the male gaze through feminine eyes. “Ruined” is set in Congo, a reworking on the lines of Brecht’s *Mother Courage*, yet surely a deviation, speaking about the horrors of rape at the time of an African civil war. “A Friend’s Story” mediates a love triangle involving a lesbian relation, set in Mumbai, at a time when homosexuality in India was a crime. “A Mouthful of Birds” is an ensemble of unnatural plots and theatrical performances, staged in an avant-garde fashion, discussing female violence and transgressions of gender norms through madness correlated with one another using themes from *The Bacchae* of Euripides.

3.1 Aristophanes: *Lysistrata*

3.2 Lynn Notage: *Ruined*

3.3 Vijay Tendulkar: *A Friend’s Story* (Mitrachi Goshta)

Seminar:

3.4 Caryl Churchill and David Lan: *A Mouthful of Birds*

Module 4 [Autobiography/Performance]:

Other performances in the sense of gender as performance: Isadora Duncan’s dance, seen through her autobiography- even autobiography as performance; a Bollywood sports biopic on Mary Kom; American Queer Theatre struggling to carve a niche in the popular Broadway as narrated through the personal experiences of playwright, performance artiste and gender theorist Kate Bornstein, an avowed gender non-conformist, along with her play that appears as a chapter of the autobiography.

4.1 Isadora Duncan: *My Life* (Autobiography)

4.2 Omung Kumar: *Mary Kom* (Biopic)

Seminar:

4.3 Kate Bornstein: *Queer Life/Queer Theatre & Hidden: A Gender, a play in two acts* (“Gender Outlaw: On Men, Women and the Rest of us”, Chapters 14 & 15, PP. 187-275) – (Autobiography)

Module 5 [Cinematic Dimensions; Race/Caste]:

Cinematic tellings/adaptations dealing with the issues of race, slavery and caste feature in this module. The problematizing of the binaries of villain and superhero, the black and the white etc., and the play and the critique of stereotypes are all ingredients which spice up the module. The debates are set to tone in the deftly crafted “Unbreakable” by the Indian-American Director Manoj Nellyyattu Shyamalan. William Shakespeare’s play *Othello* adapted into the Indian

**Semester 3 – Core Course 14:
[EN010304] -Literature and Gender**

Total Credits: 3

Total Hours: 25

Weightage:

Objectives:

The course seeks to highlight the historic, thematic and cultural concerns that literature attempts against the backdrop of gender issues. A theoretical framework is provided whereby gender issues are examined, paying special attention to the fundamental political, religious and social issues that shape gender relations, thereby viewing gender as a fluid rather than a mere fixed hetero-normative Male-Female concept.

Course Description:

The 'woman quotient' in Gender Studies is mapped in the first module where the concept of Masculinity which looms large in a patriarchal social order is also examined. The learner is taken on a poetic voyage through *écriture feminine* in the second module. The third section interrogates the social stakes involved in being a woman and addresses the issue of Gender and Community Identity. The fourth section addresses the problematic issues of Lesbian and Black identity. The last module is an exclusive study of the issue of patriarchal oppression portrayed in various Indian languages over the decades.

Module 1:

- 1.1 Elaine Showalter; "The Female Tradition" from *A Literature of their Own. (Feminisms: An Anthology of Literary Theory and Criticism* Ed. Robyn R. Warhol & Diane Price Herndl. pp 269-88)
- 1.2 Patricia Hill Collins: "The Power of Self-Definition". (*Black Feminist Thought* pp 107-32)
- 1.3 Susan Jeffords: "Masculinity as Excess in Vietnam Films: The Father/Son Dynamic of American Culture". (*Feminisms: An Anthology of Literary Theory and Criticism* Ed. Robyn R. Warhol & Diane Price Herndl 988-1010)

Module 2:

- 2.1 Sappho: Ode to Aphrodite
- 2.2 Auvaiyar: "Real Freedom"
- 2.3 Akka Mahadevi: "It was like a Stream"
- 2.4 Phyllis Wheatley: "On being brought from Africa to America"
- 2.5 Margaret Atwood: "Helen of Troy does Countertop Dancing"
- 2.6 Kamala Das: "An Introduction"
- 2.7 Imtiaz Dharker: "Purdah"

Seminar:

- 2.8 Taslima Nasrin: “Things Cheaply Had”
- 2.9 Kishwar Naheed: “The Grass Is Really Like Me”
- 2.10 Meena Kandaswamy: “Princess in Exile”
- 2.11 Meena Alexander: “Illiterate Heart”

Module 3:

- 3.1 Bapsi Sidwa: The Ice Candy Man
- 3.2 Sylvia Plath: The Bell Jar
- 3.3 Alice Walker: Color Purple

Seminar:

- 3.4 Virginia Woolf: The Hours

Module 4:

- 4.1 Revathy. A.: The Truth About Me: A Hijra Life Story
- 4.2 Maya Angelou: I know Why the Caged Bird Sings
- 4.3 Lorraine Hansberry: Raisin in the Sun

Seminar:

- 4.4 Chimamanda Adichie: “We should all be Feminists,” Ted talk,
(https://www.ted.com/talks/chimamanda_ngozi_a_dichie_we_should_all_be_feminists#t-181958)
- 4.5 Rebecca Walker: “Becoming the Third Wave” (United States 1992) { *The Essential Feminist Reader* Ed. Estelle. B. Freedman 397-401 }

Module 5:

- 5.1 Lalithambika Antharjanam: Pratikaradevatha (Transl. Gita Krishnankutty *Women Writing in India Vol: I*) (490-501)
- 5.2 Prathibha Ray: The Blanket (Transl. Jayanta Mahapatra. *Women Writing in India Vol: II*) (512-23)
- 5.3 Ajeet Cour: Dead End (*Speaking for Myself: An Anthology of Asian Women’s Writing*) (369-85)
- 5.4 Rokeya Sakhwat Hossain: Sultana’s Dream (*Women Writing in India Vol: I*) (342-351)
- 5.5 Hamsa Wadkar: I’m Telling You Listen (*Women Writing in India Vol: I*) (190-196)
- 5.6 Sajitha Madathil: Kaalinaadakam (Translated by Anand Haridas in *Indian Literature* No 303, January/February 2018, Vol LXI No. 1)
- 5.7 Susie Tharu & J. Lalitha: The Twentieth Century: Women Writing the Nation (43-78)

Seminar:

- 5.8 Sara Joseph: Black Chinks (Translated by J. Devika in *The Oxford Anthology of Modern Malayalam Literature* Ed. P. P. Raveendran & G. S. Jayasree) (280-88)
- 5.9 S. Sithara: Fire (Translated by Jayasree Ramakrishnan in *The Oxford Anthology of Modern Malayalam Literature* Ed. P. P. Raveendran & G. S. Jayasree) 393-98

Texts for Consultation:

1. Robyn R. Warhol & Diane Price Herndl (eds): *Feminisms: An Anthology of Literary Theory and Criticism*
 2. Estelle B. Freedman (ed): *The Essential Feminist Reader*
 3. Susie Tharu & J. Lalitha (ed): *Women Writing in India*, vols I & 2
 4. Patricia Hill Collins: *Black Feminist Thought*
 5. Sukrita Paul Kumar and Malashri Lal (eds): *Speaking for Myself: An Anthology of Asian Women's Writing*
 6. Shosanna Feldman; "Women and Madness: the Critical Fallacy" in *The Feminist Reader: Essays in Gender and the Politics of Literary Criticism*. Ed, Catherine Belsey & Jane Moo
 7. P. P. Raveendran & G. S. Jayasree Ed. *The Oxford Anthology of Modern Malayalam Literature (Vol I&II)*
 8. J. Devika: *En-gendering Individuals: The Language of Re-forming in Early Twentieth Century Keralam* (Orient Black Swan)
 9. Claire Colebrook: *Gender* (transitions - Gen Editor Julian Wolfreys)
 10. Toril Moi: *Sexual/Textual Politics*
 11. Simone de Beauvoir: *The Second Sex*
 12. Kate Millet: *Sexual Politics*
 13. Elaine Showalter: *A Literature of Their Own*
 14. Isobel Armstrong: *New Feminist Discourses*
 15. Judith Butler: "Imitation and Gender Insubordination" in Diana Fuss(ed) *Inside Out : Lesbian Theories*
 16. Helene Cixous: "The Laugh of the Medusa" in Elaine Marks & Isabelle de Courvitron (Ed) *New French Feminism*
 17. Monique Wittig: *The Straight Mind and Other Essays*
 18. Rebecca Walker: "How my mother's fanatical views tore us apart,"
<http://www.dailymail.co.uk/femail/article1021293/How-mothers-fanatical-feministviews-tore-apart-daughter-The-Color-Purpleauthor.html>
 19. Bell hooks: "Black Women Shaping Feminist Theory," *Feminist Theory: From Margin to Center*, 1984
 20. Virginia Woolf: "Professions for Women," in *Women and Writing & A Room of One's Own*
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**Semester 3 - Core Course 15:
[EN010305]-Ethics in/as Literature**

Total Credits: 3

Total Hours: 25

Weightage:

Course Objectives:

The main objective of this course is to familiarise the student with certain ‘ethics’ that narrative fiction has adopted across centuries, continents and languages. It is expected that the student will be introduced to the various ethical, formal choices that schools, influences and narrative devices have upheld so as to shape narrative fiction into its present expressive plurality.

Course Description:

Module 1 includes reading from some of the major theoretical interpretations of the narrative and narrative mores: Roland Barthes’ ‘Authors and Writers’, Milan Kundera’s ‘The Depreciated Legacy of Cervantes’, Orhan Pamuk’s Preface to *Tristram Shandy* and Franco Moretti’s “History of the Novel, Theory of the Novel”.

Module 2 takes a walk down the fabulist lane that stretches beyond what we usually understand as fictional/narrative realism: Miguel de Cervantes’s *Don Quixote (Part 2)*, Lawrence Sterne’s *Tristram Shandy*, Donald Barthelme’s post-modern reworking of the *Snow White* – fairy tale, Jorge Luis Borges’ ‘The Garden of Forking Paths’ and Gabriel Garcia Marquez’ ‘The Handsomest Drowned Man in the World’

Module 3 is an attempt to sample how fiction has dealt with the issue of disabilities at different levels. Starting with the perennial classic, Victor Hugo’s *The Hunchback of Notre-Dame*, the module also includes Nikos Kazantzakis’ *God’s Pauper: St Francis of Assisi*, José Saramago’s *Blindness*, W. Somerset Maugham’s ‘The Man with the Scar’ and Raymond Carver’s ‘Cathedral’

Module 4 is all about the environment – the natural and the human and the intersectionality between them. The module starts off with the phenomenal Malayalam work by Subhash Chandran, *A Preface to Man*, followed by Orhan Pamuk’s *Snow*, Margaret Atwood’s *Oryx and Crake*, J. M. Coetzee’s ‘The Lives of Animals’ and Mahasweta Devi’s ‘Dopti/Draupadi’

Module 5 looks into issues of Otherness, as it has been tackled by narrative fiction. The selection includes Fyodor Dostoyevsky’s *The Possessed*, Ama Ata Aidoo’s parody of Joseph Conrad’s *Heart of Darkness - Our Sister Killjoy*, Arundhati Roy’s *The Ministry of Utmost Happiness*, John Henrik Clarke’s ‘The Boy Who Painted Christ Black’ and the Malayalam Dalit masterpiece, Paul Chirakkarode’s ‘Eli Eli Lama Sabachthani?’ [My God, My God, Why Hast Thou Forsaken Me?]

Note: As is evident from a perusal of the syllabus, all the seminar fields have been assigned ‘short stories’; this is a tacit nod to acknowledging the trajectories which this ‘other’ prose fictional genre has traversed in the last two hundred odd years.

**Semester 3 - Core Course 15:
[EN010305]-Ethics in/as Literature**

Total Credits: 3

Total Hours: 25

Weightage:

Course Objectives:

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Note: As is evident from a perusal of the syllabus, all the seminar fields have been assigned 'short stories'; this is a tacit nod to acknowledging the trajectories which this 'other' prose fictional genre has traversed in the last two hundred odd years.

Module 1 [On Narrative Ethics]:

- 1.1 Roland Barthes: 'Authors and Writers' (*Critical Essays*)
- 1.2 Milan Kundera: 'The Depreciated Legacy of Cervantes' (Part 1 of: *The Art of the Novel*)
- 1.3 Orhan Pamuk: 'Everyone Should Have an Uncle Like This' (*Other Colours*)
- 1.4 Franco Moretti: "History of the Novel, Theory of the Novel" *New Left Review* 52, July-August 2008

Module 2 [Beyond Realism]:

- 2.1 Miguel de Cervantes: *Don Quixote (Part 2)* [Edith Grossman Translation]
 - 2.2 Lawrence Sterne: *Tristram Shandy*
 - 2.3 Donald Barthelme: *Snow White*
- Seminar:**
- 2.4 Jorge Luis Borges: 'The Garden of Forking Paths'
 - 2.5 Gabriel Garcia Marquez: 'The Handsomest Drowned Man in the World'

Module 3 [Disabilities]:

- 3.1 Victor Hugo: *The Hunchback of Notre-Dame*
 - 3.2 Nikos Kazantzakis: *God's Pauper: St Francis of Assisi*
 - 3.3 José Saramago: *Blindness*
- Seminar:**
- 3.4 W. Somerset Maugham: 'The Man with the Scar'
 - 3.5 Raymond Carver: 'Cathedral'

Module 4 [The Human (and the) Environment]:

- 4.1 Subhash Chandran: *A Preface to Man*
 - 4.2 Orhan Pamuk: *Snow*
 - 4.3 Margaret Atwood: *Oryx and Crake*
- Seminar:**
- 4.4 J. M. Coetzee: 'The Lives of Animals'
 - 4.5 Mahasweta Devi: 'Dopti/Draupadi'

Module 5 [Otherness]:

- 5.1 Fyodor Dostoyevsky: *The Possessed (The Devils/ Demons)*
 - 5.2 Ama Ata Aidoo: *Our Sister Killjoy*
 - 5.3 Arundhati Roy: *The Ministry of Utmost Happiness*
- Seminar:**
- 5.4 John Henrik Clarke: 'The Boy Who Painted Christ Black'
 - 5.5 Paul Chirakkarode: 'Eli Eli Lama Sabachthani?'

Specific Additional Readings:

1. Mark DeStephano on *Don Quixote*

2. Ignacio Arellano on *Don Quixote*
3. Oana-Roxana Ivan on *Tristram Shandy*
4. Daniel Thomières on *Tristram Shandy*
5. Shaghayegh Mohammadi on *Snow White*
6. Alina Leonte on *Snow White*
7. Gemma Curto on ‘Garden of Forking Paths’
8. Ethan Weed on ‘Garden of Forking Paths’
9. David Holland on *Marquez*
10. Anupa Lewis on *Marquez*
11. Fiona Whittington-Walsh on *Hunchback of Notre Dame*
12. Alex J Novikoff on *Hunchback of Notre Dame*
13. Frederick Sontag on Kazantzakis and St Francis
14. Paulo C Chagas on *Saramago*
15. Hayfa Chenini on *Saramago*
16. On –‘The Man with the Scar’
17. Ala Eddin Sadeq on Raymond Carver
18. Libe García Zarranz on Raymond Carver
19. Sandhya Suresh V on *A Preface to Man*
20. Jyothi lekshmi G on *A Preface to Man*
21. Alver Ahmet on Orhan Pamuk’s *Snow*
22. Pritha Mukherjee on Orhan Pamuk’s *Snow*
23. Beth Irwin on *Oryx and Crake*
24. Valeria Mosca on *Oryx and Crake*
25. Alan Northover on *Coetzee*
26. Wolfe on ‘Lives of Animals’
27. Huma Yaqub on *Mahasweta Devi*
28. Ranita Chakraborty on *Mahasweta Devi*
29. Eva M Meyersson on *Dostoevsky*
30. Christine Smoley on *Dostoevsky*
31. Lhoussain Simour on *Our Sister Killjoy*
32. Aisha Al Matari on *Our Sister Killjoy*
33. Alex Tickell on *Arundhati Roy*
34. Angelo Monaco on *Arundhati Roy*

Texts for Consultation:

1. Georg Lukacs: *The Theory of the Novel*
2. Lucien Goldmann: *Towards a Sociology of the Novel*
3. David Lodge: *The Art of Fiction*
4. Wayne C. Booth: *The Rhetoric of Fiction*
5. Patricia Waugh: *Metafiction*
6. Jeremy Hawthorn: *Studying the Novel*
7. Shlomith Rimmon-Kenan: *Narrative Fiction: Contemporary Poetics*

Semester 4 - Core Course 16:
[EN010401]-Cultural Studies

Total Credits: 3

Total Hours: 25

Weightage:

Objectives: To introduce students to certain interpretive strategies commonly employed in Cultural Studies. Emphasis is on overt interdisciplinary approaches to exploring how cultural processes and artifacts are produced, shaped, distributed, consumed, and responded to in diverse ways.

Course Description:

“It is —a tendency across disciplines rather than a discipline itself.” By transgressing disciplinary boundaries, Cultural Studies suggests a “remapping of the humanities.”

Module 1 is axiomatic in the sense that the 3 readings taken from Raymond Williams, Stuart Hall, and John Storey set the stage for the subsequent engagements.

Module 2 draws attention to the pervading cultural semiosis that one can discern in societies the world over. The readings from Guy Debord, R. Nandakumar, and David Forgacs offer ways by which one can understand the methodologies of representation and the decoding of such social signs as such.

Module 3 is all about the different modes that Lifestyles assume. The readings from Michel de Certeau, Pierre Bourdieu, and George Simmel offer means by which we can and ‘read’ the various negotiations of socio-cultural identities.

Module 4 is the terrain of ‘Homo Ludens’ – the playing human. The writings of Roland Barthes, Abilash Nalapat/Andrew Parker, and Amanda Roth/Susan A. Basow draw attention to the poetics and politics of sports-as-myth.

Module 5 is an assemblage that can be termed ‘Manifestoes.’ The readings from Arjun Appadurai, Achille Mbembe, and *Jacques Rancière* form an inter-textual deep-play network that constellates to draw attention to the horizon of cultural certitudes, expectations and anxieties that deserve thorough academic scrutiny.

Module 1 [Axioms]:

1.1 Raymond Williams: “The Analysis of Culture”

1.2 Stuart Hall: “The Emergence of Cultural Studies and the Crisis of the Humanities.”

1.3 John Storey: “What is Popular Culture?” (pp 1-16 in *Cultural Theory and Popular Culture*)

Module 2 [Representations]:

2.1 Guy Debord: “The Commodity as Spectacle.”

2.2 R Nandakumar: “The Missing Male: The Female Figures of Ravi Varma and the Concepts of Family, Marriage and Fatherhood in Nineteenth century Kerala” (*South Indian Studies*, No.1, Jan-June, 1996)

Seminar:

2.3 David Forgacs: “National-popular: Genealogy of a concept” in Simon During (ed) *The Cultural Studies Reader*.

Module 3 [Lifestyles]:

3.1 Michel de Certeau: “Walking in the City” in Simon During (ed) *The Cultural Studies Reader*.

3.2 Pierre Bourdieu: “Distinction: A Social Critique of the Judgement of Taste” in Carole Counihan and Penny van Esterik (eds), *Food and Culture: A Reader*, Routledge, 2013, pp 31-40

Seminar:

3.3 George Simmel: “Fashion”

Module 4 [Homo Ludens]:

4.1 Roland Barthes: ‘The World of Wrestling’ (From *Mythologies*, selected and translated by Annette Kavers, London, Jonathan Cape, 1972)

4.2 Abilash Nalapat and Andrew Parker: ‘Sport, Celebrity and Popular Culture: Sachin Tendulkar, Cricket and Indian Nationalisms.’

Seminar:

4.3 Amanda Roth & Susan A. Basow: ‘Femininity, Sports, and Feminism.’

Module 5 [Manifestoes]:

5.1 Arjun Appadurai: ‘The Thing Itself’

5.2 Achille Mbembe: ‘Necropolitics’

Seminar:

5.3 Jacques Rancière: ‘Preface to *Proletarian Nights*’

Specific Additional Readings:

1. Raymond Williams: “Culture is Ordinary” (*Resources of Hope: Culture, Democracy, Socialism*)

2. Stuart Hall: “Cultural Studies: Two Paradigms” (*Media, Culture and Society* vol.2)

3. Simon During: “Postmodernism or Post-colonialism Today” (in Bill Ashcroft et al: *The Post-colonial Studies Reader*)

4. Chandra Mukerji & Michael Schudson: “Introduction: Rethinking Popular Culture.” in *Rethinking Popular Culture: Contemporary Perspectives in Cultural Studies*. Berkeley: University of California Press, 1991.

5. Simon During: ‘Value’ in Simon During: *Cultural Studies: A Critical Introduction*. London; New York: Routledge (2005)

6. Susan Sontag: *On Photography*

7. Janet Murray: *Hamlet On the Holodeck*. New York: Free Press, 1997. Pp. 273-283.

8. Bhaskar Mukhopadhyay: “Cultural Studies and Politics in India Today,” *Theory Culture Society*, 2006 (SAGE, London, Thousand Oaks and New Delhi), Vol. 23(7–8): 279–292

9. Ashis Nandy: "Introduction: Indian Popular Cinema as a Slum's Eye View of Politics" in *The Secret Politics of Our Desires: Innocence Culpability and Indian Popular Cinema*, Ashis Nandy (ed) Delhi: OUP, 1998)
10. John Fiske: "The Signs of Television."
11. Pierre Bourdieu: 'How can one be a sports fan?'
12. Udayakumar: "Autobiography as a Way of Writing History: Personal Narratives from Kerala and the Inhabitation of Modernity" (in *History in the Vernacular*, eds. Partha Chatterjee and Raziuddin Aquil, Delhi: Permanent Black, 2008.)
13. Raadhika Gupta: 'Bowled Out of the Game: Nationalism and Gender Equality in Indian Cricket.'
14. Lorenzo Magnani: 'Ritual Artifacts as Symbolic Habits.'
15. Arjun Appadurai: 'Playing with Modernity: The Decolonization of Indian Cricket.'
16. Arjun Appadurai: 'Architecture and Amnesia in Indian Modernity.'
17. Roland Barthes: "Rhetoric of the image." *Image, Music. Text.*
18. Jacques Lacan: "Sign, Symbol, Imagery." *On Sign.* Ed. Marshall Blonsky.
19. John Fiske: "Television Culture" *Literary Theory: An Anthology.* (Rivkin and Ryan).
20. Raymond Williams. *Television; Technology and Cultural Form.*
21. Ann Keplan: "Feminist Criticism and Television" from *Channels of Discourse Reassembled* (Robert Allen)
22. Aravind Rajagopal: "Hindu Nationalism and the Cultural Forms of Indian Politics."
23. Carole M. Cusack: "The Gods on Television: Ramanand Sagar's Ramayan", in *Politics and Popular Piety in Late Twentieth-Century India* by Alex Norman and Cusack, 2012.
24. Aarttee Kaul Dhar: "The Ramayana and Sita in Films and Popular Media: The Repositioning of a Globalised Version" in *The Return of the Epic Film*,
25. Prabha Krishnan: "In the Idiom of Loss: Ideology of Motherhood in Television Serials." *Economic and Political Weekly* 25, no. 42/43 (1990): WS103–16.
26. ShantiKumar: *Gandhi Meets Primetime: Globalization and Nationalism in Indian Television* Chicago: University of Illinois Press, 2006.
27. Purnima Mankekar: *Screening Culture, Viewing Politics: An Ethnography of Television, Womanhood, and Nation in Postcolonial India.* Durham: Duke University Press, 1999.
28. Clifford Geertz: 'The Balinese Cockfight.'
29. Helena Tolvhed : 'Sex Dilemmas, Amazons and Cyborgs: Feminist Cultural Studies and Sport.'

Texts for Consultation:

1. Theodor Adorno: *The Culture Industry: Selected Essays on Mass Culture* (ed., with intro.), J.M. Bernstein. London: Routledge (1991)
2. Elaine Baldwin: *Introducing Cultural Studies.* New York: Pearson/Prentice Hall (2004)
3. Roland Barthes: *Mythologies.* London: Paladin (1973)
4. Catherine Belsey: *Culture and the Real: Theorizing Cultural Criticism* London; New York: Routledge (2005)

5. Walter Benjamin, W.: *Illuminations*. New York: Schocken Books (1968)
 6. Tony Bennett, L. Grossberg: *New Keywords: A Revised Vocabulary of Culture and Society*. Blackwell (2005)
 7. Tony Bennett: *Outside Literature*. London: Routledge (1990)
 8. Pierre Bourdieu: *The Field of Cultural Production*. Cambridge: Polity Press (1993)
 9. Simon During (ed.): *The Cultural Studies Reader*. London: Routledge (1993)
 10. Simon During: *Cultural Studies: A Critical Introduction*. London; New York: Routledge (2005)
 11. Antony Easthope: *Literary into Cultural Studies*. London: Routledge (1991)
 12. Antony Easthope: *A Critical and Cultural Theory Reader*. Open University Press (1992)
 13. John Fiske: *Understanding Popular Culture*. Boston, MA: Unwin Hyman (1989)
 14. Toby Miller (ed): *A Companion to Cultural Studies*. Blackwell (2001)
 15. Nelson, Cary and Dilip Parameshwar Gaonkar (eds.): *Disciplinarity and Dissent in Cultural Studies*. New York: Routledge, 1996.
 16. Johan Huizinga: *Homo Ludens*
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**Semester 4 - Core Course 17:
[EN010402]-Postcolonial Poetry**

Total Credits: 3

Total Hours: 25

Weightage:

Objectives:

To introduce the students to the diversity of poetry coming from the erstwhile colonies of the European Colonial Empires. To clear the ground from where the student can see how, beyond the general discursive constellations, there are regional specifics that 'in a hybrid mode' negotiate issues of sovereignty, language, race, gender, identity and place.

Course Description:

"Here we stand at the messiest point of our time // someone should write us, if we don't / who will." - Gülten Akin (2007).

The course attempts to cover, through representative texts, the entire gamut of poetry that has emerged from and still addresses the (post)colonial experience, the world over.

Module 1 is a conceptual orientation; it tries to situate, in a somewhat general way, certain contours that 'Poetic Postcolonialisms' assume.

Module 2 is a collection of poems that are South Asia & Australasia-specific.

Module 3 is a choice take on West & East Asia.

Module 4 is solely representative of poems from Africa.

Module 5 brings together myriad yet 'intertwined' verses from South America & Caribbean.

Special Note: A detailed delving into the poems is not expected vis-à-vis the Seminar Fields. Questions pertaining to these sections will be Generic: issues like Identity, Gender, Cultural Poetics and Language Politics.

Module 1 [Poetic Postcolonialisms]:

1.1 Jahan Ramazani: "Contemporary Postcolonial Poetry" in Neil Roberts (ed): *A Companion to Twentieth-Century Poetry*, Blackwell Publishing, 2007

1.2 Sudipta Kaviraj: "A Strange Love of the Land: Identity, Poetry and Politics in the (Un)Making of South Asia."

Module 2 [South Asia & Australasia]:

2.1 **India:** Kamala Das: "Someone Else's Song" & Agha Shahid Ali: "I See Kashmir From New Delhi at Midnight"

2.2 **Pakistan:** Faiz Ahmad Faiz: "Black Out" & Kishwar Naheed: "We Sinful Women"

2.3 **Sri Lanka:** Yasmine Gooneratne: "There was a Country" & R. Cheran: "Yaman"

2.4 **Bangladesh:** Taslima Nasrin: "Can't I have a homeland to call my own?" & Kaiser Haq: "Ode on the Lungi"

Seminar:

- 2.5 Australia:** A D Hope: “Australia” & Judith Wright: “Eve to her Daughters”
2.6 New Zealand: Selina Tusitala Marsh: “naming myself” & “The Young and the Restless”
2.7 Fiji: Konai Helu Thaman: “Living Amongst the Trees” & “Kakala Folau (a gift of love)”

Module 3[West & East Asia]:

- 3.1 Israel:** Yehuda Amichai: “National Thoughts” & Dahlia Ravikovitch: “Hovering at a Low Altitude”
3.2 Palestine: Mahmoud Darwish: “The Earth is Closing on Us,” & Hanan Mikha’il ‘Ashrawi : “From The Diary of an Almost-Four-Year-Old”
3.3 Iran: Forugh Farrokhzad: “I Will Greet the Sun Again” & Simin Behbahani: “And Behold”
3.4 Turkey: Orhan Veli: “For Free” & Gülten Akin: “Woman’s Song”

Seminar:

- 3.5 Philippines:** Cirilo F. Bautista: “Written in Stratford-Upon-Avon” & Marjorie Evasco: “Caravan of the Waterbearers”
3.6 Singapore: Arthur Yap: “The Correctness of Flavour” & Lee Tzu Pheng: “Singapore River”
3.7 Hong Kong: Nicholas YB Yong: “Toys ‘R’ Us” & Tammy Ho Lai-ming: “Leftovers”

Module 4[Africa]:

- 4.1 Nigeria:** Chinua Achebe: “Vultures” & Mabel Segun: “The Pigeon-Hole”
4.2 Egypt: Iman Mersal: “Sometimes Wisdom Possesses Me” & Fatima Naoot: “Blind”
4.3 Mozambique: Noémia de Sousa: “Black Blood” & Ana Mafalda Leite: “Liquid Frontier”
4.4 Algeria: Muhammad Dib: “Guardian Show” & Djamel Amrani: “Beneath a Pile of Rubble”

Seminar:

- 4.5 South Africa:** Dennis Brutus: “A poem about Sharpeville” & Antjie Krog: “Country of Grief and Grace”
4.6 Kenya: Shailja Patel: “Shilling Love” & Micere Githae Mugo: “I Want You To Know”
4.7 Ghana: Kofi Awoonor: “The Weaver Bird” & Ama Ata Aidoo: “For My Mother in Her Mid-90s”

Module 5[South America & Caribbean]:

- 5.1 Argentina:** Jorge Luis Borges: “Borges and I” & Alfonsina Storni: “They’ve Come”
5.2 Brazil: Olavo Bilac: “Milky Way: Sonnet 13” & Hilda Hilst: “Poems for the Men of Our Time,”
5.3 Uruguay: Mario Benedetti: “Little Stones at My Window” & Selva Casal: “the last angels of the evening.”
5.4 Chile: Pablo Neruda: “The Poet” & Gabriela Mistral: “To See Him Again”

Seminar:

- 5.5 Columbia:** José Asunción Silva: “Sonnet”

5.6 Saint Lucia: Derek Walcott: “The Lost Empire”

5.7 Guyana: John Agard: “Prospero Caliban Cricket”

5.8 Barbados: Edward Kamau Brathwaite: “Bread”

5.9 Trinidad and Tobago: Surya Vahni Priya Capildeo: “I Love You”

5.10 Jamaica: Louise Bennett: “Colonisation in Reverse”

Specific Additional Readings:

1. Anna Bernard: “Poetry, Translation, and Postcolonial Criticism...”
2. Muneeza Shamsie: South Asian Muslims: Fiction and Poetry in English, *Religion & Literature* Vol. 43, No. 1 (spring 2011), pp. 149-157
3. Priya Satia: Poets of Partition, *Tanqeed: A magazine of politics and culture*, Jan 2016
4. Omer Tarin, Ilyas Khan, and K. Majied: Pakistani English Literature – A Brief Introduction, 1947 to the Present, *Prachya Review*, Dec 30, 2015
5. Kaiser Haq: An Apology for Bangladeshi poetry in English
6. Mohammad Ali Ghazalsofli: A Political Review of Iranian Contemporary Poetry
7. Bulend Ecevit: Poetry in Turkey - A Nation’s Most Popular Art
8. Müesser Yeniay: Turkish Women's Poetry: Ottoman to Contemporary
9. J. Neil C. Garcia: Postcolonialism and Filipino Poetics
10. Barbara Jane Reyes: Filipina Lives and Voices in Literature
11. Cyril Wong: An interview
12. Irving Goh: Promising ‘Post-Colonialism’: Deleuze-Guattari’s ‘Minor Literature’ and the Poetry of Arthur Yap
13. Thow Xin Wei: Arthur Yap: Uniquely Singaporean
14. Odimegwu Onwumere: The Evolution of Nigerian Poetry
15. Mick Delap: Nigerian Poetry – Black Star or Black Hole?
16. Gemma Robinson: “Postcolonial Poetry of Great Britain: a poetics of contradictory affinity.”
17. Ngugi Wa Thiongo: ‘The Quest for Relevance’ in *Decolonising the Mind*

Texts for Consultation:

1. Neil Roberts (ed): *A Companion to Twentieth-Century Poetry*, Blackwell Publishing, 2007
2. Rajeev S. Patke: *Postcolonial Poetry in English*, Oxford University Press, 2006
3. Ashok Bery: *Cultural Translation and Postcolonial Poetry*, Palgrave Macmillan, 2007.
4. Jahan Ramazani (ed): *The Cambridge Companion to Postcolonial Poetry*, Cambridge University Press, 2017
5. Jahan Ramazani: *The Hybrid Muse: Postcolonial Poetry in English*, University of Chicago Press, 2001
6. Robert Stilling: *Beginning at the End: Decadence, Modernism, and Postcolonial Poetry*, Harvard University Press, 2018
7. Ato Quayson (ed): *The Cambridge History of Postcolonial Literature: Volume 1*, Cambridge University Press, 2012

ELECTIVES**Semester Four**

+3 Electives [Choose **One** from the**Four**Clustersgiven below] :

Cluster 1	Cluster 2	Cluster 3	Cluster 4
18. Post Colonial Theatres [EN800401]	21. Trauma Narratives and Memory [EN810401]	24. Modern European Fiction [EN820401]	27. English Language Teaching (ELT) [EN830401]
19. Shakespeare Across Cultures [EN800402]	22. The Island in Literature [EN810402]	25. Modern European Drama [EN820402]	28. Translation Studies [EN830402]
20. Public Domain Writings [EN800403]	23. Literature and Film [EN810403]	26. Indian Poetics: Theories and Texts [EN820403]	29. Dalit Studies [EN830403]

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR UNDER GRADUATE PROGRAMMES IN

Political Science

UNDER CHOICE BASED CREDIT SYSTEM (UG CBCS) 2017

2017 ADMISSIONS ONWARDS

COMPLEMENTARY COURSES FOR OTHER BA PROGRAMMES

COURSE I AN INTRODUCTION TO POLITICAL SCIENCE

Course Rationale: The course follows a basic historical-analytical framework of the discipline. It stresses upon a critical understanding of constitutional design and institutional framework of government. Integral to the course is the understanding that ideas of democracy and freedom and corresponding social relations and political and institutional practices took shape the discipline in a more meaningfully. The course aims therefore to develop among students the ability to comprehend contemporary politics as a relationship between institutional structures and historically constituted political processes.

Module I

- i. Political Science: Definition, Nature & Scope of the Discipline.
- ii. Approaches to the study of Political Science: Traditional, Behavioural, Post-Behavioural and Marxian approaches

(20 Hours)

Module II: Essential Concept in Political Science.

- i. State-Concept-Origin of State-Evolutionary Theory.
- ii. State in a Globalised Era.
- iii. Key Concepts in Political Science: Liberty - Positive and Negative, Equality – Formal and Political, Law - Rule of Law, Justice-Distributive Justice.

(30 Hours)

Module III: Major Political Ideologies.

- i. Liberalism.
- ii. Gandhism.
- iii. Marxism.
- iv. Fascism.

(20 Hours)

Module IV: Democracy and Classification of Government.

- i. Democracy: Liberal, Deliberative and Representative.
- ii. Forms of Government: Parliamentary & Presidential, Federal & Unitary.

(20 Hours)

References:

- Adam Swift (2001) *Political Philosophy: A Beginners Guide for Student's and Politicians*. Cambridge: Polity Press.
- Amal Ray and M. Bhattacharya, *Political Theory: Ideas & Institutions*, World Press.
- Andrew Heywood, *Political Theory* Palgrave Macmillan, (latest edition).
- Andrew Heywood: *Political ideologies – An Introduction* (Macmillan Press Ltd., London, 1998, Second edition).
- Catriona McKinnon (ed.) (2008) *Issues in Political Theory*. New York: Oxford University Press.
- Eddy Asirvatham, *Political Theory* (latest edition).
- J. C. Johari (1987): *Contemporary Political theory*, New Delhi: Sterling Publishers Private limited.
- Jonathan Wolf (2008) 'Social Justice', in McKinnon, Catriona. (ed.) *Issues in Political Theory*. New York: Oxford University Press.
- Krishna Menon (2008) 'Justice', in Bhargava, Rajeev and Acharya, Ashok. (eds.) *Political Theory: An Introduction*. New Delhi: Pearson Longman, pp. 74-86.
- M. P. Jain, *Politics: Liberal Marxian*, Authors Guild (latest edition).
- O.P. Gauba, *Political Theory*, Macmillan, (latest edition).
- Paula Casal & Andrew William (2008) 'Equality', in McKinnon, Catriona. (ed.) *Issues in Political Theory*. New York: Oxford University Press.
- Rajeev Bhargava & A. Acharya (2008): *Political Theory*, New Delhi: Pearson Longman.
- S. Ramaswamy (2002): *Political Theory: Ideas and Concepts*, Delhi: Macmillan.

**B.A. (POLITICAL SCIENCE)
MODEL I – CONVENTIONAL PROGRAMME
SCHEME AND SYLLABUS**

The U.G. programme shall include

- (a) Common courses I&II
- (b) Core Courses
- (c) Open Courses
- (d) Core-Choice based
- (c) Complementary/ Vocational Courses

CORE COURSES

Core I.	Methodology and Perspectives of Political Science.	PS1CRT01
Core II.	Indian Constitution: Institutions and Processes.	PS2CRT02
Core III.	Issues and Political Processes in Modern India.	PS3CRT03
Core IV.	Political Thought: Indian Traditions.	PS3CRT04
Core V.	Introduction to Political Theory.	PS4CRT05
Core VI.	Political Thought: Western Traditions.	PS4CRT06
Core VII.	Theories and Principles of Public Administration.	PS5CRT07
Core VIII.	Environmental Studies and Human Rights.	PS5CRT08
Core IX.	Methodology of Research in Political Science.	PS5CRT09
Core X.	Introduction to International Relations.	PS5CRT10
Core XI.	Comparative Politics.	PS6CRT11
Core XII.	Society, State and Political Processes in Kerala.	PS6CRT12
Core XIII.	Issues in International Politics.	PS6CRT13
Core XIV.	Human Rights.	PS6CRT14

Open Courses-(V Semester)

Colleges can choose any one open course from the following list:

I.	Contemporary Issues in Indian Politics.	PS5OPT01
II.	Women in Indian Democracy.	PS5OPT02
III.	Government and Politics in Kerala.	PS5OPT03
IV.	Human Rights in India.	PS5OPT04
V.	Introduction to Defence and Strategic Studies.	PS5OPT05

Core -Choice Based Courses (VI Semester)

Colleges can choose one Core – Choice Based Course from the following list:

I.	India's Foreign policy.	PS6CBT01
II.	Governance: Problems and Prospects.	PS6CBT02
III.	International Organizations and World Affairs.	PS6CBT03
IV.	Decentralized Democracy.	PS6CBT04
V.	Contemporary Political Economy.	PS6CBT05

Complementary Courses for other BA Programmes.

I.	An Introduction to Political Science.	PS3CMT01
	or	
II.	Indian Political Thought.	PS3CMT02
III.	Contemporary Global Politics.	PS4CMT03
	or	
IV.	Rights and Human Rights in India.	PS4CMT04
	or	
V.	Indian Constitution: Social Issues in India.	PS4CMT05

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR UNDER GRADUATE PROGRAMMES IN

B.Sc Physics

UNDER CHOICE BASED CREDIT SYSTEM (UG CBCS) 2017

2017 ADMISSIONS ONWARDS

7. CONSOLIDATED SCHEME FOR I TO VI SEMESTERS

7.1. B. Sc. Physics Programme – (Model I)

Semester	Title of the Course	Hours/week	Credits	Total hrs	University Exam duration	Marks	
						IA	EA
1	English I	5	4	90	3	20	80
	English II/ Common Course I	4	3	72	3	20	80
	Second Language I	4	4	72	3	20	80
	PH1CRT01 - Methodology and Perspectives of Physics	2	2	36	3	15	60
	Complementary I: Mathematics I	4	3	72	3	20	80
	Complementary II: Chemistry I	2	2	36	3	15	60
	Core Practical I: PH2CRP01 Mechanics and Properties of Matter	2	-	36	-	-	-
	Complementary II Practical I	2	-	36	-	-	-
2	English II	5	4	90	3	20	80
	English III/ Common Course II	4	3	72	3	20	80
	Second Language II	4	4	72	3	20	80
	PH2CRT02 – Mechanics and Properties of Matter	2	2	36	3	15	60
	Complementary I: Mathematics II	4	3	72	3	20	80
	Complementary II: Chemistry II	2	2	36	3	15	60
	Core Practical I: PH2CRP01 Mechanics and Properties of Matter	2	2	36	3	10	40
	Complementary II Practical I	2	2	36	3	10	40
3	English III	5	4	90	3	20	80
	II Lang/Common Course I	5	4	90	3	20	80
	PH3CRT03 – Optics, Laser and Fiber Optics	3	3	54	3	15	60
	Complementary I: Mathematics III	5	4	90	3	20	80
	Complementary II: Chemistry III	3	3	54	3	15	60
	Core Practical II: PH4CRP02 Optics and Semiconductor Physics	2	-	36	-	-	-
	Complementary II Practical II	2	-	36	-	-	-

4	English IV	5	4	90	3	20	80
	II Lang/ Common Course II	5	4	90	3	20	80
	PH4CRT04- Semiconductor Physics	3	3	54	3	15	60
	Complementary I: Mathematics IV	5	4	90	3	20	80
	Complementary II: Chemistry IV	3	3	54	3	15	60
	Core Practical II: PH4CRP02 Optics and Semiconductor Physics	2	2	36	3	10	40
	Complementary II Practical II	2	2	36	3	10	40
5	PH5CRT05 – Electricity and Electrodynamics	3	3	54	3	15	60
	PH5CRT06 – Classical and Quantum Mechanics	3	3	54	3	15	60
	PH5CRT07 –Digital Electronics and Programming	3	3	54	3	15	60
	PH5CRT08 – Environmental Physics and Human Rights	4	4	72	3	15	60
	PH5OPT0X* -Open Course	4	3	72	3	20	80
	Core Practical III: PH6CRP03 Electricity, Magnetism and Laser	2	-	36	-	-	-
	Core Practical IV: PH6CRP04 Digital Electronics	2	-	36	-	-	-
	Core Practical V: PH6CRP05 Thermal Physics, Spectroscopy and C++ programming	2	-	36	-	-	-
6	Core Practical VI: PH6CRP06 Acoustics, Photonics and Advanced Semiconductor Physics	2	-	36	-	-	-
	PH6CRT09- Thermal and Statistical Physics	3	3	54	3	15	60
	PH6CRT10 --Relativity and Spectroscopy	4	3	72	3	15	60
	PH6CRT11 – Nuclear, Particle and Astrophysics	3	3	54	3	15	60
	PH6CRT12- Solid State Physics	4	3	72	3	15	60
	PH6CBT0X *-Choice Based Course	3	3	54	3	20	80
	Core Practical III: PH6CRP03 Electricity, Magnetism and Laser	2	2	36	3	10	40
	Core Practical IV: PH6CRP04 Digital Electronics	2	2	36	3	10	40
	Core Practical V: PH6CRP05 Thermal Physics, Spectroscopy and C++ programming	2	2	36	3	10	40
Core Practical VI: PH6CRP06 Acoustics, Photonics and Advanced	2	2	36	3	10	40	

	Semiconductor Physics						
	PH6PRO01 – Project and Industrial Visit	-	1	-	-	20	80

*- X Stands for 1, 2, 3, ... depending upon Open course and Choice based course

Choice Based Course

Sl. No.	Paper Code	Semester	Paper Title
1	PH6CBT01	VI	IT
2	PH6CBT02	VI	Material Science
3	PH6CBT03	VI	Computational Physics
4	PH6CBT04	VI	Instrumentation
5	PH6CBT05	VI	Astronomy & Astrophysics

Open Course

Sl. No.	Paper Code	Semester	Paper Title
1	PH5OPT01	V	Our Universe
2	PH5OPT02	V	Physics in Daily Life
3	PH5OPT03	V	Computer Hardware and Networking

Semester-V**Open Course:****Credits-3 (72 Hrs)****PH5OPT02: Physics in Daily Life****Module I****Unit 1****(8 hours)**

Fundamental and derived quantities. Units and dimensions, dimensional analysis, order of magnitude, significant figures, errors.

Unit 2 Light**(12 Hours)**

Reflection, refraction, diffraction, interference, scattering(elementary ideas only) – examples from daily life – apparent depth, blue color of sky, twinkling of stars.

Total internal reflection, mirage, sparkling of diamond, primary and secondary rainbow – optical fibers. Concave and convex mirrors, lenses – focal length, power of a lens, refractive index, prism, dispersion. Human eye, defects of the eye – myopia, hypermetropia, presbyopia and astigmatism and their correction by lens.

Module II**Unit 3 Motion****(12 Hours)**

Velocity, acceleration, momentum, Idea of inertia, force - laws of motion. Newton's law of gravitation, acceleration due to gravity, mass and weight, apparent weight, weightlessness.

Rotational motion, Moment of inertia, torque, centripetal and centrifugal acceleration- examples- banking of curves, centrifugal pump, roller coasters.

Unit 4 Electricity**10 Hours)**

Voltage and current, ohms law. Electric energy, electric power, calculation of energy requirement of electric appliances – transformer, generator, hydroelectric power generation – wind power – solar power – nuclear power

Module III

Unit 5 Matter and energy

(18 Hours)

Different phases of matter, fluids - surface tension, viscosity- capillary rise, Bernoulli's theorem and applications.

Heat energy, temperature, different temperature scales – degree Celsius, Fahrenheit and Kelvin.

Waves – transverse and longitudinal waves, sound waves, Doppler Effect.

Lasers, fluorescence, phosphorescence, electromagnetic waves – applications – microwave oven, radar, super conductivity.

Unit 6 Universe

(12 hours)

Planets, – solar system, moon- faces of moon, lunar and solar eclipses, constellations, Different types of stars, Galaxies, black hole. Satellites, Artificial satellites, Global positioning system. Geo stationary satellite.

Reference Texts

1. Fundamentals of Physics with Applications by Arthur Beiser
2. Conceptual Physics by Paul G Hewitt

Semester-V**Core Course: VIII****Credit-4 (72 hours)****PH5CRT08: ENVIRONMENTAL PHYSICS AND HUMAN RIGHTS****Vision**

The importance of environmental science and environmental studies cannot be disputed. The need for sustainable development is a key to the future of mankind. Continuing problems of pollution, solid waste disposal, degradation of environment, issues like economic productivity and national security, Global warming, the depletion of ozone layer and loss of biodiversity have made everyone aware of environmental issues. The United Nations Conference on Environment and Development held in Rio de Janeiro in 1992 and World Summit on Sustainable Development at Johannesburg in 2002 have drawn the attention of people around the globe to the deteriorating condition of our environment. It is clear that no citizen of the earth can afford to be ignorant of environment issues.

India is rich in biodiversity which provides various resources for people. Only about 1.7 million living organisms have been described and named globally. Still many more remain to be identified and described. Attempts are made to conserve them in ex-situ and in-situ situations. Intellectual property rights (IPRs) have become important in a biodiversity-rich country like India to protect microbes, plants and animals that have useful genetic properties. Destruction of habitats, over-use of energy resource and environmental pollution has been found to be responsible for the loss of a large number of life-forms. It is feared that a large proportion of life on earth may get wiped out in the near future.

In spite of the deteriorating status of the environment, study of environment has so far not received adequate attention in our academic programme. Recognizing this, the Hon'ble Supreme Court directed the UGC to introduce a basic course on environment at every level in college education. Accordingly, the matter was considered by UGC and it was decided that a six months compulsory core module course in environmental studies may be prepared and compulsorily implemented in all the University/Colleges of India.

The syllabus of environmental studies includes five modules including human rights. The first two modules are purely environmental studies according to the UGC directions. The second two modules are strictly related with the core subject and fifth module is for human rights.

Objectives

- Environmental Education encourages students to research, investigate how and why things happen, and make their own decisions about complex environmental

issues by developing and enhancing critical and creative thinking skills. It helps to foster a new generation of informed consumers, workers, as well as policy or decision makers.

- Environmental Education helps students to understand how their decisions and actions affect the environment, builds knowledge and skills necessary to address complex environmental issues, as well as ways we can take action to keep our environment healthy and sustainable for the future. It encourages character building, and develops positive attitudes and values.
- To develop the sense of awareness among the students about the environment and its various problems and to help the students in realizing the inter-relationship between man and environment and helps to protect the nature and natural resources.
- To help the students in acquiring the basic knowledge about environment and the social norms that provides unity with environmental characteristics and create positive attitude about the environment.

Module I

Unit 1: Multidisciplinary nature of environmental studies(2 hours)

Definition, scope and importance

Need for public awareness.

Unit 2: Natural Resources:(10 hours)

Renewable and non-renewable resources: Natural resources and associated problems.

a) **Forest resources:** Use and over-exploitation, deforestation, case studies.

Timber extraction, mining, dams and their effects on forest and tribal people.

b) **Water resources:** Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

c) **Mineral resources:** Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

d) **Food resources:** World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

e) **Energy resources:** Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources, Case studies.

f) **Land resources:** Land as a resource, land degradation, man induced landslides, soil erosion and desertification

- Role of individual in conservation of natural resources.
- Equitable use of resources for sustainable life styles.

Unit 3: Ecosystems

(6 hours)

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the given ecosystem:- Forest ecosystem

Module II

Unit 1: Biodiversity and its conservation

(8 hours)

- Introduction
- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values.
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts
- Endangered and endemic species of India

Unit 2: Environmental Pollution

(8 hours)

Definition, Causes, effects and control measures of: -

- a. Air pollution
- b. Water pollution
- c. Soil pollution
- d. Marine pollution
- e. Noise pollution
- f. Thermal pollution
- g. Nuclear hazards

- Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution
- Pollution case studies
- Disaster management: floods, earthquake, cyclone and landslides.

Unit 3: Social Issues and the Environment (10 hours)

- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people: its problems and concerns, Case studies
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, Case studies
- Consumerism and waste products
- Environment Protection Act
- Air (Prevention and Control of Pollution) Act
- Water (Prevention and control of Pollution) Act
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation
- Public awareness

Module III

Non-renewable and Renewable Energy Sources (10 hours)

Non-renewable energy sources:-Coal, Oil, Natural gas; Nuclear fission energy; Merits and demerits of non-renewable energy.

Renewable energy sources: Biomass energy- Biogas plant - Fixed dome type and moving dome type; Wind energy; Wave energy; Tidal energy; Hydroelectricity; Geothermal energy conversion; Ocean thermal energy conversion; Fusion energy; Hydrogen energy- Production (electrolysis) and storage; Merits and demerits of each renewable energy sources; Storage of intermittently generated renewable energy (qualitative); Fuel cell.

Module IV**Solar energy****(10 hours)**

Sun as a source of energy- Solar radiation, Solar Constant, Spectral distribution; Solar pond - Convective and salt gradient types; Flat plate collector; Solar water heater - Direct and indirect systems- Passive and active systems; Optical concentrator - Parabolic trough reflector - Mirror strip reflector - Fresnel lens collector; Solar desalination; Solar dryer - Direct and indirect type; Solar cooker; Solar heating of buildings; Solar green houses; Need and characteristics of photovoltaic (PV) systems; Solar cells - Principle, Equivalent circuits, V-I characteristics, fill factor, conversion efficiency; PV Sun tracking systems; Merits and demerits of solar energy.

Module – V**(8 hours)**

Unit 1- Human Rights– An Introduction to Human Rights, Meaning, concept and development, Three Generations of Human Rights (Civil and Political Rights; Economic, Social and Cultural Rights).

Unit-2 Human Rights and United Nations – contributions, main human rights related organs - UNESCO, UNICEF, WHO, ILO, Declarations for women and children, Universal Declaration of Human Rights.

Human Rights in India – Fundamental rights and Indian Constitution, Rights for children and women, Scheduled Castes, Scheduled Tribes, Other Backward Castes and Minorities

Unit-3 Environment and Human Rights - Right to Clean Environment and Public Safety: Issues of Industrial Pollution, Prevention, Rehabilitation and Safety Aspect of New Technologies such as Chemical and Nuclear Technologies, Issues of Waste Disposal, Protection of Environment

Conservation of natural resources and human rights: Reports, Case studies and policy formulation. Conservation issues of western ghats- mention Gadgil committee report, Kasthuriengan report. Over exploitation of ground water resources, marine fisheries, sand mining etc.

Internal: Field study

- Visit to a local area to document environmental grassland/ hill /mountain

- Visit a local polluted site – Urban/Rural/Industrial/Agricultural Study of common plants, insects, birds etc
- Study of simple ecosystem-pond, river, hill slopes, etc

(Field work Equal to 5 lecture hours)

REFERENCES

1. Bharucha Erach, Text Book of Environmental Studies for undergraduate Courses. University Press, IInd Edition 2013 (TB)
2. Clark.R.S., Marine Pollution, Clanderson Press Oxford (Ref)
3. Cunningham, W.P.Cooper, T.H.Gorhani, E & Hepworth, M.T.2001 Environmental Encyclopedia, Jaico Publ. House. Mumbai. 1196p .(Ref)
4. Dc A.K.Environmental Chemistry, Wiley Eastern Ltd.(Ref)
5. Down to Earth, Centre for Science and Environment (Ref)
6. Heywood, V.H & Watson, R.T. 1995. Global Biodiversity Assessment, Cambridge University Press 1140pb (Ref)
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8. Mekinney, M.L & Schock.R.M. 1996 Environmental Science Systems & Solutions. Web enhanced edition 639p (Ref)
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MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR UNDER GRADUATE PROGRAMMES IN

B.Sc Chemistry

UNDER CHOICE BASED CREDIT SYSTEM (UG CBCS) 2017

2017 ADMISSIONS ONWARDS



CONSOLIDATED SCHEME FOR I TO VI SEMESTERS PROGRAMME STRUCTURE

1. BSC CHEMISTRY PROGRAMME – (MODEL - I)

Sem	Title with Course code	Course Category	Hours per week	Credits
I	English I	Common	5	4
	English/ Common Course I	Common	4	3
	Second Language I	Common	4	4
	CHICRT01 General and Analytical Chemistry	Core	2	2
	CH2CRP01 Volumetric Analysis	Core	2	-
	Complementary Mathematics	Complementary	4	3
	Complementary Physics	Complementary	2	2
	Complementary Physics Practical	Complementary	2	-
II	English II	Common	5	4
	English/ Common Course II	Common	4	3
	Second Language II	Common	4	4
	CH2CRT02 Theoretical and Inorganic Chemistry	Core	2	2
	CH2CRP01 Volumetric Analysis	Core	2	2
	Complementary Mathematics	Complementary	4	3
	Complementary Physics	Complementary	2	2
	Complementary Physics Practical	Complementary	2	2
III	English III	Common	5	4
	II Lang/Common Course I	Common	5	4
	CH3CRT03 Organic Chemistry-I	Core	3	3
	CH4CRP02 Qualitative Organic Analysis	Core	2	-
	Complementary Mathematics	Complementary	5	4
	Complementary Physics	Complementary	3	3
	Complementary Physics Practical	Complementary	2	-
IV	English IV	Common	5	4
	II Lang/ Common Course II	Common	5	4
	CH4CRT04 Organic Chemistry-II	Core	3	3
	CH4CRP02 Qualitative Organic Analysis	Core	2	2
	Complementary Mathematics	Complementary	5	4
	Complementary Physics	Complementary	3	3
	Complementary Physical Practical	Complementary	2	2
V	CH5CRT05 Environmental Studies and Human Rights	Core	4	4
	CH5CRT06 Organic Chemistry-III	Core	3	3
	CH5CRT07 Physical Chemistry - I	Core	2	2
	CH5CRT08 Physical Chemistry - II	Core	2	3
	CH5OPT Open course	Open	4	3



	CH6CRP03 Qualitative Inorganic Analysis	Core	3	-
	CH6CRP04 Organic Preparations and Basic Laboratory Techniques	Core	2	-
	CH6CRP05 Physical Chemistry Practical	Core	3	-
	CH6PRP01 Project	Core	2	-
VI	CH6CRT09 Inorganic Chemistry	Core	3	3
	CH6CRT10 Organic Chemistry-IV	Core	3	3
	CH6CRT11 Physical Chemistry - III	Core	3	3
	CH6CRT12 Physical Chemistry - IV	Core	3	3
	CH6CBT Choice Based Course	Core	3	3
	CH6CRP03 Qualitative Inorganic Analysis	Core	3	2
	CH6CRP04 Organic Preparations and Basic Laboratory Techniques	Core	2	2
	CH6CRP05 Physical Chemistry Practical	Core	3	2
	CH6CRP06 Gravimetric Analysis	Core	2	2
	CH6PR01 Project & Industrial visit and comprehensive viva-voce	Core	-	2

OPEN COURSES:

Sl. No.	Semester	Course Code	Course Title
1	V	CH5OPT01	Chemistry in Everyday Life
2	V	CH5OPT02	Nanoscience and Nanotechnology
3	V	CH5OPT03	Forensic Science

CHOICE BASED COURSES:

Sl. No.	Semester	Course Code	Course Title
1	VI	CH6CBT01	Polymer Chemistry
2	VI	CH6CBT02	Nanochemistry and Nanotechnology
3	VI	CH6CBT03	Soil and Agricultural Chemistry

**SEMESTER V****CH5CRT05 - ENVIRONMENTAL STUDIES AND HUMAN RIGHTS****Credits – 4 (72 Hrs)****Unit 1: Multidisciplinary Nature of Environmental Studies (12 Hrs)**

Definition, scope and importance. Need for public awareness. Natural resources: Renewable and non-renewable resources, forest resources - use and over-exploitation, deforestation. Water resources - use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. Mineral resources - use and exploitation, environmental effects of extracting and using mineral resources. Food resources - World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems. Energy resources -growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Land resources - land as a resource, land degradation, man induced landslides, soil erosion and desertification

Unit 2: Ecosystems (8 Hrs)

Concept of an ecosystem. Structure and function of an ecosystem. Producers, consumers and decomposers. Energy flow in the ecosystem. Ecological succession. Food chains, food webs and ecological pyramids. Introduction, types, characteristic features, structure and function of the given ecosystem:- Forest ecosystem.

Unit 3: Social Issues and the Environment (8 Hrs)

Urban problems related to energy. Water conservation, rain water harvesting, water shed management. Resettlement and rehabilitation of people: its problems and concerns. Environmental ethics: Issues and possible solutions. Environment Protection Act, Air (Prevention and Control of Pollution) Act, Water (Prevention and control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation, Public awareness.

Unit 4: Air, Water and Soil Pollution (12 Hrs)

Air pollution: Causes, effects and control measures. Acid rain, smog, green house effect, Global warming, ozone depletion – causes and consequences. Introduction to noise pollution, hazards of noise pollution.

Water pollution: Causes- organic, inorganic and macroscopic contaminants, effects of pesticides, insecticides and detergents on water pollution. Marine pollution, eutrophication, biomagnification, water quality parameters-DO, BOD, COD.

Soil pollution: Causes and effects: Agrochemicals, industrial wastes, petroleum wastes, electronic wastes, landfill and dumping. Genetically modified plants.

Unit 5: Toxicology and Toxicological Effects (6 Hrs)

Toxic chemicals in the environment, impact of toxic chemicals on enzymes, biochemical effects of As, Cd, Pb, Hg, CO, Oxides of Nitrogen and Sulphur.



Unit 6: Introduction to Green Chemistry

(4 Hrs)

Introduction to green chemistry, twelve principles of green chemistry, atom economy – examples.

Unit 7: Environmental Aspects of Nuclear Chemistry

(10 Hrs)

Nuclear particles, size of the nucleus - nuclear forces - nuclear stability – N/P ratio – packing fraction – mass defect – binding energy - magic numbers. Nuclear models – shell model and liquid drop model.

Natural radioactivity. Modes of decay- group displacement law — rate of decay – decay constant – half-life period – Gieger-Nuttall rule – disintegration series – transmutation reactions using protons, deuterons, α -particles and neutrons. Artificial radioactivity – positron emission and K electron capture – trans uranic elements, spallation reactions .

Applications of radioactivity: Radio carbon dating – rock dating – isotopes as tracers – study of reaction mechanism (ester hydrolysis). Application of radioactive isotopes in medicine. Nuclear fission - atom bomb - nuclear reactors – fast breeder reactors. Nuclear fusion and hydrogen bomb. Nuclear waste and its impact on environment – nuclear waste management

Unit 8: Introduction to Human Rights

(12 Hrs)

An Introduction to Human Rights, meaning, concept and development. Three generations of human rights (civil and political rights; economic, social and cultural rights). Human Rights and United Nations – contributions, main human rights related organs - UNESCO, UNICEF, WHO, ILO, Declarations for women and children, Universal Declaration of Human Rights. Human Rights in India: Fundamental rights and Indian Constitution, Rights for children and women, Scheduled Castes, Scheduled Tribes, Other Backward Castes and Minorities. Environment and Human Rights - right to clean environment and public safety. Issues of industrial pollution, prevention, rehabilitation and safety aspect of new technologies such as chemical and nuclear technologies, issues of waste disposal, protection of environment.

References

1. Bharucha Erach, Text Book of Environmental Studies for undergraduate Courses. University Press, IInd Edition 2013 (TB)
2. Clark.R.S., Marine Pollution, Clanderson Press Oxford (Ref)
3. Cunningham, W.P.Cooper, T.H.Gorhani, E & Hepworth, M.T.2001 Environmental Encyclopedia, Jaico Publ. House. Mumbai. 1196p .(Ref)
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6. Heywood, V.H & Watson, R.T. 1995. Global Biodiversity Assessment, Cambridge University Press 1140pb (Ref)
7. Jadhav.H & Bhosale.V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284p (Ref)
8. Mekinney, M.L & Schock.R.M. 1996 Environmental Science Systems & Solutions. Web enhanced edition 639p (Ref)
9. Miller T.G. Jr., Environmental Science, Wadsworth Publishing Co. (TB)



CH5CRT06 - ORGANIC CHEMISTRY - III
(*Reaction mechanisms expected only wherever mentioned*)

Credits – 3 (54 Hrs)

Unit 1: Nitrogen Containing Compounds **(15 Hrs)**

Nitro compounds (aliphatic and aromatic):

Preparation: Methods of preparation of nitroalkanes and aromatic nitro compounds.

Reactions: Tautomerism of nitromethane. Reduction products of nitrobenzene in acidic, neutral and alkaline media. Electrolytic reduction and selective reduction of polynitro compounds. Formation of charge transfer complexes.

Amines (aliphatic and aromatic):

Preparation: From alkyl halides, Reduction of nitro compounds and nitriles, Reductive amination of aldehydes and ketones, Gabriel's phthalimide synthesis, Hofmann bromamide reaction (with mechanism).

Reactions: Hofmann vs. Saytzeff elimination, Carbylamine test, Hinsberg test, with HNO₂. Separation of a mixture of 1°, 2° and 3° amines using Hinsberg reagent. Stereochemistry of amines. Structural features affecting basicity of aliphatic and aromatic amines. Comparative study of aliphatic and aromatic amines. Schotten – Baumann Reaction (with mechanism). Electrophilic substitution reactions of aniline: Halogenation, nitration and sulphonation. Quaternary amine salts as phase-transfer catalysts.

Diazonium salts:

Preparation: From aromatic amines.

Reactions: Structure and stability of benzene diazonium salts. Conversion to benzene, phenol, chloro, bromo, iodo and fluoro benzenes, nitro benzene and azo dyes. Mechanisms of Sandmeyer and Gatterman reactions. Schiemann and Gomberg reactions. Preparation, structure and uses of Phenyl hydrazine, Diazomethane and Diazoacetic ester. Arndt –Eistert synthesis – Mechanism of Wolff rearrangement.

Unit 2: Heterocyclic Compounds **(8 Hrs)**

Classification and nomenclature. Structure and aromaticity of 5-membered and 6-membered rings containing one heteroatom. Synthesis and reactions of: Furan, Thiophene, Pyrrole (Paal-Knorr synthesis and Knorr pyrrole synthesis), Pyridine (Hantzsch synthesis), Indole (Fischer's indole synthesis), Quinoline (Skraup synthesis and Friedlander's synthesis) and Isoquinoline (Bischler-Napieralski reaction).

Unit 3: Active Methylene Compounds **(5 Hrs)**

Preparation: Ethyl acetoacetate by Claisen ester condensation.

Reactions: Keto-enol tautomerism. Synthetic uses of ethylacetoacetate, diethyl malonate and ethyl cyanoacetate (preparation of non-heteromolecules only).

Alkylation of carbonyl compounds *via* enamines.

**Unit 4: Carbohydrates** (11 Hrs)

Classification of carbohydrates. Reducing and non-reducing sugars. General Properties of Glucose and Fructose, their open chain structure. Epimers, mutarotation and anomers. Determination of configuration of Glucose (Fischer proof). Cyclic structure of glucose. Haworth projections. Cyclic structure of fructose. Chain lengthening and chain shortening of aldoses - Kiliani-Fischer synthesis and Wohl degradation. Interconversion of aldoses and ketoses. Linkage between monosaccharides. Structure of the disaccharides sucrose, maltose and cellobiose (excluding their structure elucidation). Reactions and uses of sucrose. Artificial sugars (sweeteners) – sucralose. Structure of the polysaccharides starch and cellulose (excluding their structure elucidation). Industrial applications of cellulose.

Unit 5: Drugs (5 Hrs)

Classification of drugs. Structure, therapeutic uses and mode of action (synthesis not required) of Antibiotics: Ampicillin and Chloramphenicol, Sulpha drugs: Sulphanilamide, Antipyretics: Paracetamol, Analgesics: Aspirin and Ibuprofen, Antimalarials: Chloroquine, Antacids: Ranitidine, Anti-cancer drugs: Chlorambucil and Anti-HIV agents: Azidothymidine (Zidovudine). Psychotropic drugs: Tranquilizers, antidepressants and stimulants with examples. **Drug addiction and abuse. Prevention and treatment.**

Unit 6: Dyes (4 Hrs)

Theories of colour and chemical constitution. Classification of dyes – according to chemical constitution and method of application. **Natural and synthetic dyes. Synthesis and applications of: Azo dyes** – Methyl orange; Triphenyl methane dyes - Malachite green and Rosaniline; Phthalein dyes – Phenolphthalein and Fluorescein; Indigoid dyes - Indigotin; Anthraquinoid dyes – Alizarin. Edible dyes (Food colours) with examples.

Unit 7: Polymers (6 Hrs)

Introduction and classification. Polymerisation reactions - Addition and condensation - Mechanism of cationic, anionic and free radical addition polymerization; Metallocene-based Ziegler-Natta polymerisation of alkenes. Preparation and applications of plastics – thermosetting (Phenol-formaldehyde, Urea-formaldehyde, Polyurethane) and thermosoftening (Polythene, PVC); Fibres (acrylic, polyamide, polyester). Synthetic rubbers – SBR, Nitrile rubber and Neoprene. Introduction to conducting polymers with examples. **Environmental hazards and biodegradability of polymers. Recycling of plastics.**

References

1. Morrison, R.T., Boyd, R.N. & Bhattacharjee, S.K. *Organic Chemistry*, 7th ed., Dorling Kindersley (India) Pvt. Ltd (Pearson Education), 2011.
2. Graham Solomon, T.W., Fryhle, C.B. & Snyder, S.A. *Organic Chemistry*, Wiley, 2014.
3. McMurry, J. *Organic Chemistry*, 7th ed. Cengage Learning, 2013.
4. Finar, I.L. *Organic Chemistry* (Vol. 1 & 2), Dorling Kindersley (India) Pvt. Ltd (Pearson Education).
5. Jain, M.K. & Sharma, S.C. *Modern Organic Chemistry*, Vishal Publishing Co. 2010.



CH5OPT – OPEN COURSE

CH5OPT01 - CHEMISTRY IN EVERYDAY LIFE

(Chemical structures are non-evaluative)

Credits – 3 (72 Hrs)

Unit 1: Food Additives

(12 Hrs)

Food additives – definition. Preservatives, Food colours - permitted and non-permitted, Toxicology. Flavours - natural and synthetic. Artificial sweeteners, Emulsifying agents, Antioxidants, Leavening agents and Flavour enhancers. Importance of food additives. Soft drinks - formulation and health effects. Health drinks. Fast foods and junk foods and their health effects. Food adulteration. Food laws and standards. Food Safety and Standards Act, 2006.

Unit 2: Soaps and Detergents

(10 Hrs)

Soaps – Introduction. Types of soaps - Toilet soaps, washing soaps. Liquid soap. TFM and grades of soaps. Bathing bars. Cleansing action of soap.

Detergents - Introduction. Types of detergents - anionic, cationic, non-ionic and amphoteric detergents. Common detergent additives. Enzymes used in commercial detergents. Comparison between soaps and detergents. Environmental aspects.

Unit 3: Cosmetics

(10 Hrs)

Cosmetics - Introduction. General formulation of different types of cosmetics - Dental cosmetics, Shampoos, Hair dyes, Skin products (creams and lotions, lipstick, perfumes, deodorants and antiperspirants), Bath oil, Shaving cream and Talcum powder. Toxicology of cosmetics.

Unit 4: Plastics, Paper and Dyes

(12 Hrs)

Plastics in everyday life. Plastics and Polymers. Classification of polymers. Brief idea of polymerization. Use of LDPE, HDPE, PP, PVC and PS. Environmental hazards of plastics. Biodegradable plastics. Recycling of plastics. Paper – Introduction. Paper manufacture (basic idea only). Weight and size of paper. Types of paper - News print paper, writing paper, paperboards, cardboards. Environmental impact of paper. International recycling codes, and symbols for identification of plastics. Natural and synthetic dyes with examples (elementary idea only).

Unit 5: Drugs

(9 Hrs)

Classification of drugs - Analgesics, Antipyretics, Antihistamines, Antacids, Antibiotics and Antifertility drugs with examples. Psychotropic drugs - Tranquilizers, Antidepressants and Stimulants with examples. Drug addiction and abuse. Prevention and treatment.

**Unit 6: Chemistry and Agriculture****(12 Hrs)**

Fertilizers – Introduction. Types of fertilizers - Natural, synthetic, mixed, NPK fertilizers. Excessive use of fertilizers and its impact on the environment. Bio-fertilizers. Plant growth hormones. Pesticides - Introduction. Classification - Insecticides, Fungicides, Herbicides. Excessive use of pesticides - Environmental hazards. Bio pesticides.

Unit 7: Nanomaterials**(7 Hrs)**

Terminology. Scales of nanosystems. Different types of nanoparticles. Applications of nanoparticles in biology and medicine – biological labels, drug and gene delivery, tissue engineering, tumour destruction. Other applications of nanoparticles – electronics, paints, food packaging. Toxicology of nanoparticles.

References:

1. B. Sreelakshmi, *Food Science*, New Age International, New Delhi, 2015.
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9. V.R.Gowariker; N.V. Viswanathan and J. Sreedhar; *Polymer Science*, 2nd edn., New Age, New Delhi, 2015.
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11. S.L. Tisdale; W.L.Nelson and J.D.Beaton; *Soil Fertility and Fertilizers*, Macmillan Publishing Company, New York, 1990.
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14. T. Pradeep; *Nano- The Essentials*, McGraw Hill Publishing Co., New Delhi, 2007.
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16. K.J. Klabunde; *Nanoscale Materials in Chemistry*, Wiley.
17. Singh, K., *Chemistry in Daily Life*; Prentice Hall of India, New Delhi, 2008.

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR UNDER GRADUATE PROGRAMMES IN

B.A Economics

UNDER CHOICE BASED CREDIT SYSTEM (UG CBCS) 2017

2017 ADMISSIONS ONWARDS

B.A. Economics Programme– Model - I
Core, Complementary, Open and Choice-Based
Courses

	Core Paper	Course Code	T.H	Cr.	Int.	Ext.	Total marks	
	Perspectives and Methodology of Economics	EC1CR7						
	Complementary	EC1CM7						
	Core 2- Micro Economic Analysis	EC2CR7						
	Complementary	EC2CM7						
	Core 3- Micro Economic Analysis	EC3CR7						
	Core 4-Economic Growth & Development	EC3CR7						
	Complementary	EC3CM7						
	Core 5-Macro Economics-I	EC4CR7						
	Core 6-Public Economics	EC4CR7						
	Complementary	EC4CM7						
	Core 7-Quantitative Techniques	EC5CR7						
	Core 8-Macro Economics-II	EC5CR7						
	Open course	EC5OPT0						
	Core9-Environmental Economics	EC5CR7						
	Core10- Introduction Econometrics	EC5CR7						
	Core 11 –Quantitative Methods	EC6CR7						
	Core 12-International Economics	EC6CR7						
	Choice based Elective	EC6CBT						
	Core-13 Money & Financial markets	EC6CR7						
	Core-14 Indian Economy	EC6CR7						
	Project	EC6PR						

Broad Title of Courses *T.H- Teaching Hours per week, Cr.-Credits, Int.-Internal Evaluation and Ext.-External Examination

SYLLABI OF THE COURSES

Model I

Semester I				
Core Course No	Course Code	Course Title	No. of Credit	No. of Teaching Hours
	EC1CRT01	Perspectives and Methodology of Economics	4	108

Course Objective

The course intends to familiarize the students with the broad contours of Social Sciences, specifically Economics and its methodologies, tools and analysis procedures. The course also aims to create an enthusiasm among students about different schools of Economic thought and various aspects of social science research, methodology, concepts, tools and various issues.

MODULE I: Methodology of Social Science

Science-Different branches of science-Evolution of a scientific approach Social science Disciplines - Need for interdisciplinary approach - Objectivity and subjectivity in social Science - Limits to objectivity in social science. (25hrs)

MODULE II: Methodology, Concepts and tools of Economics

Economics as a social science –Subject matter and scope of Economics, Importance of the study of economics with other social sciences like history, political science, psychology, law and Sociology. Positive and Normative Economics, Economic theory and Economic laws, Micro and Macro Economics, Role of assumptions in Economics, Method and Methodology - Deductive and inductive methodology, Economic Models

Various Concepts: Function, Variable, Equilibrium-Partial and General, Static, Comparative static and Dynamic ; Marginal and Total; Nominal and Real; Value; (30 hrs)

MODULE III: Major Schools of Economic Thought

Mercantilism(Thomas Mun, William Petty) and Physiocracy (Francis Quesnay and Turgot), Basic postulates of Classical and Neo-Classical economic thought (Adam Smith, Ricardo, J.B.Say, Malthus, J.S.Mill, Jeremy Bentham, Alfred Marshall, A.C.Pigou and Walras,) Socialist and Marxist Economic Thought(Saint Simon, Sismondi and Karl Marx,

Keynesianism(keynes as a critique of classical Economics and Monetarism(Milton Friedman). Contribution of Indian Economicists-Kautilya, Dadabhai Naoroji, Amartya Sen and J.N..Bhagwathi). (27hrs)

MODULE IV: Research Methodology

Meaning and objectives of research – Types of research - Steps in research Data - Primary and secondary . Undertaking a research study - Conceptualization of research issues, reviewing the literature, Hypothesis, analysis and presentation of data, writing a research report. (30hrs)

References

Baumol, William J and Alan Blinder (2010): Economics: principles and Policy, 13 th Ed, South Western Cengage Learning, New Delhi.

Blaug, M (1998): The Methodology of Economics, Cambridge Surveys of Economic Literature New York.

Blaugh, Mark (1990): Economic Theory in Retrospect,4thed,Cambridge University Press, New York.

Boland, Lawrence A. (2000): The Methodology of Economic Model Building Methodology after Samuelson, Routledge, London and New York.

Boland, Lawrence A. (2003):The Foundations of Economic Method: A Popperian Perspective Second Edition, Routledge, London and New York.

Bruce, Stanley L. (1994): The Evolution of Economic Thought, 5th ed, the Dryden Press

Cooper, D. and Schindler P (2000): Business Research Methods, Tata McGraw Hill, New Delhi.

Dasgupta,Manas (2007): Research Methodology in Economics: Problems and Issues, Deep & Deep Publications, New Delhi.

Ekelund, Robert B Jr. and Robert F.Herbert (1975): “A History of Economic Theory and Methods”, Mc Graw Hill.

Eric Roll (1956): A History of Economic Thought, 3rd ed Prentice Hall, New Jersey.

Ethridge,Don (1995): Research methodology in Applied Economics: Organizing, Planning and Conducting Economic Research, IOWA State University Press.

Semester 3				
Core Course No	Course Code	Course Title	No. of Credit	No. of Teaching Hours
	EC3CRT04	Economics Of Growth & Development		90

Learning Objectives

This course enables the student to acquaint with the basic concepts and issues of growth and development from Adam Smith. It makes a student more insightful about the modern approaches to development presented by D Goulet and Amartya Sen.

Module I: Introduction to Economics of Growth and Development

Growth and Development – meaning – features – distinction – determinants and indicators – features of underdevelopment – measurement of development - income and non-income indices – GDP, PCI, PQLI, HDI, HPI, GEM – (GDI, GNH) – Development redefined – Development as a total social process – Development as freedom – Development as Liberation – Sen’s capability approach – poverty as capability and Entitlement failure – multidimensional poverty index – **Quality of life – Education – Health and Nutrition – poverty – absolute and relative – inequality of income and wealth** – Gini coefficient – Kuznet’s inverted ‘U’- Hypothesis – Development gap (22hrs)

Module II: Approaches to Development

Approaches to Economic Development: Structuralist – dependency - market- friendly approaches (concepts only) – vicious circle of poverty – Stage theories Rostow – low level equilibrium trap – Critical minimum effort thesis – Big push – Lewis model – balanced vs unbalanced growth strategy – Dualistic theories. (23hrs)

Module III: Theories and Factors in the Development Process

Classical – Marxian – Schumpeterian. Economic Development – role of agriculture – capital – technology – choice of technique - Trade and economic development – process of cumulative causation. (20 hrs)

Module IV: Human Resource and Development

Human Resource and Development – man power planning – concept of intellectual capital and its size – role of education and health in economic development – Education and health as joint investment for development – **Gender and development – women in the labour force – missing women population and economic growth** – optimum theory of population – theory of demographic transition – ageing and younging of population. (25hrs)

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1. Thirlwall, Growth and Development with Special Reference to Developing Countries. Palgrave McMillian, New Delhi.
2. Benjamin Higgins(1968), Economic Development, Universal Book Stall, New Delhi.
3. Meier G.M. (2007) Leading Issues in Economic Development, Oxford University Press, New Delhi.
4. Todaro and Smith, Economic Development, Pearson Education, New Delhi.
5. Debraj Ray, Development Economics. Oxford University Press, New Delhi.
6. Felix Raj and et. al, Contemporary Development Economics, New Central Book Agency (p) Ltd.

Semester 5				
Core Course No	Course Code	Course Title	No. of Credit	No. of Teaching Hours
09	EC5CRT09	Environmental Economics	4	90

Learning objectives :

The importance of environmental science and environmental studies cannot be disputed. The need for sustainable development is a key to the future of mankind. Continuing problems of pollution, loss of forest, solid waste disposal, degradation of environment, issues like economic productivity and national security, Global warming, the depletion of ozone layer and loss of biodiversity have made everyone aware of environmental issues. The United Nations Conference on Environment and Development held in Rio de Janeiro in 1992 and world Summit on Sustainable Development at Johannesburg in 2002 have drawn the attention of people around the globe to the deteriorating condition of our environment. It is clear that no citizen of the earth can afford to be ignorant of environment issues. Environmental management has captured the attention of health care managers. Managing environmental hazards has become very important.

Human beings have been interested in ecology since the beginning of civilization. Even our ancient scriptures have emphasized about practices and values of environmental conservation. It is now even more critical than ever before for mankind as a whole to have a clear understanding of environmental concerns and to follow sustainable development practices.

India is rich in biodiversity which provides various resources for people. It is also basis for biotechnology.

Only about 1.7 million living organisms have been described and named globally. Still many more remain to be identified and described. Attempts are made to conserve them in ex-situ and in-situ situations. Intellectual property rights (IPRs) have become important in a biodiversity-rich country like India to protect microbes, plants and animals that have useful genetic properties. Destruction of habitats, over-use of energy resource and environmental pollution have been found to be responsible for the loss of a large number of life-forms. It is feared that a large proportion of life on earth may get wiped out in the near future.

In spite of the deteriorating status of the environment, study of environment have so far not received adequate attention in our academic programmes. Recognizing this, the Hon'ble Supreme Court directed the UGC to introduce a basic course on environment at every level in

college education. Accordingly, the matter was considered by UGC and it was decided that a six months compulsory core module course in environmental studies may be prepared and compulsorily implemented in all the University/Colleges of India.

The experts committee appointed by the UGC has looked into all the pertinent questions, issues and other relevant matters. This was followed by framing of the core module syllabus for environmental studies for undergraduate courses of all branches of Higher Education. We are deeply conscious that there are bound to be gaps between the ideal and real. Genuine endeavour is required to minimize the gaps by intellectual and material inputs. The success of this course will depend on the initiative and drive of the teachers and the receptive students.

Module I Unit 1 : Multidisciplinary nature of environmental studies

Definition, scope and importance (2 hrs)

Need for public awareness.

Unit 2 : Natural Resources :

Renewable and non-renewable resources : Natural resources and associated problems.

a) Forest resources : Use and over-exploitation, deforestation, case studies.

Timber extraction, mining, dams and their effects on forest and tribal people.

b) Water resources : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

c) Mineral resources : Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

d) Food resources : World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

e) Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources, Case studies.

f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification

- Role of individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

(10 hrs)

Unit 3: Ecosystems

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the given ecosystem:-
 - a. Forest ecosystem

(6 hrs)

ModuleII Unit 1: Biodiversity and its conservation

- Introduction
- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values.
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts
- Endangered and endemic species of India

(8 hrs)

Unit 2: Environmental Pollution

Definition

Causes, effects and control measures of: -

- a. Air pollution
- b. Water pollution
- c. Soil pollution
- d. Marine pollution
- e. Noise pollution
- f. Thermal pollution
- g. Nuclear hazards
- Solid waste Management: Causes, effects and control measures of urban and industrial wastes.

- Role of an individual in prevention of pollution
- Pollution case studies
- Disaster management: floods, earthquake, cyclone and landslides.

(8 hrs)

Unit 3: Social Issues and the Environment

- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people: its problems and concerns, Case studies
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, Case studies
- Consumerism and waste products
- Environment Protection Act
- Air (Prevention and Control of Pollution) Act
- Water (Prevention and control of Pollution) Act
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation
- Public awareness

(10 hrs)

Module – III Unit I: Economics and Environment

Environmental Economics – Definition – Scope – Meaning – importance – Environment-Economy interaction (linkages) – material balance model – ecosystem – structure and functions – relation between environment and development – Environment as a necessity and luxury-environmental issues and global concern-Stockholm Conference – Helsinki Convention – Montreal Protocol – Kyoto Protocol – Rio Summit – Paris Convention. Population growth and Environment – market failure – tragedy of commons-sustainable development-policy approach to sustainable development(An overview only). (16hrs)

Module IV Unit 1: Framework and Criteria for Environmental Analysis

Evaluation of environmental benefits – Contingent Valuation Method – Hedonic approach – travel cost method – preventive expenditure method - surrogate market approach – property value approach and wage differential approach - cost benefit analysis – UNIDO analysis –

Little- Mirrlees approach - Environmental Impact Analysis. Pollution control – socially optimum level of pollution – environmental policies and legislations in India. (18hrs)

Module – V Unit 1- Human Rights– An Introduction to Human Rights, Meaning, concept and development, Three Generations of Human Rights (Civil and Political Rights; Economic, Social and Cultural Rights).

Unit-2 Human Rights and United Nations – contributions, main human rights related organs - UNESCO, UNICEF, WHO, ILO, Declarations for women and children, Universal Declaration of Human Rights.

Human Rights in India – Fundamental rights and Indian Constitution, Rights for children and women, Scheduled Castes, Scheduled Tribes, Other Backward Castes and Minorities

Unit-3 Human Rights and environmental rights - Right to Clean Environment and Public Safety: Issues of Industrial Pollution, Prevention, Rehabilitation and Safety Aspect of New Technologies such as Chemical and Nuclear Technologies, Issues of Waste Disposal, Protection of Environment

Conservation of natural resources and human rights: Reports, Case studies and policy formulation. Conservation issues of western ghats- mention Gadgil committee report, Kasthuriengan report. Over exploitation of ground water resources, marine fisheries, sand mining etc. (12Hrs)

Reference

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2. Bharucha Erach, Text Book of Environmental Studies for undergraduate Courses. University Press, IInd Edition 2013 (TB)
3. Brunner.R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc.480p
4. Clark.R.S., Marine Pollution, Clarendon Press Oxford (TB)
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7. Down to Earth, Centre for Science and Environment (R)
8. Gleick, H.P.1993 Water in crisis, Pacific Institute for Studies in Dev. Environment & Security. Stockholm Environment Institute Oxford University Press 473p

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10. Heywood, V.H & Watson, R.T. 1995. Global Biodiversity Assessment, Cambridge University Press 1140p
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12. Mekinney, M.L & Schock.R.M. 1996 Environmental Science Systems & Solutions. Web enhanced edition 639p
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17. Sharma B.K., 2001. Environmental Chemistry. Geol Publ. House, Meerut
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20. Trivedi R.K., Handbook of Environmental Laws, Rules Guidelines, Compliances and Stadards, Vol I and II, Enviro Media (R)
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- 26 Ramaprasad Senguptha. (2009). Ecology and Economics. New Delhi: OUP.
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- 31 Karpagam . M. (2008). Environmental Economics. New Delhi: Sterling Publishers.

- 32 R.K. Lekhi et al. (2008). Developmental and Environmental Economics. Ludhiana: Kalyani publishers.
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- 38 Fisher A.C. (1981). Resource and Environmental Economics. Cambridge University Press, Cambridge.
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- 41 PR Trivedi.(2014)Environmental Impact Assessment.APH Publishing Corporation.
- 42 Erach Baraucha (2014) Test book of Environmental studies, Orient Black Swann.

Semester 6				
Core Course No	Course Code	Course Title	No. of Credit	No. of Teaching Hours
14	EC6CRT14	Indian Economy	4	90

Module I: Economic Development Strategy since Independence

Mixed Economic Framework - Key and Strategic Role of PSUs – Economic Crisis of 1990 – Macro Economic Reforms Implemented Since 1991-Structural Adjustment Programmes - Globalisation, Liberalisation and Privatisation –Performance of Indian Economy before and after Economic Reforms -External Sector Reforms since 1991 - Trade and Currency Reforms, - foreign capital - FDI, portfolio investments and MNCs (25hrs)

Module II- Demographic Features-

Population–size, structure (sex and age) – characteristics – population change – rural–urban migrations, occupational distribution, problems of over population, population dividend, population policy, Gender inequality, women empowerment. (15hrs)

Module III: Agriculture, Industry and Service Sector

Role of Agriculture in Indian Economy-Land Reforms-New Agricultural Strategy - Green Revolution — Need for Second Green Revolution - Agricultural Growth and Performance - New Agricultural Policy – Changes in Land use and Cropping Pattern-Agricultural Finance and Issues - Agriculture during Economic Reform Period - WTO and Indian Agriculture. Industrial growth during pre reform and post reform period-Industrial Policy Resolution of 1956 and 1991 - Role of Micro, Small and Medium Scale Industries (MSMEs) in Indian Economy Its problems and remedies- Role and Performance of Service sector in Indian Economy. (20 hrs)

Module IV: Economic Planning and Development Issues

Meaning and rationale of Planning-Basic Strategies, Objectives and Achievements of Planning in India-Strategies of 12th Plan, Inclusive Development-NITI Aayog - Trends in India's National Income – Magnitude of poverty and inequality in India - unemployment, black money and corruption – rising prices - energy crisis – Micro finance and its significance – importance of infrastructure in India's economic development. (15hrs)

Module V: Kerala Economy

Features, Kerala model of development - Structural change and economic growth in Kerala - Land reforms - current issues in agriculture – food crisis – changes in cropping pattern – agricultural indebtedness – unemployment - IT sector in Kerala - fiscal crisis in Kerala, Gulf migration, energy policy and energy crisis, decentralized planning in Kerala.

(15hrs)

Readings

1. Misra and Puri (recent edition), Indian Economy, Himalaya Publishing House, Mumabai.
2. Gaurav Datt & Ashwani Mahajan (recent Edition), Datt & Sundharam Indian Economy, S. Chand & Co., New Delhi
3. Meera Bai M. (ed) (2008), Kerala Economy, Serials Publication, New Delhi.
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5. George K K (1993) Limits to Kerala Model of Developemnt, CDS, Trivandram
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MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR POST GRADUATE PROGRAMMES IN

M.A ECONOMICS

UNDER CREDIT AND SEMESTER SYSTEM (PG CSS) 2019

2019 ADMISSIONS ONWARDS

7. THE SEMESTER-WISE COURSE DETAILS

Course Code	Title of the Course	Type of the Course	Hours per week	Credits
FIRST SEMESTER				
EC010101	Microeconomics-I	Core	05	04
EC010102	Macroeconomics-I	Core	05	04
EC010103	Development Economics	Core	05	04
EC010104	Indian Economy-I	Core	05	04
EC010105	Mathematical Methods for Economic Analysis	Core	05	04
SECOND SEMESTER				
EC010201	Microeconomics-II	Core	05	04
EC010202	Macroeconomics-II	Core	05	04
EC010203	Public Economics	Core	05	04
EC010204	Indian Economy-II	Core	05	04
EC010205	Statistical Methods for Economic Analysis	Core	05	04
THIRD SEMESTER				
EC010301	International Economics	Core	05	04
EC010302	Econometrics-I	Core	05	04
EC010303	Heterodox Economics	Core	05	04
EC010304	Environment Economics	Core	05	04
EC010305	Kerala Economy	Core	05	03
FOURTH SEMESTER				
EC010401	International Finance	Core	05	04
EC010402	Econometrics-II	Core	05	04

ELECTIVE (Credit 3*3=9)		
GROUP A	GROUP B	GROUP C
EC800401 Agricultural Economics	EC810401 Mathematical Economics	EC820401 Financial Economics
EC800402 Industrial Economics	EC810402 Operations Research	EC820402 Game Theory and Its Economic Applications
EC800403 Labour Economics	EC810403 Multivariate Data Analysis for Social Sciences	EC820403 Economics of Business Strategy

EC010403	Project/Dissertation	Core	Credit	02
EC010404	Comprehensive Viva -Voce	Core	Credit	02
Total weight of the course				80

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
I	EC010103	Development Economics	Core	4	90
Course Objectives					
<p><i>The objective of this course is to familiarize the students with the current theoretical literature trying to understand economic growth and development across nations. The approach of this course is to provide a comprehensive introduction to the theoretical paradigms of economic development. In a fast-moving global economic order, there is a persistent demand to synchronize the approaches, theories and development issues for a better understanding of the problems of the developing economies. By its very nature, the scope is interdisciplinary in nature, incorporating non-economic dimensions like culture, norms, and values as well as political, historical and social processes. The objective of this course is to familiarize students with the conceptual routes, theoretical dynamics and practical strategies of growth and development. It is expected that this course would orient them towards major themes of development, lead them towards more methodical probes and equip them with adequate analytical knowledge. At the end of this course, students should be able (i) to understand and critically evaluate alternative theories of growth. (ii) show a clear understanding of the recent literature, both empirical and analytical, on theories of underdevelopment and growth in developing countries; (iii) be able to evaluate critically some of the results in the literature, particularly those related to development issues.</i></p>					

Module-I: Economic Development –Overview (Self-Study) (10 Hours)

- 1.1. Meaning and measurement of economic development: conventional, human development index (Human Development Index, Gender Related Development Index, Gender Empowerment Measure, Gender Inequality Index, Human Poverty Index).
- 1.2. Quality of life indices: Entitlements approach- Capabilities and Functioning- Development as Freedom- Human Rights-Based Approach- Three Core Values of Development
- 1.3. Development Gap -Inequality in income distribution- Kuznets Inverted U hypothesis- Lorenz Curve and Gini-coefficient - **Concept of Sustainable Development.**

Unit- 2: Theories of Underdevelopment (25 Hours)

- 2.1. Vicious Circle of Poverty—Dualistic Theories. – Social – Financial and Technical Dualism Prebisch- Singer thesis and Myrdal thesis: Backwash and spread effect- Circular and cumulative causation- Rostow's stages of growth. —Vent for Surplus theory of Hla Myint—Stable Theory –the Dutch Diseases.
- 2.2. Rural-urban migration and urban unemployment (Harris-Todaro model).
- 2.3. Political Economy of Underdevelopment (Theory of dependency): Paul Baran, Gundar Frank, Samir Amin and Emmanuel Wallerstein (World systems approach).

Unit- 3: Theories of Development and Growth

(25 Hours)

- 3.1. Classical Theory of Development—Adam Smith, David Ricardo, Karl Marx and Schumpeter.
- 3.2. Theories of Economic Growth: Harrod-Domar Model.
- 3.3. Neo-Classical Growth Models – Solow and Meade.
- 3.4. Cambridge Growth Models: Mrs. Joan Robinson's and Kaldor's Growth Models.
- 3.5. Endogenous Growth Models: (Ramsey, Romer; Uzawa-Lucas, AK, Arrow's Model, Grossman and Helpman's model, Aghion and Howitt).

Unit- 4: Approaches to Development

(20 Hours)

- 4.1. Theory of Big Push- Critical Minimum Effort Thesis- Low Income Equilibrium Trap. - Balanced and Unbalanced Growth. (Self-Study)
- 4.2. Development with Unlimited Supply of Labour, Ranis and Fei Model - Michael Kremer's O-Ring Theory of Economic Development-- The Jorgenson model and Dixit-Marglin model.

Unit- 5: Critical Issues in Development Process

(10 Hours)

- 5.1. Role of Financial Institutions in Economic Development: (Acemoglu and Zilibotti model)
- 5.2. Globalization and Development: Views of Stiglitz.
- 5.3. Development and Human Rights
- 5.4. Culture and Development
- 5.5. Social Capital and Development.
- 5.6. Corruption, Crime, Social Exclusion and Development.
- 5.7. Climate Change and Development.
- 5.8. Energy and Development.

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2. Acemoglu, D. (2009): Introduction to Modern Economic Growth. Princeton University Press.
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16. John Rapley (2007): *Understanding Development: Theory and Practice in the Third World*, 3rd Ed, Lynne Rienner Publishers.
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21. Robert Joseph Barro, Xavier Sala-i-Martin (2009): *Economic Growth*, 2nd Ed, MIT Press.
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Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
I	EC010104	Indian Economy-I	Core-4	4	90
Course Objectives					
<p><i>This course offers an analytical introduction to the main aspects of the Indian economic policy and performance in the post-independence period. It focusses on Indian economic problems in the light of relevant economic theories, and in a comparative perspective. The course is expected to enable the students to appreciate the evolution of the economy, its institutional framework, nuances in using statistical information for analysing public policy, and to get familiar with the issues for research. This course also enables the students to understand the pre-reform and post-reform development experiences of the Indian Economy. A thorough understanding of Indian economic policies is a must for post-graduate students of economics and that is what this course aims to develop among the students.</i></p>					
Unit-1 – Structure and Growth of the Indian Economy					(15 Hours)

- 1.1. India's Economic growth in historical perspective.
- 1.2. National Income – growth and measurement Database on Indian Economy.
- 1.3. Economic Planning – Development strategies - planning and development – debates on planning and import substitution -Rationale – Achievements – failures — crisis of 1991.
- 1.4. Economic Reforms – Structural Adjustment Programmes – Neo-liberalism in India- Disinvestment Policy – PPP-impact of 25 years of reforms on various sectors of the economy- NITI Aayog- and its structure, NITI Aayog Verses Planning Commission.
- 1.5. State-Local financial relations in India.

Unit-2: Agriculture and Industry **(15 Hours)**

- 2.1. Productivity in agriculture; Land reforms; New technology in Indian agriculture- Green Revolution- Need for second Green Revolution; Modern farm inputs and marketing;- Commercialization and diversification.
- 2.2. Agricultural Finance and Marketing – globalization and Indian Agriculture — New Agricultural Policy- WTO and- Indian Agriculture- Current Issues in Indian agriculture. Investments and subsidies in Indian agriculture- Agrarian distress and related issues- Govt. Supports and schemes in agriculture sector.
- 2.3. Industrial Growth – Trends patterns and structure – industrial stagnation debates- Industrial Policies in India- Reforms in industrial sector – industry under globalization- Research and development – Technology transfer – Make – in – India initiatives- Small and Medium Scale

Industries (MSMEs)- Role, problems and remedies- Role of FDI in industrialization process- ICT based industrial development strategy- Public Sector Enterprises -Make in India.

Unit-3: Service Sector and Infra-Structure (15 Hours)

- 3.1. Growth and performance of service sector in India – Pre and post-Independence period
- 3.2. Health and Education Infrastructure - Efficacy of social sector spending in India along with its implication for inclusive growth.
- 3.3. Energy, Transport, Telecommunication- recent infrastructure policy – Inadequacies and structural bottlenecks in infrastructure development- Trade in services- Global technological change and Indian IT boom. Challenges of India’s Service sector.

Unit-4. Trade and External Sector (15 Hours)

- 4.1. Evolution of trade policies since independence.
- 4.2. External Sector reforms – Trade reforms – changing structure, composition and direction of India’s foreign trade – Balance of Payment; Exchange rate- India and WTO -EXIM policy – SEZ.
- 4.3. FII and FDI in India – role of MNC’s.

Reference:

Acharya Shanker, Mohan Rakesh (Eds) (2011): India’s Economy: Performance and Challenges- Oxford University Press, New Delhi.

Agarwal A N (2017), Indian Economy: Problems of Development and Planning, Vikas Publishing House, New Delhi.

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Ahulwaia, J.J. and I.M.D. Little (Eds.) (1999) India's Economic Reforms and Development (Essays in hon/ of Manmohan Singh) Oxford University Press, New Delhi.

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Amir Ullah Khan and Harsh Vivek (2018): State of the Indian Economy: Towards a larger constituency for second generation economic reforms, Sage India.

Anthony P. D'Costa and Achin Chakraborty (2017): *The land Question in India: State, Dispossession and Capitalist Transition*. OUP.

Arvind Panagariya (2018): *Free Trade and Prosperity: How Openness Helps Developing Countries Grow Richer and Combat Poverty*, OUP.

Ashima Goyal (2015): *A Concise Handbook of the Indian Economy in the 21st Century*, OUP.

B A Prakash (ed) (2012) *The Indian Economy Since 1991: Economic Reforms and Performance*, Pearson, New Delhi.

Babu, Suresh M. (2018): 'Hastening Slowly: India's Industrial Growth in the Era of Economic Reforms'. Orient Black Swan, Hyderabad.

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Balakrishnan, P.; Das, M. & Parameswaran, M. (2017), 'The internal dynamic of Indian economic growth', *Journal of Asian Economics* 50, 46-61.

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Bhalotra Sonia (1998): 'The Puzzle of Jobless Growth in Indian Manufacturing'. *Oxford Bulletin of Economics and Statistics*, Vol. 60 No 1.

Bijesh C Purohit (2014) *Efficacy of Social Sector Expenditure in India*, Routledge London

Bose, Ashish (1996) "Demographic transition and demographic imbalance in India." *Health Transition Review*" Vol.6, pp.89-99.

Buwa, R.S. and P.S. Raikhy (Ed.) (1997) *Structural Changes in Indian Economy*, Guru Nanak Dev University press, Amritsar.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
II	EC010203	Public Economics	Core	4	90
Course Objectives					
<p><i>Public economics is the study of government policy from the points of view of economic efficiency and equity. Public economics explores the economic effects of government tax and expenditure policies, as well as the optimal design of these policies. The primary objective is to teach the leading current tools and methods of public finance. The course covers major topics in public finance including externalities, public goods, benefit/cost analysis, fiscal federalism, taxation, and others. The course deals with the nature of government intervention and its implications for allocation, distribution, and stabilization. The objective of this course is to familiarize students about the rationale for and role of government intervention in economic activities and how the government makes economic decisions. To develop the competence of the students to identify major issues in public finance for a critical evaluation of policies. To enable them to use their skills in finding complete or partial solutions to those identified issues and also enable them to demonstrate it through their presentations and contribute to the debate and policy in terms of a public policy paper appropriate to the discipline. At the end of this course, students should be able to demonstrate a clear understanding of established concepts and theoretical results on collective choice, optimal income taxation, and the effects of income redistribution on the provision of public goods. The course will be useful for students aiming towards careers in the government sector, policy analysis, business, and journalism.</i></p>					

Unit- 1: Role of State and Macroeconomic Perspective of Public Finance (10 Hours)

- 1.1. Role of Government: Issues related to market failure and government intervention- Government failure.
- 1.2. Changing Role of State: Issues in Public Finance in a Globalizing World with special emphasis on Global Public Goods.
- 1.3. Macroeconomics of Public Finance: The Interaction between Fiscal and Monetary Policy and Fiscal Stabilization

Unit- 3: Economic Analysis of Public Goods and externalities (25 Hours)

- 2.1. Public goods: Pure and Impure Public Goods.
- 2.2. Market failure and Externalities- Types of Externalities, Coase Theorem and Property Rights, Free-Rider Problem
- 2.3. **Optimal provision of public goods** – Voluntary Exchange Models – Samuelson’s contribution.
- 2.4. The Theory of Clubs and Local Public Goods- Tiebout Model
- 2.5. **Voting and Public Choice – Reasons for Public Choice- Public Choice under Direct Democracy unanimity rule –Wicksell approach**

2.6. Majority Rule – Buchanan and Tullock model - Bowen Black model

2.7. Preference Revelation Mechanisms - Lindahl equilibrium- Groves–Clarke mechanism

Unit- 3: Economic Decision Making of Government (15 Hours)

3.1. Normative social choice theory – Arrow’s theorem – Majority Voting – The Median Voter Model – Representative Democracy -Downs Model on Demand and Supply of Government Policy- Niskanen Model of Bureaucratic Behavior

3.2. Positive Social Choice Theory: The Leviathan Hypothesis – Theory of Rent Seeking – Property Rights Dimension, Rent Seeking and X- Efficiency

3.3. Lobbying and Interest Groups.

Unit- 4: Fiscal Administration and Management (25 Hours)

4.1. Incidence of Taxation – Optimal Taxation – Dead Weight Loss – Equity Vs Efficiency- Theories of taxation: Benefit Theory, The Cost Service Theory and Ability to Pay Theory

4.2. Impact and Incidence of Taxation, Theories of Shifting- Diffusion Theory, Concentration Theory, Demand and Supply Theory.

4.3. Theories of Public Expenditure: Adolf Wagner- Wiseman- Peacock - Colin Clark- Bowen Model, Lindahl Model, Pigou Model and Samuelson Model

4.4. Theories of Public debt: Classical – Keynesian – Modern

4.5. Burden of Public Debt - Intergenerational Equity –Buchanan Thesis

4.6. Measurement and Macroeconomic Impact of Deficits: Alternative Paradigms

4.7. Deficit concepts-Problem of fiscal deficit –Corrective measures-FRBM Act

4.8. Budgetary Policy in India- Stages involved in the preparation, presentation and execution of government budget – A brief review of recent budgets in India

4.9. Recent trends in the fiscal parameters in India -Its macroeconomic implications

Unit- 5: Fiscal Federalism: Theory and Practice (15 Hours)

5.1. Theory of Fiscal Federalism: The Decentralization Theorem

5.2. Theory of Intergovernmental Transfers

5.3. Issues of Indian Federalism and Intergovernmental Transfers in India- Vertical and Horizontal Imbalances.

5.4. Centre-State financial relations in India- Finance Commission and the recent most reports of the Finance commissions of India

Essential Readings:

1. Anthony B. Atkinson and Joseph E. Stiglitz (2015): Economics of the Public Sector, 2nd Rev. Ed, Princeton University Press.
2. C.V. Brown and Peter. M. Jackson (2010): Public Sector Economics, 5th Ed, Wiley-Blackwell
3. Harvey Rosen (2012): Public Finance. 8th Ed, McGraw Hill Education.
4. Hyman David: Public Finance (2015): A contemporary Application of Theory to Policy, 5th Ed, Thomson Learning.
5. John Cullis and Philip Jones (2009): Public Finance and Public Choice: Analytical Perspectives, 3rd Ed, OUP (India)
6. Patrick A. McNutt (1997): The Economics of Public Choice: Contemporary Issues in the Political Economy of Governing, Edward Elgar Publishing Ltd.

Additional Readings:

1. Amaresh Bagchi (2005): Readings in Public Finance, OUP(India)
2. Bailey, Stephen J: Public Sector Economics (2001): Theory and Practice. Second Edition. Palgrave, New York.
3. Bharti Pandey (2017): Fiscal Federalism in India: Challenges and Reforms, Serials Publications.
4. Buchanan, J. M (1968): The Demand and Supply of Public Goods. Randy McNally, Chicago.
5. Cornes, Richard and Todd Sandler (1996): The Theory of Externalities, Public Goods and Club Goods. Cambridge University Press.
6. Friedman, A (1986): Welfare Economics and Social Choice Theory. Martins Nijhoff, Boston.
7. Glennester, H. and J. Hills (1998): The State of Welfare: the Economic and Social Spending, Oxford University Press, London.
8. Greene, Joshua E (2012): Public Finance: An International Perspective, World Scientific.
9. Gruber, Jonathan (2016): Public Finance and Public Policy, 5th Ed, Worth Publishers.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
II	EC010205	Indian Economy-II	Core	4	90
Course Objectives					
<p><i>The course aims to provide a detailed exposure to the various aspects of Indian economic development. The course starts with a discussion of the Indian labour market and then consider the issues of poverty and inequality and performance in financial sector of the economy. The purpose of this course is to enable students to have an understanding the overall features of various key sectors and their issues and developments, obstacles involved in the growth of Indian Economy with a policy perspective. The objectives of this course are: to equip the students with the basic idea for further learning, and to help them to analyze the sectoral development that has taken place in India. This course will enable you to: know the various concepts used in the measurement of employment and unemployment by NSSO; explain the various dimensions of employment and unemployment in India; examine the growth of employment in post-reform period; you will be able to state different income and non-income indicators of poverty; identify the income and non-income dimensions of poverty in India; identify the income and non-income measures of inequality; analyses the level of inequality in India; state the concept of inclusive growth; examine the status of India in terms of inclusive growth; and explain the policy implications on poverty, inequality and inclusive growth. While going through this course, you will be able to: know the principles governing fiscal federalism; state the provisions enshrined in Indian Constitution relating to division of financial powers between Union and States; appreciate the role of Finance Commission which constitutes a pillar of India's federal structure; critically examine the various recommendations of Finance Commission; and consider the dimension and nature of issues involved in contemporary situation prevailing in the country.</i></p>					

Unit-1: Labour and Employment

(20 Hours)

- 1.1. Demographic changes in India – Census – Population policies – Demographic Dividend
- 1.2. Labour Market – Demand and Supply in labour market – Problems – Child Labour – Labour Market Reforms – Rural Urban Migration – Global Migration and Foreign remittance- Labour Policy and Social Security
- 1.3. Problems of Unemployment in India – NSSO Estimates – Employment trends in organized and unorganized sector – Employment Generation Programmes in India – MGNREGS

Unit-2: Poverty and Inequality

(20 Hours)

- 2.1. Poverty in India – definition, head count ratio, poverty gap and squared poverty gap index; Extent and distribution of poverty in India; Estimates of Poverty: Tendulkar and Rangarajan committee.

2.2. Food Security and Nutrition – Rural development – issues and strategies and micro level planning - SHGs and microfinance

2.3. Inequality – Regional Imbalances in India – Inclusive growth – concepts and policy initiative

Unit-3: Fiscal Policies and Reforms in India (25 Hours)

3.1. Fiscal reforms in India post 1991- Tax reforms and reforms in public expenditure management- Goods and Services Tax - Public Debt and Sustainability issues- Implementation of FRBM Act - Fiscal and Monetary Policy dynamics in India- Centre State Fiscal relationship- cooperative and competitive federalism in India- Role of Finance Commission- Local Bodies in India.

3.2 . National Institution for Transforming India (NITI) Aayog, Make in India

3.3. Black money and parallel economy in India, Consequences and Remedies.

3.4. Demonetization and its macro-economic impact

3.5. Global Economic crisis and its impacts

Unit-4: Financial Sector in India (25 Hours)

4.1. Financial system – Structure – Social Banking under nationalization – Financial Repression in the Pre-1991 period

4.2. Financial Sector Reforms

4.3. Rural indebtedness – informal credit market – trends

4.4. Financial inclusion - Strategies and progress

4.5. Second Generation Financial Reforms.

Reference:

Agarwal A N (2017), Indian Economy: Problems of Development and Planning, Vikas Publishing House, New Delhi.

Ahulwaia, J.J. and I.M.D. Little (Eds.) (1999) India's Economic Reforms and Development (Essays in hon/ of Manmohan Singh) Oxford University Press, New Delhi.

Ashima Goyal (2015): *A Concise Handbook of the Indian Economy in the 21st Century*, OUP.

B A Prakash (ed) (2012) *The Indian Economy Since 1991: Economic Reforms and Performance*, Pearson, New Delhi

Banik Nilanjan (2015), *The Indian economy-A Macro-Economic Perspective*, Sage India

Bardhan R.K. (9th Edition) *The Political Economy of Development in India*, Oxford University Press, New Delhi.

Bhagwati Jagdish and Arvind Panagariya (2012): 'India's Tryst with Destiny'. Collins Business, Noida, India.

Bhalotra Sonia (1998): 'The Puzzle of Jobless Growth in Indian Manufacturing'. *Oxford Bulletin of Economics and Statistics*, Vol. 60 No 1.

Byres T.J (1998): 'The Indian Economy: Major Debates since Independence'. Oxford University Press, New Delhi.

Chakraborty Pinaki (2015): *Finance Commission's Recommendations and Restructured Fiscal Space*, *Economic and Political Weekly*, Vol . 50, No. 12, March 2015.

Chakraborty Pinaki (2016): 'Emerging Issues in Union-State Relations' *Economic and Political Weekly*, Vol 52, No. 9, March 2017.

Chakraborty Pinaki (2016): *Restructuring of Central Grants: Balancing Fiscal Autonomy and Fiscal Space*, *Economic and Political Weekly*, Vol. 51, No. 6, February 2016.

Chetan Ghate (2016): *The Oxford Handbook of the Indian Economy*, OUP.

Deaton, A. and V. Kozel (ed) (2005): 'The Great Indian Poverty Debate'. New Delhi: Macmillan.

Dipak Mazumdar, Sandip Sarkar (2008): *Globalization, Labour Markets and Inequality in India*, International Development Research Centre

Eswaran Mukesh and Ahsok Kotwal (1994): 'Why Poverty Persists in India'. Oxford University Press, New Delhi.

Gopalji and Suman Bhakri (2013), *Indian Economy, Performance and Policies*, Pearson, New Delhi.

Government of India, *Census of India (2011)*; Paper I, Paper II and Paper III.

Government of India, *Economic Survey (Annual Issues)*, Ministry of Finance, New Delhi.

Himanshu (2011). "Employment Trends in India: A Re-examination." *Economic and Political Weekly*, Vol.46, No. 37, pp 497-508.

Himanshu. (2007). "Recent Trends in Poverty and Inequality: Some Preliminary Results." *Economic and Political Weekly*, Vol.42, No. 6, pp 497-508.

India 2019, Publication Division, New Delhi.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
III	EC010301	International Trade	Core	4	90
Course Objectives					
<p><i>This course surveys and studies the various theories of international trade and applies them to the analysis of current trade problems. The topics covered include theories explaining trade patterns, the effect of trade on national welfare, the welfare of groups within a country, trade policy, international economic integration and so on. The course aims to provide an understanding of the broad principles and theories, which govern the free flow of international trade, with empirical evidence. It would also provide an exposure to the theoretical underpinnings and empirical evidence of the major trade policies followed both at national and international level. The theoretical knowledge of international trade and policy imparted in the course would help the students to solve real-world problems. It will prepare them to become trade policy-makers and key strategists on trade issues.</i></p>					

Unit- 1: Classical Trade Theory (Self-Study) (15 Hours)

- 1.1. Mercantilism
- 1.2. Absolute Advantage Theory
- 1.3. Comparative Advantage of Trade - Real and Opportunity Cost Approaches
- 1.4. Gains from Trade- Reciprocal Demand (Offer Curves)
- 1.5. Terms of Trade and its Computation
- 1.6. Revealed comparative advantage (Case Study- Estimate India's revealed comparative advantage using Balassa index)

Unit- 2: Neo- Classical Trade Theory (20 Hours)

- 2.1. Heckscher-Ohlin theorem
- 2.2. Factor-Price Equalization Theorem – Factor Intensity Reversal
- 2.3. Empirical Verifications of Heckscher-Ohlin Theory
- 2.4. The effect of growth on trade – Immiserating Growth – Rybczynski Theorem
- 2.5. Technical progress and trade – neutral, capital saving, labour saving

Unit-3: Modern Trade Theory (25 Hours)

- 3.1. Kravis and Linder Theory of Trade- Technology Gap Theory and Product Life Cycle Theory.
- 3.2. Intra-industry trade- causes, emergence and measurement- imperfect competition and trade

3.3. The Neo-Heckscher -Ohlin Models

3.4. Neo- Chamberlin models- Neo-Hotelling models- Krugman Model

3.5. Oligopolistic models- Brander- Krugman Model- Reciprocal Dumping Model- - Gravity Model- Porter Diamond Model

3.6. Empirical work in intra-industry trade-Balassa index- Grubel-Lloyd index, Acquino index- - impact of intra industry trade on developing economies-trade in services.

3.7. Introduction to supply chain management (SCM) - impact of SCM on international trade

3.8. Trade and economic development- role and significance- Singer- Prebisch Thesis

Unit-4: Trade Policy

(30 Hours)

4.1. Free trade and protection

4.2. Effects of tariff —Metzler Paradox- Optimum Tariff- Effective rate of protection

4.3. Quotas and other non-tariff barriers- technical/ quality/ safety standards (regulations)- case study on India's EXIM policy

4.4. Economic integration – theory of customs union – partial and general equilibrium analysis –dynamic effects

4.5. Integration experiences- European Union, BRICS- NAFTA, PAFTA ASEAN

4.6. Regional trade blocs and barriers to free flows of trade

4.7. Multilateral trade negotiations- the GATT rounds – UNCTAD and evolution of world trading arrangements – World Trade Organization and fair trade- Development Round- Trade Facilitation- Trade War.

Essential Readings:

1. Appleyard D. R and Field A J (2014) -International Economics 8th Ed McGraw Hill, New Delhi
2. Chacholiades, M. (1990), International Trade: Theory and Policy, McGraw Hill, Kogakusha, Japan
3. Krugman P R and Obsfeild M (2009) - International Economics- Theory and Policy, 8th Ed, Pearson, Dorling Kindersley (India) Pvt. Ltd, New Delhi
4. Salvatore, D (2008) - International Economics, 8th Ed, Wiley India, New Delhi
5. Soderston, B and Reed G. (1994) - International Economics, 3rd Edition, McMillan Press Ltd. London

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
III	EC010304	Heterodox Economics	Core-15	4	90
Course Objectives					
<p><i>Over the past two decades, the intellectual agenda of heterodox economists has taken a decidedly pluralist turn. Leading thinkers have begun to move beyond the established paradigms of Austrian, feminist, Institutional-evolutionary, Marxian, Post-Keynesian, radical, social, and Sraffian economics – opening up new lines of analysis, criticism, and dialogue among dissenting schools of thought. This cross-fertilization of ideas is creating a new generation of scholarship in which novel combinations of heterodox ideas are being brought to bear on important contemporary and historical problems. A better understanding of heterodox principles will lead to a more informed understanding of mainstream economics. Heterodox economics is defined as a collection of separate schools of thought or traditions such as Marxism, institutionalism, post-Keynesianism, evolutionary economics, feminist and green economics, and more. The aim of this course is to revisit a set of economic concepts that are being extensively used in the economics curriculum--but with a critical stance that concentrates on philosophical and methodological considerations. This course will survey contemporary heterodox approaches to economic research, both from a microeconomic and a macroeconomic perspective.</i></p>					

Unit- 1: Introduction to Heterodox Approaches (10 Hours)

- 1.1.Heterodox Economics and Orthodox Economics—Paradigm Blindness
- 1.2.Nature, Characteristic and Features of Heterodox Economics
- 1.3.Epistemology/Ontology, Rationality, Method, Economic Core and Political Core

Unit- 2: Heterodox View of the Economy (20 Hours)

- 2.1. Classical political economy
- 2.2. Neoclassical economics and heterodox economics
- 2.3. Social provisioning process—Classical social surplus approach—Neoclassical social surplus approach
- 2.4. Cambridge controversies in the theory of capital, Inequality, welfare, and economic performance—Kalecki–Keynes–Sraffa synthesis
- 2.5. Accumulation regimes—Accumulation before the notion of accumulation regime and the contemporary theoretical approaches—Evolution and diversity of accumulation regimes

Unit- 3: Value, Production and Distribution (20 Hours)

- 3.1. Monetary theories of production

- 3.2. Capitalism as a monetary circuit other monetary theory of production
- 3.3. Recent theoretical developments—James Tobin’s stock-flow consistent approach to Macroeconomics (SFCA)—Financialization and other open issues
- 3.4. The principle of effective demand—Marx, Kalecki, and Keynes
- 3.5. Long run principle of effective demand
- 3.6. Heterodox theories of value—Adam Smith, Ricardo, Marx and Sraffa

Unit- 4: Micro–Macro link in Heterodox Economics (15 Hours)

- 4.1. Theories of prices and alternative economic paradigms
- 4.2. Pre-analytical visions of the economy and the role of prices—Open issues in the objective approach—Recent Developments
- 4.3. Heterodox theories of distribution—Classical, Marxian and Sraffian, Cambridge theory and the Neo-Kaleckian theory
- 4.4. The functional-size distribution nexus
- 4.5. Micro–Macro link in heterodox economics—Aggregates and aggregation—Problem of compositional Fallacy—Systemism as a general framework

Unit- 4: Institutions, Money, Trade and Economic Growth (25 Hours)

- 5.1. Society and its institutions—Government and the state—Money and the household
- 5.2. Business competition and market governance—Austrian, Marxist View and Post Keynesian View
- 5.3. Money and monetary regimes myth of barter
- 5.4. Modern money Monetary sovereignty—Counterfeiting—Hierarchy of money—Modern monetary regimes
- 5.5. Financialization and the crises of capitalism—Development of financialization—Financialization as a new stage of capitalism
- 5.6. Heterodox reconstruction of trade theory
- 5.7. Post Keynesian-institutionalist theory of trade—Business cycles: Marxian and Keynesian approaches
- 5.8. Economic growth from Harrod-Domar to Kaleckian models—Growth in the South—Marxian approaches—Growth Critique

Select Readings:

1. David Colander, Richard P.F. Holt and J. Barkley Rosser Jr., “Live and Dead Issues in the Methodology of Economics”, *Journal of Post Keynesian Economics*, Vol. 30, No. 2 (Winter, 2007-2008), pp. 303-312.
2. David Dequech, “Neoclassical, Mainstream, Orthodox, and Heterodox Economics”, *Journal of Post Keynesian Economics* 30(2):279-302.
3. Frederic Lee, “A History of Heterodox Economics Challenging the Mainstream in the Twentieth Century”, Routledge, New York.
4. Frederic S. Lee (2018): *Microeconomic Theory: A Heterodox Approach*, Routledge.
5. G. Meijer, W.J.M. Heijman, J.A.C. van Ophem and B.H.J. Verstegen (2006) (Ed): *Heterodox views on economics and the economy of the global society*, Wageningen Academic Publishers.
6. Hendrik Van den Berg (2015) : *International Economics: A Heterodox Approach*, Routledge.
7. John T. Harvey, Robert F. Garnett, “Future Directions for Heterodox Economics”, University of Michigan Press.
8. Jonathan P. Goldstein and Michael G. Hillard (2009): *Heterodox Macroeconomics: Keynes, Marx and globalization*, Routledge.
9. Marc Lavoie, “Post-Keynesian Economics: New Foundations”, Edward Elgar.
10. Marc Lavoie, “Introduction to Post-Keynesian Economics”, Palgrave Macmillan.
11. Sheila Dow, "Heterodox Economics: A Common Challenge to Mainstream Economics?", in Eckhard Hein, Achim Truger, "Money, Distribution and Economic Policy: Alternatives to Orthodox Macroeconomics", Edward Elgar Publishing.
12. Tae-Hee Jo, Lynne Chester, and Carlo D’Ippoliti, “The Routledge Handbook of Heterodox Economics: Theorizing, Analysing, and Transforming Capitalism”, Routledge, New York.
13. Tae-Hee Jo and Frederic S. Lee, “Marx, Veblen, and the Foundations of Heterodox Economics”, Routledge, New York.
14. Tony Lawson, “The Nature of Heterodox Economics”, *Cambridge Journal of Economics*, Vol. 30, No. 4 (July 2006), pp. 483-505.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
III	EC010304	Environmental Economics	Core	4	90
Course Objectives					
<p><i>This course examines the economics behind environmental issues and problems and policies designed to address them. Topics cover the valuation of non-market goods, cost-benefit analysis, correcting market failures especially in the provision of public goods, the tragedy of the commons, and climate change. The economic assessment of environmental impacts and the economics of policies and institutions which have a significant bearing on the environment are also dealt with in this course. This course will provide students with the tools to understand how market inefficiencies might arise in the presence of externalities like pollution and how market solutions can correct market failures. The main objective of the course is to illustrate how the study of mainstream economics needs to be reoriented in the light of the following premises: the natural environment is the core of any economy and economic sustainability cannot be attained without environmental sustainability. Thus, the course is intended to equip students with analytical skills that would enable the evaluation of environmental and economic policy issues. It is expected to enable students to understand the economics of the relationship between economic activities and environmental impacts. This course builds on the knowledge of students in microeconomics and public economics.</i></p>					

Unit- 1: Basic Environmental issues: Environment and Economy (15 Hours)

- 1.1. Environment and Economy- Environmental Economics, Ecological Economics and Resource Economics- Interlinkages between the Economy and the Environment
- 1.2. Material Balance Approach- criteria of Natural Resource Use-Principles of uncertainty and irreversibility – Inter generational equity- intra generational equity
- 1.3. Environment-Development Trade-offs: Environmental Cost of Economic Growth- The Environmental Kuznets Curve. Theory of Krutilla-Fisher Equation for Preservation or Development.
- 1.4. Different Perspectives on Development and Growth: The First and Second Laws of Thermodynamics Pessimist and Optimistic Models Limits to Growth- Beyond the Limits - Simon Julian’s thesis of “Ultimate Resource”-The Skeptical Environmentalist.
- 1.5. Global environment issues – climate change: positive and normative analysis of climate change- Economics of Global Warming and Climate Change: Nordaus’ Dice Model.

Unit- 2: Welfare Economics, Social Sector and Environment (20 Hours)

- 2.1. Individual preference regarding environmental protection-Pareto optimality
- 2.2. Market Failure and Externalities: Non-exclusion and the Commons Tragedy of Commons Nonrivalry and Public Goods -Non-convexities- Asymmetric Information



2.3. Hardin's Thesis, Olson Theory of Collective Action, Externalities and Property Rights: Coase theorem -Pigouvian Solution, Ostrom's Co-operative Solutions to Common Pool Resources (CPR) -Optimal Provision of Public Goods- Pollution Prevention, Control and Abatement – Command, Control and Market Based Instruments -Taxes Vs Tradable Permits - CPRS

2.4. Land use - Deforestation- urbanization and their impact on environment - Air and water pollution

Unit- 3: Environmental Valuation

(20 Hours)

3.1. Valuing the Environment: The Economic Concept of Value-Types of Value: Use- Value, Option Value and Non-use or Passive Use Values- The standard model-divergence in value measures-challenges to neo-classical theory of environmental valuation - Development of Nonmarket Valuation—Anthropocentric versus Biocentric Viewpoints - Valuation techniques-market and non-market- direct and indirect - Environment impact assessment-LCA

3.2. Valuation Methods: Compensating and Equivalent Welfare Compensating and Equivalent Variations and Willingness to Pay and Willingness to Accept.

3.3. Alternative Approaches and Methods of Environmental Valuation – Revealed Preference Methods—Travel Cost Method—Random Utility Site Choice Model—Problems of Travel Cost Method—Hedonic Pricing Method and the Problems—Hedonic Wage Values—Dose Response Function—Averting Expenditure and Avoided Cost Methods—Challenges—Aggregation and Partial Values

3.4. Stated Preference Methods—Contingent Valuation—Steps in Conducting a Contingent Valuation—Reliability and Validity—Attribute Based Models—Conjoint Analysis—Choice Experiments—Contingent Ranking—Production Function Methods—General Methodology and Measurement Issues

3.5. Economic Incentives: Emission taxes, tradable pollution permits, Pigouvian fee; Emission standards and Environmental Protection

Unit- 4: Sustainable Development

(15 Hours)

4.1. Sustainable Development: Sustainability Criteria: Hicksian Sustainability Possible-Sustainability Rules -The Hartwick-Solow Approach



4.2. Non-Declining Natural Capital Stock Approach -Safe Minimum Standards Approach -
Daly's Co-operational Principles - Sustainability versus Efficiency

4.3. Indicators of Sustainability ENP/AENP (Environmentally Adjusted or Approximate
Environmentally Adjusted National Product) and Green GNP Indicator on the Basis of Natural
Capital Stock and SMS Approaches

4.4. Weak, Strong and Very Strong Sustainability- Pearce-Atkinson Measure of Weak
Sustainability Daly-Cobb's Index of Sustainable Economic Welfare- Common-Perring's
Model of Sustainable Development.

4.5. Course of Inter-Generational Welfare- Environmental Sustainability- Ecological
Sustainability-Protecting Forest Products and Services

4.6. Eco Economy and its Shape—Solar Hydrogen Economy—New Materials Economy
Feeding Everyone Well—Protecting Forest Products and Services

Unit- 5: Environmental Governance and Management

(20 Hours)

4.1. Integrated environmental and economic accounting and the measurement-Environmentally
corrected GDP

4.2. Ecological Footprint Analysis-Global Environmental Governance- the Montreal and
Kyoto Protocol -International Environmental Treaties and Institutions- WTO and TRIPS as
related to environmental issues- Subsidies and taxes, Product standards and Exceptions clause;
International environmental externalities.

4.3. Environmental regulations and assessment in Indian context.

Essential Reading:

1. Kolstad, Charles D (2014): Environmental Economics, 2nd Ed, Oxford University Press, Indian Edition.
2. Nick Hanley, Jason F. Shogren and Ben White (2010): Environmental Economics in Theory and Practice, 2nd Ed, Palgrave MacMillan.
3. Ahmed M. Hussen (2014): Principles of Environmental Economics. 4th Ed, Routledge.
4. Horst Siebert (2010): Economics of the Environment: Theory and Policy, 7th Ed, Springer.

Supplementary Reading:

5. Anthony C. Fisher (1981): Resource and Environmental Economics, Cambridge University Press

6. Barry C. Field and Martha K. Field (2016): Environmental Economics: An Introduction, 7th Ed, McGraw Hill.
7. Baumol, William J and Wallace E Oates: The theory of environmental policy, Cambridge University press, 1988.
8. Charles S. P. (2000): Economics and Global Environment, Cambridge University Press
9. David A. Anderson (2010): Environmental Economics and Natural Resource Management, Routledge, London
10. Hans Wiesmeth (2012): Environmental Economics: Theory and Policy in Equilibrium, Springer.
11. Henk. F, H. L. Gabel, Shelby G. and Adam Rose, (2001) "Frontiers of Environmental Economics" Edward Elgar, Cheltenham UK
12. James Crustave Speth and Peter Maas (2009). Global Environmental Governance – Foundation of Contemporary Environmental Studies-Island press.
13. Jonathan M. Harris and Brian Roach (2018): Environmental and Natural Resource Economics: A Contemporary Approach, 4th Ed, Routledge.
14. Katar Singh, Anil Shishodia (2007): Environmental Economics; Theory and Applications, Sage publications, New Delhi.
15. Kavi Kumar, in Kanchan Chopra and Vikram Dayal (2009), (Ed). Hand book of Environmental Economics; Oxford University Press.
16. Kimio Uno and Peter Bartelmus (1998): Environmental Accounting in Theory and Practice, Springer
17. Krutilla John V. (1967). "Conservation Reconsidered", American Economic Review, Vol. 57, 1067.
18. Lee G. Anderson and Juan Carlos Seijo (2010): Bioeconomic of Fisheries Management, Wiley-Blackwell, Iowa
19. Lester R. Brown (2001): Eco Economy: Building an Economy for the Earth, W.W Norton and Company, London
20. Lester R. Brown (2015): The Great Transition: Shifting from Fossil Fuels to Solar and Wind Energy, W.W Norton and Company, London
21. Mohan Munasinghe and James Gustave Speth, Sustainable Development in Practice Cambridge University Press.
22. Nicholas Stern(2007): The Economics of Climate Change: Stern review, Cambridge University Press.
23. Oates W.E. (1994) (ed.), The Economics of the Environment, An Elgar Critical Writings Reader, Edward Elgar.
24. Olson, Jr., Mancur (1971), The Logic of Collective action: Public Goods and the theory of Groups, Cambridge, Harvard University Press.
25. Ostrom, E. (1990), Governing the Commons: The Evaluation of Institutions for Collective Actions, Cambridge University Press, Cambridge.
26. Pearce, D.W. and R. Turner (1991): Economics of Natural Resource Use and Environment, John Hopkins University Press, Baltimore.
27. Pearce D.W. and Jeremy J. Warford (1996), World without End: Economics, Environment and Sustainable Development, OUP.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
III	EC010305	Kerala Economy	Core-15	3	90
Course Objectives					
<p><i>The basic objective of the course is to introduce students to the current and critical issues, challenges and problems of the Kerala economy and thereby enhance their analytical ability to understand the dynamics of a regional economy. The aim of the course is to teach the students about Kerala's development experiences in historical perspective. It will enable them to understand the current economic scenario and their routes in historical and global perspective. The contents of the course are structured to make students aware of burning issues in agriculture, industrial and social sectors of Kerala economy. Keeping in view the scope for alternative approaches, such an analysis is essential because the Kerala economy is a unique amalgam of alternative competing and often conflicting theories and a proper understanding of its working is a sine qua non-if the student is to comprehend the ramifications that underline most of the observed phenomena in the Kerala's economic scenario.</i></p>					

Unit- 1: Introduction to Kerala Economy (20 Hours)

- 1.1.Kerala economy at the time of state formation- Broad Features – Sectoral Contribution.
- 1.2.Growth and Development since 1956- Trends and Pattern of GSDP
- 1.3.Trend, Pattern and Sectoral Contribution—Re-distributive policies (Health, Education, PDS, Land reforms)

Unit- 2: Agriculture and Allied Sectors (15 Hours)

- 2.1.Agriculture Growth and Performance-Trends in production and productivity
- 2.2.Land Reforms and Land use pattern
- 2.3.Changes in Cropping Pattern
- 2.4.Agricultural Wages
- 2.5.Collective farming Initiatives—green army
- 2.6.Crop Insurance Schemes
- 2.7.Special Agricultural Zone
- 2.8.Finance to Agriculture
- 2.9.Livestock-Fisheries-Water Resources and-Forestry
- 2.10. Agricultural Crisis - Food Security

Unit- 3: Industrial Sector and Business (15 Hours)

- 3.1.Industry-Growth and Performance-Industrial Backwardness
- 3.2.Mining, Manufacturing and Construction Sector- Issues and Challenges
- 3.3.Central Sector Investment

3.4.State Public Sector Undertakings

3.5.Industrial Financing

3.6.MSMEs—Traditional Industries—Electronic industry- KELTRON and Electronic Parks

Unit- 4: Service Sector

(25 Hours)

4.1.Growth and performance of Service Sector-Income Generation and Employment Issues

4.2.Performance of service Sub-Sectors- Economic Infrastructure—Transport—Energy--
Communication

4.3.Social Infrastructure- Health and Education – Tendencies of Exclusion

4.4.Kerala Disability Census 2015—Economic and Community Services

4.5.Demographic Profile of the State—Demographic Transition in Kerala—Sex Ratio—
Nutrition, Morbidity and Ageing.

4.6.Trends, Pattern and Problems of Migration—Rehabilitation Issues of Return Migrants

4.7.In Migration-- Interstate Migration—Issues of Marginalisation

Unit- 5: Local Governments, Decentralised development and Environmental Issues

(15 Hours)

5.1. Kerala's development experience: From lopsided to virtuous phase of development—
Sustainability Issues

5.2. Role of remittances – Regional Imbalances

5.3. Gender Equality- Unemployment, Poverty and Inequality—Social Security—Human
Development

5.4. Decentralised Planning—Financing of Local Government Plans

5.5. State Finance Commissions

5.6. Performance of Local Government—Scheduled Caste Sub Plan, Tribal Sub Plan and
Women Component Plan under Decentralization

5.7. Rural Development Programmes— Kudumbasree

5.8. Development and Utilisation of Natural Resource—Issues of Reclamation

5.5. Tourism and Environmental impact—Waste management—Policies and programmes—
Impact of Flood 2018 and Rebuilding initiatives.

Select Readings:

- 1) Ajith Kumar and KK George, "Kerala's Education System: From Inclusion to Exclusion?", *Economic and Political Weekly*, Vol. 44, No. 41/42 (OCTOBER 10-23, 2009), pp. 55-61
- 2) BA Prakash and Jerry Alwin (Edited), *Kerala's Economic Development: Emerging Issues and Challenges*, Sage Publications
- 3) Brigit Joseph and K.J. Joseph (2005): *Commercial Agriculture in Kerala after the WTO*, *South Asia Economic Journal*, 2005.
- 4) C.U. Thresia (2014): *Social Inequities and Exclusions in Kerala's: Egalitarian Development*, *Monthly Review*, 2014.
- 5) Centre for Development Studies, *Poverty, Unemployment and Development Policy : A Case Study of Selected Issues with reference to Kerala*, Orient Longman, Bombay.
- 6) CT. Kurien, "Kerala's Development Experience: Random Comments about the past and Some Considerations for the Future", *Social Scientist*, Vol. 23, No. 1/3 (Jan. - Mar., 1995), pp. 50-69
- 7) *Economic Review*, Kerala State Planning Board, Thiruvananthapuram (Various Issues)
- 8) *Economic Reviews- State Planning Board-Variou Issues*
- 9) Frank RW and BH Chasin: *Kerala Development through Radical Reform*, Promilla and Co., New Delhi.
- 10) George K.K: *Limits to Kerala Model of Development*, CDS, Thiruvananthapuram.
- 11) Govindan Parayil (2000): *Kerala: The Development Experience: Reflections on Sustainability and Replicability*, Zed Books.
- 12) Harilal, K. N., Eswaran, K. K (2017): *Agrarian Question and Democratic Decentralization in Kerala*, *Agrarian South: Journal of Political Economy*, June, 2017.
- 13) Hiroshi Sato (2004): *Social Security and Well-Being in A Low-Income Economy: An Appraisal of The Kerala Experience*, *The Developing Economies*, 2004 Vol. 42; Iss. 2
- 14) *Human Development Report*, Kerala State Planning Board, Thiruvananthapuram
- 15) Joseph Tharamangalam (1998): *The Kerala Model of Development: A Debate (Part I)*, *Bulletin of Concerned Asian Scholar*, Vol.30.N0.3,1998.
- 16) Joseph Tharamangalam, *Kerala: The Paradoxes of Public Action and Development*, Orient Longman, New Delhi.
- 17) K K George and Parvathy Sunaina (2005): *Dynamics of Change in Kerala's Education System: The Socio-Economic and Political Dimensions*, WP-12, Centre for Socio-Economic and Environmental Studies, Kochi.
- 18) K P, Kannan and Pillai N., Vijayamohanan, "Evolution of Social Security in the Lap of Public Action: Recounting the Experience of Kerala", *MRPA 2007*, <https://mpra.ub.uni-muenchen.de/9691/>

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
IV	EC010401	International Finance	Core	4	90
Course Objectives					
<p><i>The course will address the following main topics: the balance of payments; foreign exchange market and exchange rate determination; foreign currency derivative instruments; arbitrage and international parity conditions; risks in global finance, the management of foreign exchange risk with forwards and options; basic characteristics of trade finance and investment instruments; and international capital flows and markets. The intent is to investigate how various financial instruments are used for hedging and speculating in the currency markets and how economic theories are applied to determine the equilibrium exchange rates. Some policy issues concerning the recent world financial market turbulence will also be discussed. This course aims at providing a theoretical exposition of different aspects of international finance and financial institutions in a historic cum emerging geopolitical context particularly in that of globalization. It will equip students with both fundamental knowledge in international finance, financial institutions and their application in real life. This course seeks to provide a working knowledge of these issues. It will prepare students to become policy-makers and key strategists on issues related to international finance and related institutions. The stress will be on an understanding of the intuition behind the theories.</i></p>					

Unit-1: Foreign Exchange Rates and Markets (30 Hours)

- 1.1.Foreign exchange market- structure and functions-the demand for and supply of foreign exchange – fixed and flexible exchange rate-nominal, real and effective exchange rates- Case studies on REER and NEER in India.
- 1.2.Types of foreign exchange transactions-arbitrage, spot and forward markets and rates, currency swaps, futures and options-foreign exchange risks, hedging and speculation
- 1.3.Theory of optimum currency area- Euro currency markets and international bond markets - Currency Board determination of exchange rate
- 1.4.Theories of exchange rate- mint parity theory-purchasing power parity theory- Balance of payments Approach- monetary approach-asset market (Portfolio Balance) approach- Exchange rate over shooting- Exchange control-objectives and methods of exchange control.

Unit-2: Balance of Payments (18 Hours)

- 2.1. Balance of payments: concepts-structure-disequilibrium in balance of payments
- 2.2. Adjustment Mechanisms-devaluation-elasticity and absorption approaches-Marshall-Lerner condition- J- Curve- Monetary approach to balance of payment adjustment
- 2.3. Foreign Trade Multiplier

2.4. Case Study on 1991 BOP Crisis in India

Unit-3: Open Economy Macro Economic Policy (15 Hours)

- 3.1. Open Economy Adjustment Policies-Internal and External Balance
- 3.2. Swan Diagram
- 3.3. Assignment Problem
- 3.4. Mundell-Fleming Model-combining monetary and fiscal policies
- 3.5. Implications of Impossible Trinity in the Indian context.

Unit-4: Resource Movements, Currency Crisis and International Financial Institutions (27 Hours)

- 4.1. International labour movements and remittances
- 4.2. ILO- Outsourcing- challenges and Issues
- 4.3. multi-national organizations (MNCs)
- 4.4. International capital movements-FDI and portfolio investments – Indian experience
- 4.5. Currency Crisis- East Asian Financial Crisis-Sub- prime lending crisis-Greece crisis-Euro zone (debt) crisis
- 4.6. Breton Woods system: International Liquidity and IMF-World bank- international debt problem-external debt of India using international statistics

Reference:

1. Keith Pilbeam (2013) – International Finance, 4th edition, Palgrave
2. Salvatore, D (2008) - International Economics, (8th Edition). Wiley India, New Delhi
3. Appleyard D. R and Field A J (2014) -International Economics (8th Edition) McGraw Hill, New Delhi
4. Krugman Paul, R and Obstfeld, Maurice and Melitz, Marc.J (2018) - International Finance- Theory and Policy, 11th Ed, Pearson (India) Pvt. Ltd, New Delhi
5. Soderston, B and Reed G. (1994) - International Economics, 3rd Edition, McMillan Press Ltd. London
6. MacDonald, Ronald (2007): Exchange Rate Economics: Theories and Evidence, Routledge.
7. Levi Maurice D. (2009): International Finance, 5th Ed, Routledge, New York.

Supplementary Readings:

1. Bhagwati, Jagdish, Arvind Panagariya, and T.N Srinivasan, (2004): 'The muddles over outsourcing'. *Journal of economic perspectives*, 18(4): 93-104
2. Asbjorn Rodseth (2000): *Open Economy Macroeconomics*, Cambridge University Press.
3. Carbaugh, R. J (2008): *International Economics*, (11th Edition). Thomson South Western, New Delhi
4. Feenstra, Robert C. and Taylor, Alan M (2011): *Advanced International Trade- Theory and Evidence*, 2nd Ed, Worth Publishers.
5. Fleming, J.M. (1962): *Domestic Financial Policies Under Fixed and Floating Exchange Rates*, *International Monetary Fund Staff Papers* 9, pp. 369–379.
6. Frankel, J.A. (1993): *Monetary and Portfolio Balance Models of Exchange Rate Determination*, MIT press, Cambridge.
7. Gerber, James (2014): *International Economics*, 6th Ed, Pearson Education Inc.
8. Husted, Steven and Melvin, Michael (2016) : *International Economics*, 9th Ed, Pearson.
9. Kenen Peter B. (2000): *The International Economy*, Cambridge University Press, New York.
10. Mundell, R A (1962): *The Appropriate Use of Monetary and Fiscal Policy for Internal and External Stability*, *International Monetary Fund Staff Papers* 9, pp. 70 - 79.
11. Radlett, S, and Sachs J. (1998): *The east Asian Financial Crisis: Diagnosis, Remedies, and Prospects*, *Brookings Papers on Economic Activity*. Vol 28, no.1. pp. 1- 74.
12. Ramsaran Ramesh (1998): *An Introduction to International Money and Finance* Palgrave
13. Reinert K A (2012): *An Introduction to International Economics*, Cambridge university Press, New York:
14. Pugel, Thomas A (2016): *International Economics*, 16th Ed, McGraw Gill Education.
15. Stern, R.M. (2007): *Balance of Payments: Theory and Economic Policy*, Aldine Transaction
16. Thirlwal, A.P (1999): *Balance of Payments Theory*, 6th edition, Oxford University Press, New York
17. Ugur Mehmet (2002): (Edited), *An Open Economy Macroeconomics Reader*, Routledge, London.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
IV	EC800401	Agricultural Economics	Elective-A-1	3	90
Course Objectives					
<p><i>This course is intended to provide an overview of the economics of agriculture. This course is directed toward understanding the performance of the agricultural sector in the process of economic development. In this course, the role of the agricultural sector in aggregated (macro) growth and development theories, including the recent endogenous growth theories are reviewed. The course also deals with the production and diffusion of improved agricultural technology, institutions, infrastructure, markets, food security policy. The objectives of this course are: to expose the students to the concepts, significance and uses of production economics in an agricultural context; to provide orientation to the students regarding the agricultural policies and its effect on sustainable agricultural development and to make them to understand the globalization and its impact on agricultural development; to expose the students to the various kinds of risk in farming, risk management strategies and mechanisms and insurance policies; to apprise students regarding various aspects of agro-food marketing; and to develop understanding regarding issues in agricultural markets.</i></p>					

Unit- 1: Nature and scope of Agricultural Economics

(10 Hours)

- 1.1. Nature and Scope of Agricultural Economics
- 1.2. Role of Agriculture in Economic Development
- 1.3. Risk and Uncertainty in Agriculture
- 1.4. Instability of Agriculture.
- 1.5. Terms of Trade between Agriculture and Industry -Ranis-Fei Model-Jorgenson's Model-Resource mobilisation from the agricultural sector.
- 1.6. Role and Need for Agro-Based Industries

Unit- 2: Models of Agricultural Development

(20 Hours)

- 2.1. Schultz's Transformation of Traditional Agriculture
- 2.2. Jorgenson's Model of development of Dual economy
- 2.3. Mellor's Model of Agricultural Development
- 2.4. Boserup Model of Agricultural Development.

Unit- 3: Farm Management

(40 Hours)

- 3.1. Farm management- Principles of farm management–Farm management decisions–principles of factor substitution
- 3.2. Cost Principles – Opportunity Cost Principle – Principles of Comparative Advantage – Limitations of Farm Management.
- 3.3. Agricultural Production Functions– Factor–Product Relationships
- 3.4. Product–Product Relationships, Factor–Factor- Relationships
- 3.5. Objective functions for family farms and their optimisation-large farms operated by an individual farmer-large farms under tenancy-small owner cultivator-tenant operating a small farm and using only family labour-tenancy and the conflict between the interests of land owner and those of the tenant
- 3.6. Agricultural Supply Response Models - Cobweb and Nerlove Models.
- 3.7. Measures of Farm Efficiency.
- 3.8. Size of the Farm and Productivity

Unit- 4: Issues Related to Indian Agriculture

(20 Hours)

- 4.1. Agriculture and Productivity- Food Security and Public Distribution System in India.
- 4.2. Agricultural Finance - Rural Indebtedness
- 4.3. Agricultural Marketing -Agricultural Price Policy- Price System in India; Challenges of Agricultural Marketing in India-Measures to improve the efficiency of agricultural marketing-role of the state.
- 4.4. WTO and Agreement on Agriculture (AOA)-WTO and India's Agricultural Sector-Review of Recent Debates.

References:

1. Acharya, S.S and Aggrawal, N.L 'Agricultural Prices –Analysis and Policy', Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi
2. Andrew Barkley and Paul W. Barkley (2013): Principles of Agricultural Economics, Routledge.
3. Basu, K. 'Agrarian Structure and Economic Underdevelopment ', Harwood Academic, London, 1980
4. Bilgrami, SAR. 'An Introduction to Agricultural Economics', Himalaya Pub. House, Mumbai
5. David Colman and Trevor Young (1997): Principles of Agricultural Economics: Markets and Prices in Less Developed Countries, Cambridge University Press.

6. Johl, S.S. and Kapur, T.R. 'Fundamentals of Farm Business Management', Kalyani Publishers, Ludhiana
7. John B Penson, Jr, Oral Capps, C Parr Rosson and Richard Woodward (2015): Introduction to Agricultural Economics, 6th Ed, Pearson.
8. Joydeb Sasmal (2016): Resources, Technology and Sustainability: An Analytical Perspective on Indian Agriculture, Springer.
9. Kohlon, A.S. and Tyagi, D.S. 'Agricultural Price Policy in India', Allied Pub. New Delhi , 1983
10. Lekhi, R.K. and Sing Joginder, 'Agricultural Economics', Kalyani Publishers, Ludhiana
11. Mellor, J.W. 'The Economics of Agricultural Development' Vora and Co, Mumbai, 1966
12. R.N. Sony and Sangeeta Malhotra (2015): Leading issues in Agricultural Economics, 12th Ed, Vishal Publishing Co.
13. Reddy S. Subha et al. 'Agri cultural Economics', Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi
14. Rudra Ashok, 'Indian Agricultural Economics: Myth and Realities' Allied Pub. New Delhi, 1982
15. Sankhayan, P.L. 'Introduction to Economics of Agricultural Production', Prentice Hall of India Pvt. Limited., New Delhi
16. Schultz, T.Z. 'Transforming Traditional Agriculture', Yale University Press, 1964
17. Drummond, H. E and Goodwin, J W (2004), Agricultural Economics, Pearson Delhi

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
IV	EC800403	Labour Economics	Elective-A-2	3	90

Course Objectives

Labor economists study the economic forces that determine wages and employment. The major objective of this course is to impart knowledge about the dynamics of labour market. This course emphasizes the power of microeconomic reasoning to answer important economic questions. Topics covered include: approaches to labor supply and family coordination of time allocation and commodity demand, incorporating gender and generational bargaining; human capital, job tenure, union status, and discrimination as wage determinants; wage inequality, minimum wages, unions, immigration, and interpretation of compensating variations in wages, job and location amenities. Issues pertaining to the labour market, wage theories, employment policies, trade unions and collective bargaining in the globalized economy have become vitally important for developing countries. In a country like India where the bulk of the labour force is in the unorganized sector and the organized sector is witnessing jobless” growth, the importance of issues such as employment and unemployment as well as livelihood and social security for the growing millions continues to assume significance. This course exposes students to theoretical as well as empirical issues relating to the labour market. The objective of the course is to provide an empirical understanding of the labour market and enable the students to understand applications of formal theoretical models in labour economics to the Indian labour market.

Unit- 1: Labour Markets: Supply of Labour (20 Hours)

- 1.1. Theory of Individual Labor Supply: The Work–Leisure Decision: Basic Model-- Indifference Curves-- Opportunity Cost of Leisure --Budget Constraint--Utility Maximization
- 1.2 Wage Rate Changes: Income and Substitution Effects--Rationale for the Backward-Bending Supply Curve—Wage Elasticity of Labour Supply— Labor Supply of Women—
- 1.3 Policy Application: Cash Grants and Labor Supply-The Impact of Welfare on Labor Supply--The Earned Income Tax Credit.
- 1.4 Participation Rates and Hours of Work: Becker’s Model: The Allocation of Time-- Commodity Characteristics--Household Choices--Becker Income Effect--Becker Substitution Effect--Participation Rates--Cyclic Changes in Participation Rates--Added-Worker Effect--Discouraged-Worker Effect-- Life Cycle Aspects of Labor Supply -The Choice of Retirement Age--Policy Application: Child Care and Labor Supply.

Unit- 2: Labour Markets: Demand for Labour: (20 Hours)

2.1 The Production Function--The Employment Decision in the Short Run-- The Short-Run Labor Demand Curve for a Firm and Industry

2.2 The Employment Decision in the Long Run: Iso-quant and Iso-cost Approach: The Long-Run Demand Curve for Labor--Substitution and Scale Effects.

2.3 Labor Demand Elasticity--Elasticity of Substitution---- The Hicks–Marshall Laws of Derived Demand---The Cross-Wage Elasticity of Demand.

2.4 Labor Market Equilibrium: Equilibrium in a Single Competitive Labor Market--Competitive Equilibrium across Labor Markets. Policy Application: Payroll Taxes and Subsidies--Deadweight Loss--Employment Subsidies-- Effects of Minimum Wage Laws --The Labor Market Impact of Immigration. The Cobweb Model.

Unit- 3: Wage Determination and the Allocation of Labor

(10 Hours)

3.1 Theory of A Perfectly Competitive Labor Market--Wage and Employment Determination: Monopoly in The Product Market---Monopsony-Wage Determination within the Firm.

3.2 The Employment Contract--Motivating Workers--Motivating the Individual in a Group--Productivity and the Basis of Yearly Pay--Productivity and the Level of Pay --Productivity and the Sequencing of Pay.

3.3 Incentive Pay: Piece Rates and Time Rates—Tournament— Economics of Fringe Benefits--Theory of Optimal Fringe Benefits---Profit Sharing-Equity Compensation---Tournament Pay--Efficiency Wage Payments- Hedonic Wage Theory and Employee Benefits (10 Hours)

Unit- 4: Labour Union and Wage Bargaining

(25 Hours)

4.1. Determinants of Union Membership--The Demand for and Supply of Union Jobs-- The Structural Change Hypothesis---Managerial Opposition Hypothesis--The Substitution Hypothesis--Monopoly Union Model--Efficient Contracts Model.

4.2. Strikes and The Bargaining Process--The Activities and Tools of Collective Bargaining--Bargaining and the Threat of Strikes-- Accident Model--Asymmetric Information Models— Union Wage Effects--Threat and Spill-over Effects--Unions and Wage Dispersion--Unions and Fringe Benefits--Nonwage Effects of Unions.

4.3 The Economic Impact of Unions: The Union Wage Advantage--Spill over Effect--Threat Effect-- Other Effects --The Effects of Unions on Employment, Productivity and Profits

4.4 State and social security of labour - Concept of social security and its evolution; Social assistance and social insurance; Labour market reforms - Exit policy, need for safety nets, measures imparting flexibility in labour markets; National Commission on Labour; Globalization and labour markets.

Unit- 5 Unemployment

(15 Hours)

5.1 Unemployment Types— A Stock-Flow Model of the Labor Market.

5.2 The Theory of Job Search--Effects of Unemployment Insurance Benefits

5.3 Structural Unemployment--Downward Wage Rigidity and Union, Specific Human Capital, Asymmetric Information, Worker Status and Social Norms-- Implicit Contracts---Insider-- Outsider Theories- Efficiency Wages and Unemployment

Reference:

1. Campbell R. McConnell, Stanley L. Brue and David A. Macpherson (2017): Contemporary Labor Economics, 11th Edition, McGraw-Hill Education, 2 Penn Plaza, New York, NY 10121.
2. George J. Borjas (2016): Labor Economics 7th Edition, McGraw-Hill Education, 2 Penn Plaza, New York, NY 10121.
3. J.E. King (2000): Labour Economics.2nd Ed, Macmillan Education.
4. Pierre Cahuc, Stéphane Carcillo, André Zylberberg (2014): Labor Economics,2nd Ed, MIT Press.
5. Ronald G. Ehrenberg and Robert S. Smith (2012): Modern Labor Economics: Theory and Public Policy, 11th Edition, Prentice Hall.
6. Stephen Smith (2003): Labour Economics, 2nd Ed, Routledge.

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR UNDER GRADUATE PROGRAMMES IN

B.Com

UNDER CHOICE BASED CREDIT SYSTEM (UG CBCS) 2017

2017 ADMISSIONS ONWARDS

Courses and Duration of Examinations

Total credits: 120

Semesters- 6

Working Days per Semester: 90

Working Hours per Semester: 450

Examination- External Evaluation: 80% and Internal evaluation- 20%

MODEL-I

B.Com Degree Programme Model-I Course Structure

Common Courses

Sl No	Course Name	Credit	Hours per week
1	Language- English-I	4	5
2	Second Language-I	4	4
3	Language- English-II	4	5
4	Second Language-II	4	4
5	Language- English- III	3	3
6	Language- English -IV	3	3
	TOTAL – Common Course 1 – 14 credits and Common Course 2- 8 credits	22	-

Complementary Courses

Sl No	Course Name	Credit	Hours per week
1	Banking and Insurance	3	4
2	Principles of Business Decisions	3	4
	TOTAL	6	

Core Courses

Sl No	Course Name	Credit	Hours per week
1	Dimensions and Methodology of Business Studies	2	3

2	Financial Accounting I	4	5
3	Corporate Regulations and Administration	3	4
4	Financial Accounting II	4	5
5	Business Regulatory Framework	3	4
6	Business Management	3	3
7	Corporate Accounts I	4	5
8	Quantitative Techniques for Business- 1	4	5
9	Financial Markets and Operations	3	4
10	Marketing Management	3	3
11	Optional - 1	4	5
12	Corporate Accounts II	4	6
13	Quantitative Techniques for Business- II	4	6
14	Entrepreneurship Development and Project Management	4	5
15	Optional - 2 -	4	5
16	Cost Accounting - 1	4	6
17	Environment Management and Human Rights	4	5
18	Financial Management	4	5
19	Optional - 3	4	5
20	Cost Accounting - 2	4	6
21	Advertisement and Sales Management	3	4
22	Auditing and Assurance	4	5
23	Management Accounting	4	5
24	Optional - 4	4	5
25	Project and Viva	1	-
	TOTAL	89	

Details of Optional Courses

Sl No	Course Name	Credit	Hours per week
FINANCE AND TAXATION			
1	Goods and Services Tax	4	5
2	Financial Services	4	5
3	Income Tax- I	4	5
4	Income Tax - II	4	5
COMPUTER APPLICATIONS			
1	Information Technology for Business	4	5
2	Information Technology for Office	4	5
3	Computerized Accounting	4	5

4	Software for Business and Research	4	5
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CO-OPERATION			
1	Basics of Co-operation	4	5
2	Management of Co-operative Enterprises	4	5
3	Co-operative Legal System	4	5
4	Accounting for Co-operative Societies	4	5
TRAVEL AND TOURISM			
1	Fundamentals of Tourism	4	5
2	Travel and Tourism Infrastructure	4	5
3	Hospitality Management	4	5
4	Tourism and Cultural Heritage of India	4	5
MARKETING			
1	Customer Relationship Management	4	5
2	Services Marketing	4	5
3	Marketing Research	4	5
4	International Marketing	4	5

OPEN COURSES OFFERED

Sl No	Course Name	Credit	Hours per week
1	CO5OP01- Fundamentals of Banking and Insurance	3	4
2	CO5OP02- Capital Market and Investment Management	3	4
3	CO5OP03- Fundamentals of Accounting	3	4
	TOTAL	3	

Semester-wise details

Semester- 1

Sl No	Course Code	Course Name	Credit	Hours per week
1		Language- English-I	4	5
2		Second Language-I	4	4
3	CO1CRT01	Dimensions and Methodology of Business Studies	2	3
4	CO1CRT02	Financial Accounting I	4	5
5	CO1CRT03	Corporate Regulations and Administration	3	4
6	CO1CMT01	Banking and Insurance	3	4
		TOTAL	20	25

		Stream		
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SEMESTER 1

Core Course -1: DIMENSIONS AND METHODOLOGY OF BUSINESS STUDIES

Instructional Hours: 54

Credit: 2

Objectives

- *To understand business and its role in society*
- *To have an understanding of Business ethics and CSR*
- *To comprehend the business environment and various dimensions*
- *To familiarise Technology integration in business*
- *To introduce the importance and fundamentals of business research*

Module 1

Business and Environment Business- Functions - Scope - Significance of business - Objectives of business - Business and development - Forms of business organisations- Stake holders of business- Business Environment – Definition - Features- Importance - Components of business environment- Internal environment and external environment - Micro environment and macro environment- Global business environment
(10 Hours)

Module 2

Business in India- Stages and developments of business in the Indian economy since independence - Role of public, private, co-operative sectors - Liberalisation, Privatisation and Globalization – Disinvestment – Outsourcing –Recent economic initiatives - Niti Ayog - Make in India initiative
(10 Hours)

Module 3

Technology integration in business- E Commerce- Meaning- Functions - Operation of E-commerce - Types of E-Commerce -B2C-B2B-C2C- C2B- B2E- B2G- P2P- E-Commerce and E-Business – M-Commerce- Meaning- Advantages- Challenges – E-Payment systems (brief study) Debit/Credit card payment, Net banking, Digital wallet, e-cheque, e-cash – Payment gateway.
(14 Hours)

Module 4

Business Ethics – Importance - Principles of business ethics - Factors influencing Business Ethics - Arguments in favour and against business ethics - Social responsibility of business – objectives and principles - Arguments in favour and against social responsibility. Corporate Governance – Meaning and importance – Objectives – Principles
(10 Hours)

Module 5

Business Research – Research- Meaning and Definition- Importance of research- Quantitative and qualitative approach to research-Inductive and deductive reasoning- Major Types of Research (Pure- Applied - Exploratory- Descriptive- Empirical- Analytical) - Business Research- Elements of Business Research-Management Research- -Objectives- Research Methods vs Research Methodology -Research Process(brief outline only) –Research report
(10 Hours)

Suggested Readings

1. Keith Davis and William C.Frederick: *Business and Society Management, Public Policy, Ethics.*
2. Peter F. Drucker: *Management Tasks, Responsibilities, Practices.*
3. Peter F Drucker: *The Practice of Management.*
4. P.T.Joseph, S.J, *E-Commerce: An Indian Perspective , Prentice Hall of India*
5. Kamalesh K Bajaj and Debjani Nag: *E-Commerce, the Cutting Edge of Business:, Tata McGraw Hill.*
6. Schneider: *E-Commerce:, Thomson Publication*
7. CSV Murthy, *Business Ethics, Himalaya Publishing House, Mumbai*
8. C R Kothari *Research Methodology, New Age Publishers*
9. O R Krishnaswamy: *Research Methodology- Himalaya Publications*
- 10.N V Badi and R.V. Badi: *Business Ethics: Vrinda Publications*
11. Cherunilam, Fransis, *Business environment, Himalaya Publishing House, Mumbai.*
12. Fernando, A, C,. *Business Environment, Pearson, New Delhi*
- 13 Francis, Ronald & Mishra, Muktha, *Business Ethics: An Indian Perspective, Tata McGraw Hill Pvt Ltd, New Delhi*
- 14 Sharma, J.P., *Corporate Governance, Business Ethics, and CSR, Ane Books Pvt Ltd, New Delhi.*
15. Ghosh, B.N., *Business Ethics and Corporate Governance, Tata McGraw Hill Pvt Ltd, Delhi.*

Core Course -2: FINANCIAL ACCOUNTING– I

Instructional Hours: 90

Credit: 4

Objective: *To equip the students with the skill of preparing accounts and financial statements of various types of business units other than corporate undertakings*

Module – I

Preparation of Financial Statements –Conceptual framework- Accounting Principles - Accounting Concepts - Accounting Conventions- - Capital and Revenue Expenditure - Capital and Revenue Receipts - Capital and Revenue Losses - Deferred Revenue Expenditure–Accounting Standards- Objectives -Final Accounts of Sole Trader - Trading Account - Manufacturing Account - Profit and Loss Account - Balance Sheet - Adjusting entries - Closing Entries- Practical Problems with all Adjustments.

(26 Hours)

Module -II

Accounting of Incomplete Records - Single Entry System - Features - Advantages - Disadvantages - Distinction between Single Entry and Double Entry System- Ascertainment of Profit/loss - Statement of Affairs Method - Conversion Method - Steps for Conversion of Single Entry into Double Entry - Preparation of Trading and Profit and Loss Account and Balance Sheet.

(20 Hours)

Module - III

Royalty Accounts – Meaning – Minimum Rent – Short Working – Recovery– Journal Entries in the books of Lessor and Lessee – Preparation of Minimum Rent Account – Short Working Account – Royalty Account (Excluding Sublease)– Special Circumstances :Adjustment of Minimum Rent in the event of Strike and Lock - outs - Govt. Subsidy in case of Strikes/Lockouts

(18 Hours.)

Module - IV

Accounting for Consignment - Meaning – Important Terms – Journal Entries in the books of Consignor and Consignee – Preparation of Consignment Account – Consignee’s Account – Goods Sent at Cost or Invoice Price Delcredre commission- Valuation of Stock – Normal and Abnormal Loss

(18 Hours)

Module – V

Farm Accounts- Meaning- Characteristics- Objectives and advantages- Recording of farm transactions- Preparation of farm account, crop account, dairy account, livestock account etc- Preparation of final accounts of farming activities-

(8 Hours)

Suggested Readings

1. Jain, S.P., & Narang, K.L., Advanced Accountancy, *Kalyani Publishers, New Delhi*
2. Maheshwari, S.N., & Maheswari, S.K., Advanced Accountancy, *Vikas Publishing House, New Delhi.*
3. Shukla, M.C., & Grewal, T.S., Advanced Accountancy, *S Chand and Company (Pvt.) Ltd, New Delhi.*
4. Ashok, Sehgal, & Deepak Sehgal, Financial Accounting *Taxmann Allied Service (Pvt.) Ltd, New Delhi.*
5. MA Arulanandam and KS Raman, *Advanced Accountancy, Himalaya Publications, Mumbai.*
6. Paul, S. K., & Chandrani, Paul, Advanced Accountancy, *New Central Book Agency, New Delhi.*
7. Raman B S, *Financial Accounting- United Publishers*
8. The Chartered Accountant(Journal), Institute of Chartered Accountants of India, New Delhi.

Core Course -3:

CORPORATE REGULATIONS AND ADMINISTRATION

Instructional Hours: 72

Credit: 3

Objective: *To familiarise the students with the management and administration of joint stock companies in India as per Companies Act, 2013*

Module 1

Company - Definition – Characteristics – Classifications –History and framework of Company Law in India - Companies Act 2013 - one person company, small company, associate company, dormant company, producer company; association not for profit; illegal association **(Instructional Hours - 10)**

Module 2

Promotion and formation of a company- Body Corporate - promoter- legal position-duties-remuneration - Memorandum of Association – Articles of Association - Contents and alteration - Incorporation of Company - On-line registration of a company – CIN - **Companies With Charitable Objects** - Doctrines of Indoor Management, Constructive Notice, Ultra-vires - Lifting up of Corporate veil - Conversion of Companies **(Instructional Hours - 12)**

Module 3

Share Capital – Types - Public Offer - Private Placement - Prospectus - Contents of Prospectus – Types of prospectus – Deemed prospectus - Shelf Prospectus - Red Herring Prospectus - Abridged prospectus- Liability for Misstatements in Prospectus – Issue and Allotment of Securities – Types - Voting Rights –

DVR- Application of Premiums - Sweat Equity Shares - Issue and Redemption of Preference Shares- Transfer and Transmission of Securities- Punishment for impersonation of Shareholder - Further Issue of Share Capital- Bonus Shares- Debenture Issue - **(Instructional Hours - 15)**

Module 4

Membership in company and meetings- modes of acquiring membership-rights and liabilities of members- cessation of membership- Register of Members - Company meetings – Annual General Meeting - Extraordinary General Meeting- Notice Of Meeting - Quorum - Chairman - Proxies - Voting - Show of Hands – E-Voting - Poll- Postal Ballot- Motions - Resolutions - Types - Minutes - Books of accounts - Annual Return- Directors - Types - legal position – Appointment - Duties - Disqualifications - DIN - Vacation of Office - Resignation - Removal - Meetings of Board - Resolutions and Proceedings - Powers of Board - Key Managerial Personnel- CEO- CFO - Audit and Audit Committee - related party- transactions - **Corporate Social Responsibility.**

(Instructional Hours - 20)

Module 5

Winding up - Contributory – Modes of winding up - Winding Up by Tribunal - Petition for Winding Up - Powers of Tribunal- Liquidators - Appointments- Submission of Report - Powers and Duties - Effect of Winding Up Order- Voluntary Winding Up - Circumstances - Declaration Of Solvency - Meeting of Creditors- Commencement of Voluntary Winding Up- Appointment of Company Liquidator- Final Meeting and Dissolution of Company Official Liquidators –Appointment -Powers - Functions - Winding up of unregistered companies. **(Instructional Hours - 15)**

Suggested Readings

1. Shukla, M.C., & Gulshan, Principles of Company Law, *S.Chand, New Delhi.*
2. Venkataramana, K., Corporate Administration, *Seven Hills Books Publications.*
3. Kapoor, N.D., Company Law and Secretarial Practice, Sultan Chand, *New Delhi.*
4. Bansal C.L., Business and Corporate Law, *Vikas Publishers, New Delhi.*
5. Bhandari, M.C., Guide to Company Law Procedures, Wadhwa Publication.
6. S.N. Maheswari and S.K. Maheswari, Elements of Corporate Law, Himalaya Publications,
7. Kuchal, S.C., Company Law and Secretarial Practice, *Vikas Publishers, New Delhi*
8. Chartered Secretary, *The Institute of Company Secretaries of India.*

Complementary Course 1: BANKING AND INSURANCE

Instructional Hours: 72

Credit: 3

Objective: *To familiarize the students with the basic concepts and practice of banking and the principles of Insurance*

Module I

Introduction to Banking- Origin and Evolution of Banks - Meaning and Definition-Classification of Banks – Functions of Commercial Banks- Primary and Secondary- Credit Creation-Reserve Bank of India-Functions of RBI-Banking Ombudsman Scheme. **(15 Hours)**

Module II

Innovations and Reforms in Banking – E-banking – ATM – CDM - telephone/ Mobile Banking –ECS – EFT – NEFT – RTGS – SWIFT - CORE Banking - Cheque Truncation System - Credit and Debit Cards

DVR- Application of Premiums - Sweat Equity Shares - Issue and Redemption of Preference Shares- Transfer and Transmission of Securities- Punishment for impersonation of Shareholder - Further Issue of Share Capital- Bonus Shares- Debenture Issue - **(Instructional Hours - 15)**

Module 4

Membership in company and meetings- modes of acquiring membership-rights and liabilities of members- cessation of membership- Register of Members - Company meetings – Annual General Meeting - Extraordinary General Meeting- Notice Of Meeting - Quorum - Chairman - Proxies - Voting - Show of Hands – E-Voting - Poll- Postal Ballot- Motions - Resolutions - Types - Minutes - Books of accounts - Annual Return- Directors - Types - legal position – Appointment - Duties - Disqualifications - DIN - Vacation of Office - Resignation - Removal - Meetings of Board - Resolutions and Proceedings - Powers of Board - Key Managerial Personnel- CEO- CFO - Audit and Audit Committee - related party- transactions - Corporate Social Responsibility.

(Instructional Hours - 20)

Module 5

Winding up - Contributory – Modes of winding up - Winding Up by Tribunal - Petition for Winding Up - Powers of Tribunal- Liquidators - Appointments- Submission of Report - Powers and Duties - Effect of Winding Up Order- Voluntary Winding Up - Circumstances - Declaration Of Solvency - Meeting of Creditors- Commencement of Voluntary Winding Up- Appointment of Company Liquidator- Final Meeting and Dissolution of Company Official Liquidators –Appointment -Powers - Functions - Winding up of unregistered companies.

(Instructional Hours - 15)

Suggested Readings

1. Shukla, M.C., & Gulshan, Principles of Company Law, *S.Chand, New Delhi.*
2. Venkataramana, K., Corporate Administration, *Seven Hills Books Publications.*
3. Kapoor, N.D., Company Law and Secretarial Practice, Sultan Chand, *New Delhi.*
4. Bansal C.L., Business and Corporate Law, *Vikas Publishers, New Delhi.*
5. Bhandari, M.C., Guide to Company Law Procedures, Wadhwa Publication.
6. S.N. Maheswari and S.K. Maheswari, Elements of Corporate Law, Himalaya Publications,
7. Kuchal, S.C., Company Law and Secretarial Practice, *Vikas Publishers, New Delhi*
8. Chartered Secretary, *The Institute of Company Secretaries of India.*

Complementary Course 1: BANKING AND INSURANCE

Instructional Hours: 72

Credit: 3

Objective: To familiarize the students with the basic concepts and practice of banking and the principles of Insurance

Module I

Introduction to Banking- Origin and Evolution of Banks - Meaning and Definition-Classification of Banks – Functions of Commercial Banks- Primary and Secondary- Credit Creation-Reserve Bank of India-Functions of RBI-Banking Ombudsman Scheme. **(15 Hours)**

Module II

Innovations and Reforms in Banking – E-banking – ATM – CDM - telephone/ Mobile Banking –ECS – EFT – NEFT – RTGS – SWIFT - CORE Banking - Cheque Truncation System - Credit and Debit Cards

– CIBIL – KYC - Banking Sector Reforms-Prudential Norms- Capital Adequacy Norms - NPA – NBA - Basel norms - Small Finance Banks - Payment Banks - **Financial Inclusion** - PMJDY. (18 Hours)

Module III

Banker and Customer- Meaning and Definition- Relationship- General and Special- Different Types of Accounts- Cheque- dishonour of cheque – payment in due course – Crossing - Endorsement. (15 Hours)

Module IV

Insurance - **Introduction- Concept of Risk- Insurance - Need and Importance** - Principles of Insurance contract Insurance Industry in India- IRDA - Insurance Sector Reforms – Bancassurance. (9 Hours)

Module V

Types of insurance - Life Insurance– Features - Classification of Policies - Policy Conditions - Application and Acceptance- Assignments - Nomination - -Surrender-Foreclosure- Marine Insurance – Features- Policy Conditions - Clauses - Fire Insurance- Motor vehicle insurance - Health Insurance- Burglary insurance-personal accident insurance- Re-Insurance- Group insurance. (15 Hours)

Suggested Readings

1. Shekhar, K.C, Banking Theory and Practice, *Vikas Publishing House, New Delhi*
2. Maheswari, S.N., Banking Law and Practice, *Kalyani Publishers, New Delhi*
3. Sundharam, Varshney, Banking Theory Law & Practice, *Sulthan Chand & Sons, New Delhi.*
4. Agarwal, O.P., Banking and Insurance, *Himalya Publishing House, Mumbai*
5. Saxena, G.S., Legal Aspects of Banking Operations, *Sultan Chand and Sons, New Delhi*
6. Agarwal, O.P., Banking and Insurance, *Himalya Publishing House, Mumbai*
7. Tripathi, Nalini & Prabil Pal., Insurance: Theory and Practice, *PHI Pvt Ltd, New Delhi*
8. Gupta, P.K., Insurance and Risk Management, *Himalaya Publishing House, Mumbai*
9. Mishra, M.N., Principles and Practices of Insurance, *S. Chand and Sons, New Delhi*

SEMESTER 2

Core Course -4 FINANCIAL ACCOUNTING – II

Instructional Hours: 90

Credit: 4

Objective: *To acquaint the students with the preparation of books of accounts of various types of business activities and application of important accounting standards*

Module I

Accounting for Hire Purchase – Meaning and Features of Hire Purchase System – Hire purchase Agreement – Hire purchase and Sale - Hire Purchase and Installment – Interest Calculation – Recording Transactions in the Books of both the Parties – Default and Repossession- Complete repossession- Partial repossession- (25 Hours)

Module II

Branch Accounts – Objectives- Features – Types – Accounting for Branches keeping full system of accounting – Debtors System – Stock and Debtors System – Independent Branches and Incorporation of Branch Accounts in the Books of H.O – Cash in Transit and Goods in Transit – Consolidated Balance Sheet.(accounting for foreign branches excluded) **(20 Hours)**

Module III

Departmental Accounts – Meaning – Objectives – Advantages – Distinction between branch and department- Accounting Procedure – Allocation of Expenses and Income- Inter Departmental Transfers – Provision for Unrealized Profits. **(10 Hours)**

Module IV

Accounting for Dissolution of partnership firm- Dissolution of a firm- Settlement of Accounts on dissolution- - Insolvency of a partner-Application of decision of Garner Vs Murray Case - Settlement of accounts when all partners are insolvent- Piecemeal distribution- Highest Relative Capital Method- Maximum Possible Loss method **(25 Hours)**

Module V

Accounting Standards- Importance- Accounting Standards Board- Applicability of Accounting Standards – Brief learning of AS1, AS2, AS9, AS10 and AS 19(Theory only) **(10 Hours)**

Suggested Readings

1. Jain S.P & Narang K.L., Advanced Accountancy, *Kalyani Publishers, New Delhi*
2. Maheshwari, S.N., & Maheswari, S.K., Advanced Accountancy, *Vikas Publishing House, New Delhi.*
3. Shukla, M.C., & Grewal, T.S., Advanced Accountancy, *S Chand and Company Pvt.Ltd, New Delhi.*
4. Ashok Sehgal & Deepak Sehgal, Financial Accounting *Taxmann Allied Service (Pvt) Ltd, New Delhi.*
5. Paul, S. K., & Chandrani Paul, Advanced Accountancy, *New Central Book Agency, New Delhi.*
6. MA Arulanandam and KS Raman, *Advanced Accountancy,Himalaya Publications, Mumbai.*
7. Raman B S, *Financial Accounting United Publishers*
8. The Chartered Accountant (Journal), Institute of Chartered Accountants of India, New Delhi.

Core Course -5 BUSINESS REGULATORY FRAMEWORK

Instructional Hours: 72

Credit: 3

Objective: *The course is intended to familiarise the students with the legal framework influencing business decisions.*

Module I

Introduction to Mercantile Law -Law of Contract - Definition - Kinds of Contracts - Valid – Void - Voidable - Contingent and Quasi Contract - E-Contract - Essentials of a Valid Contract - Offer and Acceptance - Communication of Offer - Acceptance and its Revocation - Agreement - Consideration - Capacity to Contract - **Free Consent - Legality of Object and Consideration** - Performance of Contract - Discharge of Contract -Breach of Contract - Remedies for Breach of Contract. **(25 Hours)**

Module II

Special Contract I-Bailor and Bailee - Finder of Lost Goods - Pledge - Essentials - **Rights and Duties of Pawner and Pawnee** (15 Hours)

Module III

Special Contract II- Indemnity and Guarantee- Indemnity - Meaning and Definition - Contract of Guarantee - Kinds of Guarantee - Rights and Liabilities of Surety - Discharge of Surety. (10 hours)

Module IV

Law of Agency - Essentials, kinds of agents, rights and duties of agent and principal, creation of agency, termination of agency-Sub agents and substituted agents- Relationship (12 Hours)

Module V

Sale of Goods Act, 1930 -Essentials of Contract of Sale Goods - Classification of Goods - Condition and Warranties - Transfer of Property in Goods - **Right of Unpaid Seller - Buyer's Right Against Seller - Auction Sale.** (10 Hours)

Suggested Readings

1. Aswathappa, K., Business Laws, *Himalaya Publishing House, Bengaluru.*
2. Kapoor,N.D., Business Laws, *Sultan Chand publications* New Delhi.
3. Sharma,S.C., Business Law, *International Publishers,Bengaluru*
4. Tulsian, Business Law, *McGraw-Hill Education Mumbai.*
5. Indian Contract Act No. IX, 1972
6. Indian Sale of Goods Act, 1930

Journals

1. The Indian Journal of Law and Technology, National Law School of India University, Bangalore.
2. E bulletin of Students Company Secretary

Core Course -6: BUSINESS MANAGEMENT

Instructional Hours: 54

Credit: 3

Objectives: To familiarise the students with concepts and principles of management.

Module 1

Introduction to Management - Meaning , Nature, Scope and Functional Areas of Management - Management as a Science, Art and Profession - Management & Administration - Principles of Management- Managerial roles: Mintzberg Model - Functions of Management - Contributions of F.W.Taylor and Henry Fayol.

(12 Hours)

Module II

Planning - Planning - Meaning - Nature - Importance - Types of Plans - Planning Process- Barriers to Effective Planning - M.B.O - Features – Steps - Coordination - Meaning and Importance - Techniques for Effective Coordination

(10 Hours)

Special Contract I-Bailor and Bailee - Finder of Lost Goods - Pledge - Essentials - Rights and Duties of Pawner and Pawnee
(15 Hours)

Module III

Special Contract II- Indemnity and Guarantee- Indemnity - Meaning and Definition - Contract of Guarantee - Kinds of Guarantee - Rights and Liabilities of Surety - Discharge of Surety.
(10 hours)

Module IV

Law of Agency - Essentials, kinds of agents, rights and duties of agent and principal, creation of agency, termination of agency-Sub agents and substituted agents- Relationship
(12 Hours)

Module V

Sale of Goods Act, 1930 -Essentials of Contract of Sale Goods - Classification of Goods - Condition and Warranties - Transfer of Property in Goods - Right of Unpaid Seller - Buyer's Right Against Seller - Auction Sale.
(10 Hours)

Suggested Readings

1. Aswathappa, K., Business Laws, *Himalaya Publishing House, Bengaluru.*
2. Kapoor,N.D., Business Laws, *Sultan Chand publications* New Delhi.
3. Sharma,S.C., Business Law, *International Publishers,Bengaluru*
4. Tulsian, Business Law, *McGraw-Hill Education Mumbai.*
5. Indian Contract Act No. IX, 1972
6. Indian Sale of Goods Act, 1930

Journals

1. The Indian Journal of Law and Technology, National Law School of India University, Bangalore.
2. E bulletin of Students Company Secretary

Core Course -6: BUSINESS MANAGEMENT

Instructional Hours: 54

Credit: 3

Objectives: To familiarise the students with concepts and principles of management.

Module 1

Introduction to Management - Meaning , Nature, Scope and Functional Areas of Management - Management as a Science, Art and Profession - Management & Administration - Principles of Management- Managerial roles: Mintzberg Model - Functions of Management - Contributions of F.W.Taylor and Henry Fayol.

(12 Hours)

Module II

Planning - Planning - Meaning - Nature - Importance - Types of Plans - Planning Process- Barriers to Effective Planning - M.B.O - Features – Steps - Coordination - Meaning and Importance - Techniques for Effective Coordination

(10 Hours)

Module III

Organizing - Meaning - Nature - Importance - Principles of Organisation - Types of Organisation - Organisation Chart - Organisation Manual - Centralization – Decentralization- Authority - **Delegation of Authority -Responsibility and Accountability.**

(10 Hours)

Module IV Direction and Control – **Principles of direction- Leadership: Concept and Styles; Trait and Situational Theory of Leadership**, Managerial Grid by Blake and Mouton , Likert's Four System Model - Motivation: Concept and Importance; Maslow's Need Hierarchy Theory; Herzberg's Two Factors Theory. Control: Concept and Process-Control Techniques.

(12 Hours)

Module V

Management Techniques – (Brief Study) Quality circle-Total Quality Management - Business Process Reengineering (BPR)- Six sigma-Kaizen

(10 Hours)

Suggested Readings

1. Koontz, O Donnell, Management, *McGraw-Hill*
2. Appaniah, Reddy, Essentials of Management, *Himalaya Publishing House.*
3. Prasad, L. M., Principles of management, *Sultan Chand and Sons.*
4. Srinivasan, Chunawalla, Management Principles and Practice, *Himalaya Publishing House.*
5. Tulsian, P.C., & Pandey, Vishal, Business Organization and Management, Pearson Education

Complementary Course -2 – PRINCIPLES OF BUSINESS DECISIONS

Instructional Hours: 72

Credit: 3

***Objective:** The course is intended to familiarise the students with the economic concepts and principles underlying business decision making*

Module I

Introduction –Decision making- Definition of decision and decision making- Importance of decision making- Steps in decision making- Types of decisions- Decision making environment- Elements of a decision- Application of economic theories in decision making- Areas where economic theories can be applied for business decision making - Important Economic concepts and theories applied in decision making- – Incremental Reasoning – Time Perspective – Discounting Principle – Opportunity Cost – Equi- marginal Principle **(10 Hours)**

Module II

Demand Theory –Demand–Meaning- Law of Demand – Reasons for Law of demand – Exceptions to the Law –Demand determinants- Movements Vs Shift in Demand- Demand distinctions- Elasticity of Demand – Price elasticity- Importance of price elasticity- Income elasticity-Advertisement elasticity – Cross elasticity – Measurement of elasticity - Demand Forecasting –Short Term and Long Term Forecasting – Methods of Forecasting(theory only) -Forecasting demand for new products- Characteristics of a good forecasting technique. **(20 Hours)**

Module III

Optional – 1- GOODS AND SERVICES TAX

Instructional hours 90

Credit 4

Course objective : *To give the students a general understanding of the GST law in the country with a practical perspective and employability to the students in the commercial tax practices.*

Module 1

Stages of Evolution of GST - Methodology of GST - CGST - SGST - IGST - Important concepts and Definitions. GSTN. (30 hours)

Module 2

Levy and Collection of Tax - Scope of Supply - Composite and Mixed Supplies- Levy and Collection - Time of Supply of Goods- Time of Supply of Services - Input Tax Credit - Recovery of Credit - Tax Invoice - Unauthorised Collection of Tax - Credit Notes - Debit Notes - Accounts and Records. (20 hours)

Module 3

Registration - Returns And Payment of Tax - Persons Liable for Registration - Compulsory Registration - Deemed Registration- Procedure For Registration - Amendment of Registration - Cancellation of

Registration - Returns - Furnishing Details of Supplies - Payment of Tax, Interest, Penalty - Tax Deduction at Source - Collection of Tax At Source - Refunds. (15 Hours)

Module 4

Assessment - Types - Audit Inspection - Search - Seizure - Inspection of Goods in Movement - Power of Authorities - Demands And Recovery - Fraud and Suppression of Facts - Liabilities - Provisional Attachment. (15 Hours)

Module 5

Appeals - Appellate Authorities - Powers - Procedure - Appeal to High Court -Supreme Court - Offences and Penalties. (10 Hours)

(All the provisions in the Central GST, State GST and Integrated GST Acts and Rules as amended up to date will be applicable)

Suggested Readings:

- 1) *Indirect Taxes - Vinod K Singania, Taxmann's Publications, New Delhi*
- 2) *Indirect Taxes - H.C Mehrotra, Sahitya Bhavan Publications, New Delhi*
- 3) *Bare Act CGST*
- 4) *Bare Act SGST*
- 5) *Bare Act IGST*

Module II

Primary Market- Functions of New Issue Market - Methods of New Issue - IPO - FPO - ASBA- Green Shoe Option- Public Issue - Bonus Issue- Right Issue- Private Placement-Book Building - ESOP-Indian Depository Receipts - Intermediaries in the New Issue Market-Registrars to the Issue-Brokers to the Issue-Bankers to the Issue - Underwriters-Qualified Institutional Placement and Qualified Institutional Buyers- Innovative Financial Instruments. **(14 Hours)**

Module III

Secondary Market- Role and Functions of Stock Exchanges - Listing of Securities - Stock Exchanges in India - Members of the Stock Exchanges- Methods of Trading in a Stock Exchange- Online Trading- Depositories – Role - Mark to Market System - Stock Market Indices - Methodology for Calculating Index.- Type of Speculators- Speculative Transactions in Stock Exchanges - Insider trading - SEBI regulations- Foreign Institutional Investors in Securities market- Foreign Portfolio Investment- Private Equity **(18 Hours)**

Module IV

Mutual Funds -Meaning- Objectives- Advantages - Classification of Mutual Funds–Exchange Traded Fund- Constitution and Management of Mutual Funds in India- AMFI- Concept of Net Asset Value – Advantages and limitations of Mutual Funds- **(12 Hours)**

Module V

Derivatives (Brief study only)- Features of Derivatives -Types of Derivatives– Forwards – Futures- Options-Swaps- Commodity Futures – Major Commodity Exchanges in India **(12 Hours)**

Suggested Readings

1. Khan, M.Y., Indian Financial System, *Tata McGraw Hill, New Delhi.*
2. Singh, Preethi, Dynamics of Indian Financial System, *Ane Books, New Delhi*
3. Guruswami, S., Capital Markets, *Tata McGraw Hill, New Delhi*
4. Avadhani, V. A., Investment and Securities Market in India, *Himalaya Publishing House.*

Journals

SEBI and Corporate Laws - Taxmann, New Delhi
SEBI Monthly Bulletin

Core Course 10: MARKETING MANAGEMENT

Instructional Hours:54

Credit: 3

Objective: *The objective of this course is to provide a sound understanding of the basic principles of marketing management and their applications in the business and industry.*

Module I

Marketing Management–Market and Marketing- Meaning- Definition of marketing- Marketing Concepts – Marketing environment- Functions of marketing-Marketing Management- Marketing Mix-

4Ps and 4Cs- Importance of marketing mix- Factors affecting marketing mix- Market Segmentation – Concept – Need – Basis-benefits- Market Targeting- Market Positioning- differentiated and undifferentiated marketing (12 Hours)

Module II

Product Mix- Product – Meaning- Classification of products- -Product Line and Product Mix-New Product development- Steps- Reasons for failure of new products- - Product Life Cycle- – Branding- Types of brand- Brand Equity- Brand Loyalty- Trade Mark- Packaging-Role of packaging- Essentials of good packaging- Product Labelling- Marketing of services- Pricing of Products- Factors Influencing Pricing- Pricing Policies and Strategies -Types of Pricing

(12 Hours)

Module III

Price Mix – Pricing-Factors affecting pricing decision- Role of pricing in marketing strategy- Steps in formulating pricing- Pricing methods and strategies- Pricing of a new product- Resale Price Maintenance

(12 Hours)

Module IV

Physical Distribution Mix- - Logistic and Supply Chain Management – Elements- Channels of Distribution –Types- Factors Affecting the Choice of a Channel of Distribution-Functions of various Intermediaries – retailing- Types of retailing- Direct Marketing- Merits and demerits (12 Hours)

Module V

Recent Trends in Marketing (Overview Only)-Relationship Marketing - Social Marketing -Online Marketing- -Green Marketing-Tele Marketing -Viral Marketing- Relationship Marketing-De-marketing- Remarketing- Guerilla marketing – Ambush Marketing. (6 Hours)

Suggested Readings

1. Kotler, Philip & Keller, Kevin Lane, Koshy, Abraham, & Mithileshwar Jha, Marketing Management, A South Asian Perspective, *Pearson Education*.
2. Armstrong, Gary, and Kotler, Philip, The Essentials of Marketing, *Pearson Education, New Delhi*
3. Majaro, Simon, The Essence of Marketing, *Prentice Hall, New Delhi*.
4. Chhabra, T.N., Principles of Marketing, *Sun India Publication*.
5. Czimkota, Marketing Management, *Vikas Publishing House (P) Ltd*.
6. *Biplab S Bose, Marketing management, Himalaya Publishing House, Mumbai*
7. Rajan Nair and Varma M M – *Marketing Management- Sultan Chand and Sons*
8. Sontakki C N, *Marketing Management- Kalyani Publishers*
9. Ramaswamy V S and Namakumari *Marketing Management , McMillan India Ltd*

SEMESTER 4

Core Course 11: CORPORATE ACCOUNTS – II

Instructional Hours -108

Credit - 4

Objective: To equip the students with the preparation of financial statements of insurance companies and to understand the accounting procedure for reconstruction and liquidation of companies.

Core Course -13

**ENTREPRENEURSHIP DEVELOPMENT AND
PROJECT MANAGEMENT**

Instructional Hours: 90

Credit: 4

Objectives:

- *To develop entrepreneurial spirit among students*
- *To empower students with sufficient knowledge to start up their venture with confidence*
- *To mould young minds to take up challenges and become employer than seeking employment and to make them aware of the opportunities and support for entrepreneurship in India*

Module I

Introduction to Entrepreneurship- Definition and Meaning- Distinction between entrepreneur and manager- Characteristics and traits of an entrepreneur- Skills - Motivation of Entrepreneur- -Functions of an Entrepreneur- Role and importance of Entrepreneurship in economic development- Factors affecting growth of entrepreneurship
(10 Hours)

Module II

Classification of entrepreneurs- Dimensions of Entrepreneurship-Intrapreneurship-Technopreneurship- Cultural Entrepreneurship- International Entrepreneurship-Ecopreneurship- Social Entrepreneurship and Women Entrepreneurship- Problems faced by Women Entrepreneurs-Entrepreneurship in Agriculture sector and service sectors- New avenues- Dealership, Networking and Franchising- Entrepreneurship in MSME- Micro Small Medium Enterprises-Definition- Role of MSME- Steps to establish an enterprise.
(25 Hours)

Module III

Project Identification-Project- Meaning- Types- Project Management- Project life Cycle- Project identification- Sources of Project idea- Constraints in a project- Sources of Business idea-Protecting the Idea-Legal Protection in India-Trademarks- Copyright- Patent- Geographical Indication- Designs-Plant and Farmer Rights-
(15 Hours)

Module IV

Project Formulation and Report- Formulation of a project- Stages in project formulation- - preparation of a project report- contents- project appraisal- various aspects of appraisal (Problems of appraisal techniques excluded)
(20 Hours)

Module V

Entrepreneurial Support in India- Entrepreneurial Education and training- Entrepreneurship Development Programmes- Objectives and Methodology- The Concept, Role and Functions of Business Incubators- Start-Ups- Govt. of India Funding and Support for Start-Ups- Cluster Development Schemes- Pradhan Mantri Mudra Yojana- Industrial Estates- Special Economic Zones- Other initiatives and assistance- Green Channel clearances- - Bridge Capital- Seed Capital Assistance- Special Institutions for Entrepreneurial Development and assistance in India-Functions of EDII, NIESBUD, NSIC, SIDBI and DIC
(20 Hours)

Suggested Readings

1. Anjan, R. *Managing New Ventures, Concepts and Cases in Entrepreneurship*, New Delhi, PHI Learning Private limited.
2. Bhide A, *The Origin and Evolution of New Businesses*, New York, Oxford University Press.
3. Brandt, S. C. (1997). *Entrepreneurship: The 10 Commandments for Building a Growth Company*. New Delhi: Mc Millan Business Books.
4. Manjunath, N. (2008). *Entrepreneurship & Management*. Bangalore: Sanguine Technical Publishers.
5. Khanka S S- *Entrepreneurial Development*- S Chand and Sons
6. Desai, Vasant- *Small Scale Business and Entrepreneurship*- Himalaya Publications
7. AP Padnekar, *Entrepreneurship, Himalaya Publishing House, Mumbai*.
8. Rao, V S P- *Business, Entrepreneurship and Management*- Vikas Publishing House
9. Pandya, Rameswary- . *Skill Development and Entrepreneurship in India*, New Century Publications

SEMESTER 5

Core Course : COST ACCOUNTING- I

Instructional Hours: 108

Credit: 4

Objectives: To familiarise the students with cost concepts and to make the students learn the Fundamentals of cost accounting as a separate system of accounting.

Module I

Introduction to Cost Accounting- Meaning- Definition- Cost Concepts-Costing- Cost Accounting- Cost Accountancy- Objectives and functions of Cost Accounting- Cost Unit- Cost Centre- Responsibility Centres- Profit Centre- Cost Control- Cost Reduction- Distinction between Cost Accounting and Financial Accounting-Essentials of a good costing system- Installation of costing system- Methods and Techniques of Cost Accounting- Advantages and Disadvantages of Cost Accounting- Cost concepts and classification- elements of cost **(18 Hours)**

Module II

Accounting and Control of Material Cost- Material Purchase Procedure- Inventory control- Material Stock Level-EOQ- ABC- VED and FSN Analysis-JIT- Stock turnover- Material Issue control- Stores records- Bin card and Stores ledger- Documents authorizing movement of materials-Inventory systems: Perpetual and Periodic Inventory System-Continuous Stock Taking - Material Losses-Wastage- Scrap-Spoilage-Defectives- Pricing of issue of materials- FIFO- LIFO- Simple Average- Weighted Average- **(25 Hours)**

SEMESTER V

Optional Core-III: INCOME TAX- I

Instructional Hours-90

Credit-4

Objective :To familiarise the students with Income Tax Act 1961 and to enable the students to compute Income taxable under the first three heads of Income.

Module I

Introduction - Brief History of Income Tax in India - Basic Concepts- Finance Act- Definition of Income- Gross Total Income- Total Income-Assessee- Assessment Year Average Rate of Tax - Maximum Marginal Rate- Previous Year - Accelerated Assessment -Person - Finance Act- Rates of Income Tax-Capital and Revenue (15 Hours)

Module II

Residential Status- Incidence of Tax- Income Exempt from Tax- Heads of Income. (15 Hours)

Module III

Income from Salary- Chargeability- Definition – Perquisites- Profit in lieu of Salary -Deductions from Salary- Provident Funds and Treatment - Computation of Income from Salary (25 Hours)

Module IV

Income from House Property - Basis of Charge - Deemed Ownership- Income from House Property Exempt from Tax- Annual Value and its Determination in Various Cases- Deductions Permissible- Unrealised Rent and Recovery of Unrealized Rent and Arrears of Rent- Computation of Income from House Property (15 Hours)

Module V

Profit and Gains of Business or Profession - Chargeability - Deductions Expressly Allowed - General Deductions - Depreciation - Expenses/Payments Not Deductible - Expenses Allowed on Actual Payment Basis Only- Deemed Profits U/S 41 - Computation of Profits and Gains of Business or Profession (20 Hours)

Suggested Readings

1. Singhania, Vinod, K., & Singhania Monica, Students Guide to Income Tax, *Taxman Publication, New Delhi.*
2. Mehrotra, H.C., Goyal, S. P., Direct Taxes Law and Practice- *Sahitya Bhawan Publications, Agra.*
3. Gaur, V.P, & Narang, D.B., Direct Taxes- *Kalyani Publishers, New Delhi.*
4. Income Tax Act

SEMESTER VI

Optional Core-IV: INCOME TAX -II

Instructional Hours-90

Credit-4

Module III

Accounting and Control of Labour Cost- Time Keeping and Time Booking-Methods - Systems of Wage Payment-Time Rate System- Piece Rate System- Differential Piece Rate – Taylor’s differential piece rate system- Merrick’s differential piece rate system- Gantt Task and Bonus plan- Incentive Plans- Halsey Plan - Rowan Plan-Idle Time- Overtime and their Accounting Treatment- Labour Turnover- Causes and effects- Methods of Calculating Labour Turnover. **(20 Hours)**

Module IV

Accounting for Overhead-Classification of Overhead- Segregation of semi variable overhead- Production overhead- Allocation and apportionment- Primary and Secondary Distribution Summary- Absorption of Overhead- Methods of absorption of overheads- Overhead absorption rates- Actual and pre-determined rates- Blanket and Multiple rates- Over-absorption and Under-absorption- Reasons- Disposal- Introduction to Activity Based Costing (Problems of ABC excluded) **(25 Hours)**

Module V

Preparation of Cost Sheet- Cost sheet- Objectives- preparation- Tender and Quotation-Reconciliation Statement –Need- Reasons for disagreements in Profits-Preparation- Memorandum Reconciliation Account **(20 Hours)**

Suggested Readings

1. Jain, S.P., & Narang, K.L., Advanced Cost Accounting, *Kalyani Publishers, New Delhi.*
2. Iyengar, S. P., Cost Accounting, *Sultan Chand & Sons, New Delhi.*
3. Maheswari, S.N., Advanced Cost Accounting, *Sultan Chand & Sons, New Delhi.*
4. Arora, M. N., Cost Accounting, *Vikas Publishing House Pvt. Ltd, New Delhi.*
5. J Madegowda, Advanced Cost accounting, *Himalaya Publishing House, Mumbai*
6. Shukla, M.C., and Grewal, T.S., Cost Accounting, *Sultan Chand & Sons, New Delhi.*
7. Lall Nigam B M and Jain I C, Cost Accounting Principles and Practice, Prentice Hall of India

Core Course 15: ENVIRONMENT MANAGEMENT AND HUMAN RIGHTS

Instructional Hours: 90

Credit: 4

Module I (18 Hours)

Unit 1 : Multidisciplinary nature of environmental studies (2 Hours)

Definition, scope and importance -need for public awareness.

Unit 2 : Natural Resources :

Renewable and non-renewable resources : Natural resources and associated problems.

Forest resources : Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people. -**Water resources** : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. **Mineral resources** : Use and exploitation, environmental effects of extracting and using mineral resources, case

studies. **Food resources** : World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. **Energy resources**: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources, Case studies. **Land resources**: Land as a resource, land degradation, man induced landslides, soil erosion and desertification - Role of individual in conservation of natural resources- Equitable use of resources for sustainable life styles.

(10 Hours)

Unit 3: Ecosystems

Concept of an ecosystem -Structure and function of an ecosystem -Producers, consumers and decomposers- Energy flow in the ecosystem -Ecological succession-Food chains, food webs and ecological pyramids-Introduction, types, characteristic features, structure and function of the given ecosystem:- Forest ecosystem

(6 Hours)

Module II (26 hours)

Unit 1: Biodiversity and its conservation

- Introduction –Bio geographical classification of India -Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values-India as a mega-diversity nation-Hotspots of biodiversity-Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts-Endangered and endemic species of India

(8 Hours)

Unit 2: Environmental Pollution

Definition, Causes, effects and control measures of: - Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear hazards, Solid waste Management: Causes, effects and control measures of urban and industrial wastes-Role of an individual in prevention of pollution, Pollution case studies, Disaster management: floods, earthquake, cyclone and landslides.

(8 Hours)

Unit 3: Social Issues and the Environment

Urban problems related to energy, Water conservation, rain water harvesting, watershed management, Resettlement and rehabilitation of people: its problems and concerns, Case studies, Environmental ethics: Issues and possible solutions,-Climate change, global warming, acid rain, ozone layer depletion , nuclear accidents and holocaust, Case studies- Consumerism and waste products- Environment Protection Act - Air (Prevention and Control of Pollution) Act, Water (Prevention and control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation, Public awareness

(10 Hours)

Module – III (15 Hours)

Recent developments- Green Accounting- Meaning- History- Scope and Importance-Importance- Advantages and limitations- Green Banking- Meaning- benefits- coverage- steps in green banking- environmental risks for banks- Green banking initiatives- International initiatives- Initiatives in India- Green Marketing- Meaning- Need and benefits- Challenges-

Green marketing in India- Green washing and consequences- Eco tourism- significance- eco tourism activities in India- Opportunities and challenges – carbon credit and carbon exchanges (over view only) - Environmental audit- concept- need and scope **(15 Hours)**

Module – IV (13 Hours)

Right to Information Act 2005- Basic terms- Public authority- Competent authority- Appropriate Government- Third Part- Information – record- Right to information- Objectives of the Act- Features of the Act- Obligation of Public authority- Procedure for request of information- time limit- fee- ground of rejection- appeal- exemption from disclosure- Right to access information on specific issues- Banking transactions, insurance transactions, government dealing and related services **(13 Hours)**

Module – V (18 Hours)

Unit 1- Human Rights– An Introduction to Human Rights, Meaning, concept and development, Three Generations of Human Rights (Civil and Political Rights; Economic, Social and Cultural Rights).

Unit-2 Human Rights and United Nations – contributions, main human rights related organs UNESCO, UNICEF, WHO, ILO, Declarations for women and children, Universal Declaration of Human Rights.

Human Rights in India – Fundamental rights and Indian Constitution, Rights for children and women, Scheduled Castes, Scheduled Tribes, Other Backward Castes and Minorities

Unit-3 Environment and Human Rights - Right to Clean Environment and Public Safety: Issues of Industrial Pollution, Prevention, Rehabilitation and Safety Aspect of New Technologies such as Chemical and Nuclear Technologies, Issues of Waste Disposal, Protection of Environment

Conservation of natural resources and human rights: Reports, Case studies and policy formulation. Conservation issues of Western Ghats- mention Gadgil committee report, Kasthurirangan report. Over exploitation of ground water resources, marine fisheries, sand mining etc. **(18 Hours)**

Assignment may include Field study involving

- Visit to a local area to document environmental grassland/ hill /mountain
- Visit a local polluted site – Urban/Rural/Industrial/Agricultural Study of common plants, insects, birds etc
- Study of simple ecosystem-pond, river, hill slopes, etc

Suggested Readings

1. Bharucha Erach, Text Book of Environmental Studies for undergraduate Courses. University Press, IInd Edition 2013 (TB)
2. Clark.R.S., Marine Pollution, Clanderson Press Oxford (Ref)

3. Cunningham, W.P.Cooper, T.H.Gorhani, E & Hepworth, M.T.2001 Environmental Encyclopedia, Jaico Publ. House. Mumbai. 1196p .(Ref)
4. Dc A.K.Environmental Chemistry, Wiley Eastern Ltd.(Ref)
5. Down to Earth, Centre for Science and Environment (Ref)
6. Heywood, V.H & Watson, R.T. 1995. Global Biodiversity Assessment, Cambridge University Press 1140pb (Ref)
7. Jadhav.H & Bhosale.V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284p (Ref)
8. Mekinney, M.L & Schock.R.M. 1996 Environmental Science Systems & Solutions. Web enhanced edition 639p (Ref)
9. Miller T.G. Jr., Environmental Science, Wadsworth Publishing Co. (TB)
10. Odum.E.P 1971. Fundamentals of Ecology. W.B. Saunders Co. USA 574p (Ref)
11. Rao.M.N & Datta.A.K. 1987 Waste Water treatment Oxford & IBII Publication Co.Pvt.Ltd.345p (Ref)
12. Rajagopalan. R, Environmental Studies from crisis and cure, Oxford University Press, Published: 2016 (TB)
13. Sharma B.K., 2001. Environmental Chemistry. Geol Publ. House, Meerut (Ref)
14. Townsend C., Harper J, and Michael Begon, Essentials of Ecology, Blackwell Science (Ref)
15. Trivedi R.K., Handbook of Environmental Laws, Rules Guidelines, Compliances and Standards, Vol I and II, Enviro Media (Ref)
16. Trivedi R. K. and P.K. Goel, Introduction to air pollution, Techno-Science Publication (Ref)
17. Wanger K.D., 1998 Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p (Ref)
18. (M) Magazine (R) Reference (TB) Textbook
19. Amartya Sen, The Idea Justice, New Delhi: Penguin Books, 2009.
20. Chatrath, K. J.S., (ed.), Education for Human Rights and Democracy (Shimla: Indian Institute of Advanced Studies, 1998)
21. Law Relating to Human Rights, Asia Law House,2001.
22. Shireesh Pal Singh, Human Rights Education in 21st Century, Discovery Publishing House Pvt.Ltd, New Delhi,
23. S.K.Khanna, Children And The Human Rights, Common Wealth Publishers,1998. 2011.
24. Sudhir Kapoor, Human Rights in 21st Century,Mangal Deep Publications, Jaipur,2001.
25. United Nations Development Programme, Human Development Report 2004: Cultural Liberty in Today's Diverse World, New Delhi: Oxford University Press, 2004.
26. Monica Loss,,Green Marketing Strategies and Consumer Behaviour, Global Vision Publishing House
27. Robert Dahlstrom- Green Marketing:Theory, Practice and Strategies, Cengage Learning India Private Limited
28. A N Sarkar , Green Banking , Atlantic Publishers
29. Thomas Aronsson and Karl Gustaf Lofgren, Edgar Handbook of Environmental Accounting, Elgar Publishing

SEMESTER V

Optional Core-III: INCOME TAX- I

Instructional Hours-90

Credit-4

Objective :To familiarise the students with Income Tax Act 1961 and to enable the students to compute Income taxable under the first three heads of Income.

Module I

Introduction - Brief History of Income Tax in India - Basic Concepts- Finance Act- Definition of Income- Gross Total Income- Total Income-Assessee- Assessment Year Average Rate of Tax - Maximum Marginal Rate- Previous Year - Accelerated Assessment -Person - Finance Act- Rates of Income Tax-Capital and Revenue (15 Hours)

Module II

Residential Status- Incidence of Tax- Income Exempt from Tax- Heads of Income. (15 Hours)

Module III

Income from Salary- Chargeability- Definition – Perquisites- Profit in lieu of Salary -Deductions from Salary- Provident Funds and Treatment - Computation of Income from Salary (25 Hours)

Module IV

Income from House Property - Basis of Charge - Deemed Ownership- Income from House Property Exempt from Tax- Annual Value and its Determination in Various Cases- Deductions Permissible- Unrealised Rent and Recovery of Unrealized Rent and Arrears of Rent- Computation of Income from House Property (15 Hours)

Module V

Profit and Gains of Business or Profession - Chargeability - Deductions Expressly Allowed - General Deductions - Depreciation - Expenses/Payments Not Deductible - Expenses Allowed on Actual Payment Basis Only- Deemed Profits U/S 41 - Computation of Profits and Gains of Business or Profession

(20 Hours)

Suggested Readings

1. Singhanian, Vinod, K., & Singhanian Monica, Students Guide to Income Tax, *Taxman Publication, New Delhi.*
2. Mehrotra, H.C., Goyal, S. P., Direct Taxes Law and Practice- *Sahitya Bhawan Publications, Agra.*
3. Gaur, V.P, & Narang, D.B., Direct Taxes- *Kalyani Publishers, New Delhi.*
4. Income Tax Act

SEMESTER VI

Optional Core-IV: INCOME TAX -II

Instructional Hours-90

Credit-4

Objective- To have an understanding of determination of Total Income and tax payable and to get an overview regarding returns to be filed by an individual and also assessment procedure

Module-I

Capital gains - Basis of charge - Capital assets - Kinds- Computation of Short term and Long term Capital Gains- Computation of Capital Gain in following Special Cases - Conversion of Capital Asset into Stock in Trade - Transfer of Capital Asset by a Partner to a Firm, AOP, BOI - Compensation on Compulsory Acquisition of Assets and also Enhanced Compensation - Right Share and Bonus Shares - Converted Shares/Debentures - Capital Gains Exempt from Tax - Capital Gains Account Scheme - Computation of Income from Capital Gain. **(20 Hours)**

Module-II

Income from Other Source- General and Specific Chargeability- Kinds of Securities and Grossing up of Interest- Bond Washing Transaction- Deductions Allowed - Deduction Not permitted- Computation of Income under the head Income from Other Source. **(10 Hours)**

Module-III

Clubbing of Income - Aggregation of Incomes- Set off and Carry forward of Losses - Order of Set off - Computation of Gross Total Income - Deductions under Chapter VI A -Payment or Contribution deductions applicable to individuals from Sec 80C to 80GGC and deduction under Sec 80U- Total income **(25 Hours)**

Module-IV

Assessment of individuals - Agricultural Income - Partly Agricultural Income - Clubbing of Agricultural Income - Computation of Tax **(20 Hours)**

Module-V

Income Tax authorities - Powers and Functions - Assessment- Assessment procedure- Types of Return – E- filing of Return - Return through TRP- PAN - Types of Assessment - Tax Deducted at Source- TCS- TAN - A brief study on areas (a) Advance payment of tax (b) Refund (c) Recovery of tax (d) Tax Clearance Certificate – Tax planning -Tax evasion – Tax avoidance – Tax management (theory only) **(15 Hours)**

Suggested Readings

1. Singhania, Vinod, K, & Singhania Monica, Students Guide to Income Tax, *Taxmann Publication, New Delhi.*
2. Mehrotra, H.C., & Goyal, S. P., Direct Taxes-Law and Practice, *Sahitya Bhawan Publications, Agra.*
3. Gaur, V.P., & Narang, D.B., Direct Taxes, *Kalyani Publishers, New Delhi.*
4. Income Tax Act

Optional Courses- Computer Applications

SEMESTER III

MODULE-4

Sales promotion-Promotion mix- Components- Sales promotion-Concept- Definition-Scope- Objectives- Importance of sales promotion- Methods and techniques of sales promotion -Sales promotion strategies- Differences between advertisement and sales promotion—Advantages and drawbacks of sales promotion- Sales promotion budget and its preparation-Sales promotion campaign- Evaluation of sales promotion strategies (18 Hours)

MODULE-5

Personal selling-Nature and importance-Essential elements of personal selling- Process-Principles of personal selling- Types of sales persons-Sales force management-Designing and managing the sales force- Evaluating sales force (8 Hours)

Suggested Readings

1. Wells, Moriarty & Burnett, *Advertising, Principles & Practice*, Pearson Education
2. Kenneth Clow. Donald Baack, *Integrated Advertisements, Promotion and Marketing communication*, Prentice Hall of India, New Delhi,
3. S. H. H. Kazmi and Satish K Batra, *Advertising & Sales Promotion*, Excel Books, New Delhi,
4. Manendra Mohan - *Advertising Management – Concepts and Cases*, Tata McGraw Hill
5. Sherlekar, Victor & Nirmala Prasad - *Advertising Management - Himalaya Publishing House*
6. S.A. Chunawalla - *Promotion Management Himalaya Publishing House*
7. C.L. Tyagi, Arun Kumar- *Advertising Management- Atlantic Publishers and Distributors*

Core Course 19: **AUDITING AND ASSURANCE**

Instructional Hours – 90

Credits: 4

objectives:

1. *To familiarize the students with the principles and procedure of auditing.*
2. *To enable the students to understand the duties and responsibilities of auditors and to undertake the work of auditing.*

Module I

Introduction-Meaning and Nature of Auditing- Definition of Audit- **Basic Principles Governing an Audit**, Scope of Audit, Objectives of Audit- Main Object and Subsidiary Objects -**Advantages of an Audit**, Inherent Limitations of Audit , Differences between Accountancy and Auditing. The Auditor: Qualities and Qualifications of an Auditor- Types and Conduct of Audit- Tax Audit- Performance Audit- Social Audit. Auditing standards : **Overview, Role of Auditing and Assurance Standards Board in India** (17 Hours)

Module II

Audit Engagement, Documentation and Evidence – Audit Planning, Audit Programme Preparation before Audit. Audit files: Permanent and current audit files, Ownership and custody of working papers, Audit working papers. Audit evidence – Meaning, Types, Reliability of audit evidence, Methods of

obtaining audit evidence- Physical verification, Documentation, Direct confirmation, Re-computation, Analytical review techniques, Representation by management. **(15 Hours)**

Module III

Internal Control –Concept of internal control, Internal Control and the Auditor, Internal Control Questionnaire, Internal Control and Computerized Environment-General Control and Application Controls- Internal Check - Meaning and Definition , Objects of Internal Check, Auditors Duties as Regards Internal Check, Internal Audit- Internal Auditor and independent Auditor - Difference between Internal Check- Internal Control and Internal Audit- Internal Check as Regards Cash Transactions, purchases- sales- wages and stores. Vouching- meaning of Vouching- Definition -Vouchers- Points to be noted in Vouchers-Importance of vouching- Vouching of Cash Transactions - Vouching of Receipts and Payments, Vouching of Wages. Verification and Valuation of Assets and Liabilities - Concept, objects, Auditors Duty in Verification and Valuation.

(25 Hours)

Module IV

Audit of Limited Companies –(based on Companies Act 2013) Company Auditor- Qualifications- Disqualifications- Appointment Removal- Powers and Duties of an Auditor- Liabilities of an Auditor - Audit Report- Contents and Types.

(15 Hours)

Module V

Special Audits and Investigation – Government Audit, General Duties and powers of Comptroller and Audit General , Miscellaneous Audits (Procedure only)- Audit of Charitable organizations- Educational Institutions (College) – Hospital - Club- Audit in computerized environment- Audit around computer and audit through computer- Investigation- Meaning and Definition of Investigation- Scope of investigation- Distinction between Investigation and Auditing- Investigation on Acquisition of Running Business, Investigation when Fraud is suspected.

(18 Hours)

Suggested Readings

1. Tandon, B.N., Sudharsanam, S., & Sundharabahu, S., A Handbook of Practical Auditing, *S.Chand & Compaly Ltd, New Delhi.*
2. Arun Jha, *Auditing* – University Edition, *Taxman Publications*
3. Saxena, R. G., Principles and Practice of Auditing, *Himalaya Publishing House, Mumbai*
4. Sharma, T. R., *Auditing Sahitya Bhawan Publication Agra.*
5. Saxena, R. G., Principles and Practice of Auditing, *Himalaya Publishing House, New Delhi.*
6. ICAI Study material for IPCC and Final

Core Course 20 : MANAGEMENT ACCOUNTING

Instructional Hours: 90

Credit: 4

Objective: *To acquaint the students with management accounting techniques for the analysis and interpretation of financial statements and to study the basic framework of financial reporting.*

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR POST GRADUATE PROGRAMMES IN

M.Com

UNDER CREDIT AND SEMESTER SYSTEM (PG CSS) 2019

2019 ADMISSIONS ONWARDS

10. Name of Electives:-

Group1	Finance and Taxation
Group 2	Marketing and International Business
Group 3	Management and Information Technology

11. The Program Structure

Course Code	Title of the Course	Type of the Course	Hours per week	Credits
FIRST SEMESTER				
CM010101	Specialised Accounting	Core	5	4
CM010102	Organisational Behaviour	Core	5	3
CM010103	Marketing Management	Core	5	4
CM010104	Management Optimisation Techniques	Core	5	4
CM010105	Methodology for Social Science Research	Core	5	4
TOTAL FOR SEMESTER			25	19
SECOND SEMESTER				
CM010201	Advanced Corporate Accounting	Core	5	4
CM010202	Human Resource Management	Core	5	3
CM010203	International Business and Finance	Core	5	4
CM010204	Quantitative Techniques	Core	5	4
CM010205	Strategic Management	Core	5	4
TOTAL FOR THE SEMESTER			25	19
THIRD SEMESTER				
CM010301	Strategic Financial Management	Core	6	5
CM010302	Income Tax – Law and Practice	Core	7	5
CM010303	Security Analysis and Portfolio Management	Core	6	4
CM800301/ CM810301/ CM820301	Indirect Tax Laws (Group I) Logistics and Supply Chain Management (Group 2) Total Quality Management (Group 3)	Core-Elective	6	4
TOTAL FOR THE SEMESTER			25	18
FOURTH SEMESTER				
CM010401	Advanced Cost and Management Accounting	Core	6	5
CM010402	Income Tax-Assessment and Procedure	Core	7	5
CM800401/ CM810401/ CM820401	Derivatives and Risk Management (Group 1) Retail and Rural Marketing (Group 2) E-Commerce and E-Business Management (Group 3)	Core-Elective	6	4
CM800402/ CM810402/ CM820402	Personal Investment and Behavioural Finance (Group 1) International Marketing (Group 2) Legal Framework for I.T. Based Business and Intellectual Property Rights (Group 3)	Core-Elective	6	4
CM010403	Project Report	Core-Project	Nil	4
CM010404	Comprehensive Viva Voce	Core-Viva	Nil	2
TOTAL FOR THE SEMESTER			25	24
TOTAL CREDITS FOR THE PROGRAMME				80

FIRST SEMESTER COURSES

Course Code	CM010101
Title of the Course	SPECIALISED ACCOUNTING
Semester	One
Type	Core
Credits	4
Hours	5 per week and Total 90

Objective of the Course:

To equip the students to apply accounting standards and deal with advanced practical areas related to valuation, amalgamation, specialised areas and to have a basic understanding on developments in accounting

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage
1	Providing an in depth understanding about theoretical and practical aspects of major Accounting Standards to apply the same in different practical situations.	Understand and Apply	PSO2
2	Ascertain the value of goodwill and value of companies based on the value of shares and compare the real value of shares and with the market prices and identify the mispricing.	Apply	PSO2
3	In depth understanding about the determination of purchase consideration in the event of amalgamation and to prepare post amalgamation financial statements	Apply	PSO2
4	Develop a clear understanding about different types of NBFCs, their provisioning norms and to understand the concept of NAV of mutual funds through its computation.	Evaluate	PSO2
5	Acquaint with the theoretical aspects of emerging areas in accounting	Understanding	PSO2

Unit wise arrangement of the course

Module	Sl. No. of Units	Contents of the Unit	Remarks
Module 1. Accounting Standards - 25 hours			
1	1.1	Meaning and definition of Accounting Standards – Need for standards – Process of development of standards - its Applicability- Advantages of AS – Accounting Standard Board and its role - AS 1 – Disclosure of Accounting Policies.	Theory only
	1.2	AS 2 – Valuation of Inventories AS 9 – Revenue Recognition;	Theory and problems
	1.3	AS 10- Accounting for property, plant and equipment. AS 20- Earning Per Share.	Theory and problems
	1.4.	AS 22 – Accounting for Tax on Income. Computation of Deferred Tax.	Theory and problems
	1.5.	AS 26- Intangible Assets. AS 28 – Impairment of Assets.	Theory and problems
2. Valuation of Goodwill and Shares – 15 hours			
2.	2.1.	Goodwill- Meaning and definition, - Factors affecting goodwill – circumstances where good will is valued - Methods of valuing goodwill.	Theory only
	2.2	Problems on goodwill - Average profit method - Super profit method - Annuity method and - Capitalization method.	Problems
	2.3	Need for valuation of shares – Methods of valuation of shares - Advantages and disadvantages of different methods of valuation of shares.	Theory only
	2.4	Practical problems on Net asset method or intrinsic value method - Yield method- Earning capacity method - Fair value method of valuing shares.	Problems
3. Accounting for Amalgamation – 30 hours			
3.	3.1	Accounting Standards -14 - Amalgamation in the nature of merger and Amalgamation in the nature of purchase-Purchase consideration- Pooling of Interest Method and Purchase Method (theory) – Difference between pooling of interest and purchase method.	Theory only
	3.2	Practical problems on the computation of purchase consideration.	Problems
	3.3	Treatment of goodwill and reserves under pooling of interest method and purchase method.	Theory and problems
	3.4	Entries in the books of Purchasing Company- Entries in the books of Vendor Company.	Problems
	3.5	Consolidated balance sheet in case of amalgamation in the nature of merger.	Problems
	3.6	Consolidated balance sheet in case of amalgamation in the nature of purchase.	Problems

	3.7	Practical problems involving mutual owings.	Problems
	3.8	Practical problems involving the accounting treatment when purchasing company already holds shares in the vendor company – Selling company already holds shares in purchasing company – Cross holdings.	Problems
4. Accounting for NBFCs and Mutual Funds- 10 hours			
4	4.1	NBFC – Difference between an NBFC and Bank – Classification of NBFCs based on registration with RBI - Asset Finance Companies – Investment Companies – Infrastructure Finance Companies – Systematically Important Core Investment Companies – Infrastructure Debt Fund NBFC – NBFC Micro Finance Institutions.	Theory only
	4.2	NBFC Factors – Mortgage Guarantee Companies – Residuary NBFCs – Regulations regarding; Net owned Fund – Liquid asset requirement.	Theory only
	4.3	Income Recognition - Prudential Accounting Norms – Asset Classification – Provisioning Requirements – Computation of Provisions – Requirements as to Capital Adequacy.	Theory and short problems
	4.4	Mutual Funds – Meaning – importance- Classification of mutual funds.	Theory only
	4.5	Contents of Balance sheet and Revenue account of the Mutual Fund (Theory only) – Computation of NAV(Theory and Problems)	Theory and short problems
	4.6	Accounting Treatment in the event of Disposal of Investment; Journal Entries – Dividend equalization.	Theory and short problems
5. Developments in Accounting – 10 hours			
5	5.1	Block chain Technology in Accounting Artificial Intelligence in Accounting (overview only).	Theory only
	5.2	Green Accounting Concepts - Scope and Significance – Statements to be prepared - developments in a globalised era.	Theory only
	5.3	Forensic Accounting – Lean Accounting.	Theory only

Suggested Assignment:

1. Assignment on the recent real cases of amalgamation, evaluating the ratio of share exchange or valuation of firms.
2. Assignment of valuation of shares of companies and comparison with actual market price.
3. Assignment on the evaluation of the performance of mutual fund schemes based on real data.

Recommended Text Books

1. Corporate Accounting, A. Mukharjee and M. Hanif, TATA McGrawHill Co
2. Advanced accountancy, Arulanandam & Raman, Himalaya Publishing House
3. Fundamentals of Financial accounting, Nasseem Ahmed, Ane books Pvt, Limited
4. Advanced Financial Accounting, R.L. Gupta & Radhaswami, Sultan Chand CO;
5. Advanced Financial Accounting, S.N. Maheswari
6. Advanced Financial Accounting, Paul & Kaur
7. Advanced Financial Accounting, B.D. Agarwal
8. Advanced Financial Accounting, S.P. Jain & K.L. Narang; Kalyani Publishers

References

1. Study Material for CA IPCC Group I – Accounting
2. Study Material for CA IPCC Group II – Advanced Accounting
3. Students Hand Book on Advanced Accounting, G.Sekar and B. Saravana Prasath, C. Sitaraman & Co. Pvt Ltd;

Break up of Theory and Problems for Examination

Section A- 6 Theory 4 problems

Section B – 3 Theory 5 Problems

Section C- 1 Theory 3 Problems

Course Code	CM010104
Title of the Course	MANAGEMENT OPTIMISATION TECHNIQUES
Semester	One
Type	Core
Credits	4
Hours	5 per week and Total 90

Objective of the Course

To enable the students to understand various optimization models used in business decision making.

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage
1	Develop theoretical understanding about various business optimisation models.	Understanding	PSO5
2	Ability to develop Linear Programming Models for business problems and Solve the same.	Apply and evaluate	PSO5
3	Application of Linear Programming in the areas of transportation and assignment.	Understanding	PSO5
4	Develop decision making skills under uncertainty, risk and replacement of assets.	Evaluate and Apply	PSO5
5	Understand and apply network analysis techniques for project implementation.	Understand and Apply	PSO5

Unit wise arrangement of the course

Module	Sl. No. of Units	Contents of the Unit	Remarks
Module 1- Introduction to Optimisation Techniques- 7 hours			
1	1.1	Meaning-Origin and development- Optimisation Tools -Nature- Role of Operation Research Tools in optimising managerial decisions.	Theory only
	1.2	Origin and development of OR-OR and decision making.	Theory only
	1.3	Objectives of OR - Scope of OR- Applications of OR - Phases of OR.	Theory only
	1.4	O R Models - Types of OR Models.	Theory only
	1.5	Advantages and Limitations of Optimisation techniques.	Theory only
Module 2- Linear Programming – 25 hours			
2	2.1	Meaning-Concepts-Notations- Assumptions- Uses and applications –	Theory only

		Limitations.	
	2.2	Formulation-Graphical solution.	Theory and Problems
	2.3	Simplex method – Maximisation -Minimisation – Mixed type constraints - (Big M Method only.)	Theory and problems
	2.4	Special cases in Linear Programming – Duality.	Theory and Problems
Module 3- Transportation and Assignment Problems- 20 hours			
3	3.1	Transportation models – Solution procedures for transportation	Theory only
	3.2	Initial Feasible Solution.	Theory and Problems
	3.3	Optimum solution – MODI Method only.	Theory and problems
	3.4	Multiple optimum solution – Un balanced transportation problem – degeneracy – maximisation problem.	Theory and Problems
	3.5	Assignment model– Difference between assignment and transportation - models – Hungarian method.	Theory and Problems
	3.6	Maximisation case – multiple optimum – Un balanced problems – Prohibited assignment – travelling sales men problems.	Problems
Module 4- Decision Theory- 20 hours			
4	4.1	Quantitative approach to management decision making – structure of decision making problems – Types of decision making criteria- elements in a decision.	Theory only
	4.2	Decision making under Risk – EMV – EVPI – EOL.	Theory and Problems
	4.3	Decision making under uncertainty – Maximin – Maximax – Minimax – Realism – Rationality.	Theory and Problems
	4.4	Decision Tree Analysis.	Theory only
	4.5	Game Theory – Basic terminology – solution for pure strategy -game with saddle point – Mixed Strategy – Principle of dominance – Subgames.	Theory and problems
	4.6	Replacement Theory – Individual replacement and group replacement.	Problems and Theory only
Module 5- Network Analysis- 18 hours			
5	5.1	Meaning – objectives managing applications of network models – Fundamental concepts of network model –network diagram construction – Common errors in network.	Theory and short problems
	5.2	Time estimates in network analysis.	Theory and Problems
	5.3	CPM - PERT – Difference – Advantages – Limitations – Crashing.	Theory and Problems

Suggested Assignment:

1. To construct network diagrams for small projects
2. Develop business problem situations and construct models for the same.

Recommended Text Books

1. Operations Research; Prem Kumar Gupta & D.S.HiTa; S. Chand & Company Ltd.
2. Operation Research, Theory and Applications; J.K. Sharma; Macmillan India Ltd.
3. Operation Research; V.K .Kapoor; Sultan Chand & Co.
4. Operations Research; Sarnrna & Anmlad; Himalaya Publishing House
5. Operation Research, Kanthi Swarup; Sultan Chand & Co.
6. Operation Research; S.D. Sharma; Kedarnath Co.
7. Operations Research; K.K.Chawla, Gupta & Sharma; Kalyani Publishers

References

1. Research Methodology and Operations Research; H.R. Ramanath; Himalaya Publishing House.
2. Operations Research; Natarajan, Balasubramanie & Tamilarasi; Pearson, New Delhi.
3. Operation Research; Problems and Solutions, J.K. Sharma; Macmillan India Ltd.
4. Operations Research: K.Rajagopalan, PHI Learning Private Ltd.

Break up of Theory and Problems for Examination

- Section A- 7 Theory 3 problems
Section B – 3 Theory 5 Problems
Section C- 4 Problems

Course Code	CM010102
Title of the Course	ORGANISATIONAL BEHAVIOUR
Semester	One
Type	Core
Credits	3
Hours	5 per week and Total 90

Objective of the Course

To understand human behaviour at Individual, Interpersonal, Group and Inter-Group levels and to recognise issues inherent in organisational change, growth, development and conflict

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage
1	Basic understanding about the concepts of organisation behaviour.	Understanding	PSO1
2	A very good understanding about individual behaviour, personality and motivation.	Understand and evaluate	PSO1
3	Imparting deep understanding about group behaviour and leadership related to organisational behaviour.	Understanding	PSO1
4	Add the knowledge base of the learner regarding change management and deal with stress.	Evaluate and Apply	PSO1
5	Impart knowledge about the role of organisational culture and conflict on organizational behavior.	Understand and Apply	PSO1

Unit wise arrangement of the course

Module No.	Unit No.	Contents	Remarks
Module 1- Introduction to Organisational Behaviour – 15 hours			
1	1.1	Meaning and definition of Organisation Behaviour – Scope – Basic concepts of OB – Foundations of OB- Challenges and Opportunities of OB.	Short questions
	1.2	Role of organisation behaviour – Determinants — Challenges and opportunities of OB – Contributing disciplines – Difference between organisational behaviour and organisation theory.	Short questions and short essays
	1.3	Models of OB – Autocratic model – Custodial model – Supportive model – Collegial model.	Short questions short essays and essay questions

Module 2- Individual Behaviour and Motivation – 25 hours			
2	2.1	Concept of Human Behaviour - Characteristics - Models of Man, Factors influencing Individual Behaviour.	Short questions and short essays
	2.2	Personality-Determinants - Personality Traits.	Short questions short essays and long essay questions
	2.3	Perception – Process of perception – Factors influencing Perception – Perceptual errors.	Short questions short essays and long essay questions
	2.4	Attitudes - values -- Learning – Process of Learning - Reinforcement - Behaviour modification.	Short questions short essays and long essay questions
	2.5	Motivation – Concept - Theories or models of motivation- Need hierarchy, Theory X and Theory Y - Two factor theory.	Short questions short essays and long essay questions
	2.6	Contemporary theories of motivation –ERG - Cognitive evaluation - goal setting- equity-expectancy model.	Short questions short essays and long essay questions
Module 3- Group Behaviour and Leadership – 25 hours			
3	3.1	Transactional Analysis - Johari Window – Ego states -Life positions.	Short questions short essays and long essay questions
	3.2	Group - Factors influencing group behaviour- Norms-Cohesiveness.	Short questions short essays and long essay questions
	3.3	Stages of Group Development- Group Structure- Group Decision making.	Short answer and Short essays
	3.4	Teams- Types of teams- Group Vs Teams.	Short answer and Short essays
	3.5	Difference between Authority and Power – Sources of Power- Tactics used to gain power - Status –Problems caused by status system	Short questions short essays and long essay questions
	3.6	Leadership- features – concepts – qualities of good leaders – Leadership styles.	Short questions short essays and long essay questions
	3.7	Theories of Leadership - Behavioural approach - Situational approach – Transactional and transformational Leadership.	Short questions short essays and long essay questions
Module 4- Organisational Change, Development and Stress Management – 15 hours			
4	4.1	Organisational Change – Forces for change - Resistance to change- overcoming resistance to change.	Short questions and short essays
	4.2	Types of change – Revolutionary and evolutionary change.	Short questions and short essays
	4.3	Greiner’s five stages of organisational growth- Organisational Development - concept - OD intervention techniques.	Short questions short essays and long essay questions

	4.4	Stress – Meaning –Types of stress- Causes of Stress- Consequences.	Short questions short essays and long essay questions
	4.5	Stress Management – Need- Techniques adopted for Stress Management in Organisations.	Short questions short essays and long essay questions
Module 5- Organisational Culture and Conflict – 10 hours			
5	5.1	Concept and determinants of organisational culture.	Short questions and short essays
	5.2	Conflict – concept – stages in organisational conflict - functional and dysfunctional aspects of conflict – levels of conflict - Stimulation and resolution of conflict.	Short questions short essays and long essay questions

Suggested Assignment:

1. Analysis of Case studies on individual and group behaviour in leading corporates
2. Evaluation of case studies on motivation and leadership in organisation
3. Case study on organisational change, resistance to change and organisational culture

Recommended Text Books

1. Robbins S.P., Organisational Behaviour (16th Ed.), Pearson.
2. Dwivedi R.S., Human relations and organizational behaviour, MacMillain Publishers
3. Organisational Behaviour, Aswathappa, Himalaya Publishing House
4. Gupta C.B., A Text Book of Organisational Behaviour, S Chand & Company
5. Jai B.P. Sinha, Culture and Organizational Behaviour, Sage India.
6. Kumar Paranit, Organisational Behaviour, Gen Next Publication.
7. King & Lawley, Organisational Behaviour, Oxford University Press.

References

1. Organisational Behaviour concepts and cases ,Ghanekar, Anjali ,Everest publisher
2. Human Relations and organisational behaviour : Global perspective, Dwivedi R.S. Macmillan
3. Organisational Behaviour: Foundations, Theories, and Analyses, John B. Miner. Oxford University Press.
4. Fred Luther, Organisational Behaviour, Pearson Education.
5. Sekaran Uma S, Organisational Behaviour, Tata McGraw Hill.

SECOND SEMESTER COURSES

Course Code	CM010201
Title of the Course	ADVANCED CORPORATE ACCOUNTING
Semester	Two
Type	Core
Credits	4
Hours	5 per week and Total 90

Objective of the Course:

To equip the learner to understand the higher-level applications of accounting in corporate sector and recent developments.

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage
1	The learner should be able to prepare consolidated financial statements of group companies.	Apply	PSO2
2	Preparation of the financial statements of public utility companies and deal with the disposal of surplus.	Apply	PSO2
3	Develop and awareness on the procedure of bankruptcy under the recent Bankruptcy Procedure Code.	Understanding	PSO2
4	Familiarising the learner with the accounting procedures of liquidation of companies and preparation of various statements required as per the Companies Act.	Evaluate	PSO2
5	Basic understanding about the preparation of accounts of some special lines of businesses like shipping, hospitals and hotels.	Understanding and Apply	PSO2

Unit wise arrangements of the course

Module No	Unit No	Unit-wise Contents	Remarks
Module 1- Accounts of holding companies- 27 hours			
1	1.1	Concept of Holding Company, Subsidiary Company-Consolidated Financial Statements - Need for Consolidation -Documents to be filed along with Consolidated financial statements.	Theory only
	1.2	Minority Interest-Cost of Control-Pre-acquisition and Post-acquisition -Elimination of Un realised Profit.	Theory and short problems

	1.3	Accounting treatment of Dividend declaration by subsidiary company -Issue of Bonus Shares - Contingent liabilities -Revaluation of Assets and liabilities.	Theory and short problems
	1.4	Preparation of Consolidated balance sheet- Cross holding.	Problems
Module 2- Accounts of Public Utility Undertakings- 20 hours			
2	2.1	Double account system -Features -Difference between Double Account and Single Accounts - Advantages and Dis-advantages of the Double Accounts.	Theory only
	2.2	Final Accounts of Electricity Concerns	Problems
	2.3	Reserves to be created by Electricity Companies - Computation of Reasonable Return and Clear profit and Disposal of Surplus of Electricity Companies.	Theory and short problems
	2.4	Meaning of replacement – Practical problems on replacement of assets.	Theory and Problems
Module 3- Bankruptcy Code 2016- 10 hours			
3	3.1	Institutional framework under the code – Adjudicating authorities – Insolvency and Bankruptcy Board of India – its scope and functions.	Theory
	3.2	Insolvency Professional Agencies and role – Insolvency Professionals – Resolution Process under the Code.	Theory
	3.3	Corporate Insolvency Resolution Process – Resolution Process for Individuals – Exit Route under the Code – Order of Priority of Debt – Voluntary Liquidation – Bankruptcy Order.	Theory
Module 4- Liquidation of Companies- 18 hours			
4	4.1	Liquidation – meaning – modes of liquidation – legal procedures for liquidation.	Theory
	4.2	Contributories – List A and List B Contributories.	Theory and Problems
	4.3	Statement of Affairs- Preparation.	Theory and Problems
	4.4	Order of payment of liabilities in winding up – Preferential payments in the course of winding up – Provisions regarding the priority of preferential payments over other debts.	Theory and Problems
	4.5	Liquidator’s final statement of accounts – Liquidators remuneration.	Theory and Problems
Module 5- Accounting for Specialised Businesses- 15 hours			
5	5.1	Voyage Accounts – meaning – purpose – Basic concepts of voyage accounts – Treatment of incomplete voyage.	Theory only
	5.2	Preparation of voyage Accounts.	Problems only
	5.3	Accounting for hotels.	Theory and

			simple problems
	5.4	Accounting for Underwriters.	Theory and problems

Suggested Assignment:

1. Assignment on the real case history of companies gone through insolvency procedure in India.
2. Develop an accounting system for small hotels

Recommended Text Books

1. Corporate Accounting, A. Mukharjee and M. Hanif, TATA McGraw Hill Co
2. Advanced accountancy, Arulanandam & Raman, Himalya Publishing House
3. Fundamentals of Financial accounting, Nassem Ahmed, Ane books Pvt, Limited
4. Advanced Financial Accounting, R.L. Gupta & Radhaswami, Sultan Chand CO;
5. Advanced Financial Accounting, S.N. Maheswari
6. Advanced Financial Accounting, Paul & Kaur
7. Advanced Financial Accounting, S.P. Jain & K.L. Narang; Kalyani Publishers

References

1. Study Material for CA IPCC Group I – Accounting
2. Study Material for CA IPCC Group II – Advanced Accounting
3. Students Hand Book on Advanced Accounting, G.Sekar and B. Saravana Prasath, C. Sitaraman & Co. Pvt Ltd;
4. Advanced Financial Accounting, B.D. Agarwal

Break up of Theory and Problems for Examination

Section A- 6 Theory 4 problems

Section B – 3 Theory 5 Problems

Section C- 1 Theory 3 Problems

Course Code	CM010202
Title of the Course	HUMAN RESOURCE MANAGEMENT
Semester	Two
Type	Core
Credits	3
Hours	5 per week and Total 90

Objectives of the course

To give an overview as to how an organisation identifies requirements of human resources, how it acquires, rewards, develops, motivates and manages people effectively and also provide an insight into the developments taking place in the field of Human Resource Management.

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage
1	Acquaintance with basic concepts of HRM and performance appraisal.	Understanding	PSO1
2	Understanding about human resource development, stress management and work life management.	Understanding	PSO1
3	High level knowledge about various aspects of training.	Understanding	PSO1
4	Understanding about various aspects of industrial relations so as to evaluate the real cases of industrial relations.	Evaluate	PSO1
5	Understanding about HR outsourcing HR accounting and HR audit.	Understanding	PSO1

Unit wise arrangements of the course

Module No	Unit No	Contents	Remarks
Module 1- Human Resource Management – 20 hours			
1	1.1	Human Resource Management – Nature, Scope and Functions - Role and status of HR manager.	Short questions, Short Essay
	1.2	HR policies – Need and Importance – Types of policies- Formulation of Policies.	Short questions, Short Essay
	1.3	HR planning process – Objectives- Need and Importance- Levels of HR Planning - Problems of HRP.	Short questions, Short Essay, Long essay
	1.4	Job analysis- Objectives- Process and Techniques- Job description and specification- Job design – Methods.	Short questions, Short Essay, Long essay
	1.5	Recruitment – Sources and techniques-	Short questions,

		selection- Steps.	Short Essay, Long essay
	1.6	Placement – Concept- Induction- Objectives.	Short questions, Short Essay
Module 2- Human Resource Development- 18 hours			
2	2.1	Concept of HRD: -Objectives, Mechanisms and Assumptions of HRD- HRM vs HRD.	Short questions, Short Essay
	2.2	Qualities of an HRD manager-Principles of HRD.	Short questions, Short Essay
	2.3	Employee Counselling-Need , Concepts, Forms and Steps Human Capital, Emotional Quotient, Mentoring.	Short questions, Short Essay
	2.4	Impact of TQM, Quality Circles, Kaizen on HRM.	Short questions, Short Essay, Long essay
Module 3- Training and Development -17 hours			
3	3.1	Concept of Training-Need and Importance - Organisation and management of training function;	Short questions, Short Essay
	3.2	Training methods and techniques-Attitudinal Training.	Short questions, Short Essay, Long essay
	3.3	Technical training - Training for creativity and problem solving – training for management change – Training for Productivity.	Short questions, Short Essay, Long essay
	3.4	Role, responsibilities and challenges to training managers and employees.	Short questions, Short Essay
Module 4- Performance Appraisal and Industrial Relations – 20 hours			
4	4.1	Performance appraisal – significance - Methods or techniques of performance appraisal.	Short questions, Short Essay, Long essay
	4.2	Job Evaluation- Objectives and Process-Limitations.	Short questions, Short Essay, Long essay
	4.3	Promotion and demotions; transfer, separations: resignation; discharge; dismissal; suspension; retrenchment.	Short questions, Short Essay
	4.4.	Lay off; -Industrial relations – Compensation-Grievance-meaning and causes of grievance	Short questions, Short Essay
	4.5	Importance of Grievance handling - procedure of grievance handling - Hot stove rule-code of discipline.	Short questions, Short Essay, Long essay
	4.6	Employee participation in management-techniques - Sweat equity scheme.	Short questions, Short Essay
Module 5- HR Outsourcing , Records , Accounting and Audit – 15 hours			
5	5.1	HR outsourcing:-legal requirements-contractor’s liabilities- liabilities of the company towards contractor’s labourers.	Short questions, Short Essay

	5.2	H R records and reports- significance – types.	Short questions, Short Essay
	5.3	Human Resource Accounting – meaning – significance – Approaches to HR Accounting (Theory only).	Short questions, Short Essay, Long essay
	5.4	HR appraisal and audit - concept, scope, methods and importance.	Short questions, Short Essay

Suggested Assignments

1. Evaluation of real life case studies related to employee participation in management, employee grievance redressal.
2. Make a report on the history sweat equity issues made by companies in India.
3. Evaluation of case studies of companies adopted Kaizen technique, Quality circle and TQM.

Recommended Text Books:

1. Human Resource Management, Gupta, C.B.: Chand and Sons.
2. Aswathappa K., Human Resource and Personnel Management; Tata McGraw Hill, New Delhi, 1997.
3. Human resource Management, L M Prasad, Sultan Chand.
4. Human resource Management- Text and Cases, S S Khanka, S Chand.
5. Human Resource Management, Sashi K Gupta and Rosy Joshi, Kalyani Publishers.
6. Human Resource Management, D N Venkatesh, P Jyothi, Oxford University Press.
7. Human Resource Management, Uday Kumar Haldar, Juthica Sarkar, Oxford University Press.

References

1. International Human resource Management – P Subbarao, Himalaya Publishing House.
2. Human Resource Management -Text and Cases- V S P Rao , Excel Publishers.
3. Introduction to International Human Resource Management, Eileen Crawley, Stephen Swailes and David Walsh, Oxford University Press.
4. Strategy Human Resource Management, Agarwala Tanuja, Oxford University Press.

ELECTIVE COURSES (One per group for the semester)

Group 1- Finance and Taxation Stream

Course Code	CM800301
Title of the Course	INDIRECT TAX LAWS
Semester	Three
Type	Core-Elective
Credits	4
Hours	6 per week and Total 108

Objective of the Course:

To enable the learner to have an understanding on the provisions of major Indirect Tax Laws and Rules

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage
1	Understand the basic concepts of the Goods and Services Tax	Understanding	PSO4, 6
2	Develop a clear idea about the levy and collection of tax and tax credit	Understanding	PSO4, 6
3	Develop the knowledge about the provisions regarding registration, preparations of books of accounts and filing of returns under the Act	Understand and Apply	PSO4, 6
4	Understand about the powers of GST authorities regarding inspection, search and seizure	Understanding	PSO4, 6
5	Basic understanding about the Customs Law in India.	Understanding	PSO4, 6

Unit wise arrangement of the course

Module	Sl. No. of Units	Contents of the Unit	Remarks
Module 1: GST – An Introduction – 23 hours			
1	1.1	Tax-Direct and Indirect Tax-GST-Stages and evolution of GST in India-GST Bill-GST Council-Need for GST in India- Challenges for the introduction of GST in India- Benefits of GST	Short question, Short essay
	1.2	Subsuming of taxes-Framework of GST in India-CGST-SGST-UTGST-IGST-Computation-GSTN-GST Common Portal-HSN-SAC-GSTIN-Goods outside the scope of GST	Short question, Short essay

	1.3	Concepts- Agent- Aggregate Turnover- Agriculturist-Assessment-Business-Business Vertical-Capital Goods-Casual Taxable Person-Central Tax-Common portal- Composite supply-Continuous Supply of goods-Continuous supply of services-Council-Electronic Commerce-Electronic Commerce Operator- Exempt Supply	Short question, Short essay and Long essay
	1.4.	Goods-Input-Input Service- Input Service Distributor- Input tax-Input Tax Credit-Inward Supply- Job work- Location of the recipient of services-Location of the supplier of services-Manufacture-Mixed Supply-Non-resident Taxable Person-Non-taxable territory-Output Tax-Outward Supply	Short question, Short essay and Long essay
	1.5.	Person-Place of Business-Principal-Principal Place of Business-Principal Supply-Recipient-Registered Person-Reverse Charge-Services-Supplier-Taxable Person-Taxable Supply-Taxable Territory-Works Contract.	Short question, Short essay and Long essay
Module – 2: Levy and collection of tax, time, value and place of supply and input tax credit – 25 hours			
2	2.1.	Supply-Scope of Supply-Tax liability on Composite and Mixed Supplies-Levy and Collection-Reverse Charge-Electronic Commerce Operator-Composition Levy. Time of supply of goods-Time of supply of services-Value of taxable supply. Place of Supply	Short question, Short essay and Long essay
	2.2	Eligibility and conditions for taking input tax credit-Appportionment of credit-Blocked Credits-Availability of credit in special circumstances-Reversal of credit under special circumstances	Short question, Short essay and Long essay
	2.3	Job Work-Input tax credit in respect of inputs and capital goods sent for job work-Input Service Distribution	Short question, Short essay and Long essay
	2.4	Manner of distribution of credit by ISD-Recovery of excess credit by ISD-Availing and utilization of ITC-Computation of GST.	Short question, Short essay and Long essay
	2.5	Problems on Time and place of supply, Value of supply, value of taxable supply, Input tax credit, Invoice value, GST payable	Problems- Short answer, short essay and long

			essay
Module 3 : Registration, Tax Invoice, Credit and Debit Notes, Accounts and Records, Returns, Payment of Tax and Refund, Assessment and Audit- 25 hours			
3	3.1	Person liable for registration-Person not liable for registration-Compulsory Registration-Procedure for registration-UIN-Deemed Registration-Special provisions relating to casual taxable person and non-resident taxable person	Short question, Short essay and Long essay
	3.2	Cancellation of registration-Revocation of cancellation of registration. Tax Invoice-Credit and debit notes-	Short question, Short essay and Long essay
	3.3	Prohibition of unauthorized collection of tax-Accounts and records to be maintained-Period of retention of accounts. Furnishing details of outward supplies-Furnishing details of inward supplies-Furnishing of returns by regular tax payers	Short question, Short essay and Long essay
	3.4	First Return-Claim of input tax credit and provisional acceptance-Matching, reversal and reclaim of input tax credit-Matching, reversal and reclaim of reduction in output tax liability	Short question, Short essay
	3.5	Annual Return-Final Return-Default in furnishing return-Information return-GST practitioners. Payment of tax, interest, penalty and other amounts	Short question, Short essay and Long essay
	3.6	Electronic Cash Ledger-Manner of utilization of amount in Electronic Cash Ledger-Electronic Credit Ledger-Manner of utilization of ITC-Electronic Liability Ledger-Order of discharge of tax and other dues	Short question, Short essay and Long essay
	3.7	Computation-Interest on delayed payment of tax-Tax Deduction at Source-Collection of Tax at Source. Refund of tax-Situations-Time Limit-Order of refund-Principle of unjust enrichment-Consumer Welfare Fund-Withholding of refund-Interest on delayed refunds.	Short question, Short essay and Long essay
	3.8	Self-assessment-Provisional Assessment-Scrutiny of returns-Assessment of non-filers of returns-assessment of unregistered persons-Best judgement assessment-Summary Assessment. Audit by tax authorities-Special audit.	Short question, Short essay and Long essay

Module 4: Authorities, Inspection, search, seizure and arrest, Demand and Recovery, Offences and Penalties, Appeals and Revision – 15 hours			
4	4.1	Power of inspection, search and seizure- Inspection of goods in movement	Short question, Short essay and Long essay
	4.2	E-Way Bill. Determination of Tax and Recovery Proceedings- Modes-Offences and penalties	Short question, Short essay and Long essay
	4.3	Appeal to Appellate Authority – Power of Revisional Authority- Appeal to Appellate Tribunal-Appeal to High Court-Supreme Court-Non-Appealable decisions and Orders	Short question, Short essay and Long essay
Module 5 : An Overview of Customs Law in India – 20 hours			
5	5.1	Constitutional Provisions-Overview of Customs Law in India-Basic Concepts and Definitions	Short question, Short essay
	5.2	Types of Duty-Levy of Tax-Point and Circumstances of Levy-Classification of Goods-Taxable event for Customs Duty	Short question, Short essay and Long essay
	5.3	Valuation and Valuation Rules-Exemptions from Customs Duty	Short question, Short essay, Long essay and problems
	5.4	Warehousing-Import Export Procedure- Duty drawback	Short question, Short essay and Long essay
	5.5	Types of Warehouses-Warehousing Bonds-Period of Warehousing-Removal of goods from Warehouse-Clearance for home consumption-Rules and Provisions regarding Baggage.	Short question, Short essay and Long essay

Suggested Assignments

1. Make a report on the state wise and national revenue on account of GST
2. Present different cases of valuation under GST and Customs Act
3. Compare the previous Indirect Tax regime with that of the present

Recommended Text Books

- 1) Handbook on Goods and Services Tax – CA Pushendra Sisodia, Bharat Law House
- 2) Indirect Taxes - H.C Mehrotra, Sahitya Bhavan Publications, New Delhi
- 3) Indirect Taxes - Vinod K Singania, Taxmann's Publications, New Delhi
- 4) Illustrated Guide to Goods and Service Tax- C A Rajat Mohan- Bharat Publications
- 5) All about GST- V S Datey- Taxmann Publications.
- 6) Basics of GST- Nitya Tax Associates- Taxmann Publications
- 7) Beginner's Guide to GST- Dr Vandana Bangar and Dr Yogendra Bangar- AadhyaPrakashanBanagar
- 8) Customs Law Manual- R K Jain- CENTAX Publications
- 9) Customs Law- V S Datey- Taxmann publications

Additional References

- 1) *Bare Act CGST*
- 2) *Bare Act SGST*
- 3) *Bare Act IGST*
- 4) *Bare Act- Customs Act*
- 5) *Study Material of ICAI – IPCC and Final*

Break up of Theory and Problems for Examination

Section A- 8 Theory 2 problems

Section B – 6 Theory 2 Problems

Section C- 3 Theory and 1 Problem

Course Code	CM010402
Title of the Course	INCOME TAX – ASSESSMENT & PROCEDURES
Semester	Four
Type	Core
Credits	4
Hours	7 per week and Total 126

Objectives of the Course:

To enable the learners to advise assesseees regarding their income tax queries and to be trained to attend professional examinations in taxation.

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage
1	Compute the total income and tax liability of firms and Association of Persons	Understand & Apply	PSO4, 6
2	Carry out assessment of companies and determine their tax liability	Understand & Apply	PSO4, 6
3	Make the assessment of co operative societies and trusts.	Understand & Apply	PSO4, 6
4	Understanding about the assessment procedures, TDS and advance payment of tax and application in various situations	Understand & Apply	PSO4, 6
5	Learn tax planning concepts and apply the same	Understand & Apply	PSO4, 6

Unit wise arrangement of the Course

Module	Sl. No. of Units	Contents of the Unit	Remarks
Module 1: Assessment of firms and AOPs – 35 hours			
1	1.1	Computation of firm's income –Determination of remuneration to working partners - Income of a partner from a firm – Book Profit (Legal provisions)	Theory and Problem
	1.2	Computation of Book Profit Taxable Income and Tax liability of a firm – Computation of Income of the partners	Theory and Problem
	1.3	Change in the constitution of a firm – Succession of one firm by another firm – Set off of losses by a firm	Theory and Problem
	1.4	Assessment AoP/BoI - Computation of share of a member of AoP/BoI	Theory and Problem

			Problem
Module 2: Assessment of Companies – 31 hours			
2	2.1.	Types of Companies – Residence of Companies –	Theory and Problem
	2.2	Minimum Alternative Tax – Tax Credit – Marginal Relief	Theory and Problem
	2.3	Company Assessment- Computations of Taxable Income and Tax Payable	Theory and Problem
Module 3: Assessment of Co operative Societies and Trusts – 30 hours			
3	3.1	Deductions under section 80 P	Theory
	3.2	Rates of tax applicable to Co – operative Societies – Computation of total income and tax liability of co operative societies	Theory and Problem
	3.3	Trust; definition – types of trusts – Charitable or religious trusts – Income exempt in case of charitable or religious trusts – Accumulation of income and its investment – consequences of mis-utilization of accumulated income –	Theory
	3.4	Computation of total Income and tax liability of co-operative societies	Theory and Problem
	3.5	Conditions for availing exemption under section 11 and 12 – Income deemed to have been used for the benefit of the founder – Tax on anonymous donations – Computation of total income and tax	Theory and Problem
Module 4: Income Tax Authorities and Assessment Procedures –15 hours			
4	4.1	Income tax authorities – General and specific powers of Income Tax Authorities	Theory
	4.2	Voluntary Return of Income – Return of Loss – Belated Return – Revised Return – Compulsory Return – Defective Return – Forms of Return of Income	Theory
	4.3	Filing of Return through TRP - e – filing of return – PAN – TAN – TIN - Interest for default in furnishing Return of Income	Theory
	4.4	Self assessment – Assessment on the basis of Return – Regular assessment – Assessment on the basis of evidence – Best Judgement Assessment –Re assessment – Precautionary Assessment –	Theory
	4.5	Rectification of mistake – Notice of Demand- Returns through Tax Return Preparers	Theory
	4.6	Deduction and Collection of Tax at Source-	Theory

		Advance Payment of Tax- Interest on short fall of advance tax - Refund of Tax - Double taxation avoidance	
	4.6	Problems in Deduction and Collection of Tax at Source- Problems in Advance Payment of Tax- Interest on short fall of advance tax including Interest under 234A, B and C – Double taxation avoidance	Problems
Module 5- Tax Planning – 15 hours			
5	5.1	Tax Planning -Tax Avoidance- Tax Evasion-Tax Management- Need of Tax Planning	Theory
	5.2	- Tax Planning of individuals – Advantages and Limitations of Tax Planning.	Theory
	5.3	Tax planning tips for individual assesseees	Theory and Case type problems

Suggested Assignments

1. Calculation of taxable income and liability of partnership firm and partners
2. Case Studies of Tax Planning
3. Training in filing of return and report on the same
4. Present a report on procedure for obtaining PAN, various formats of returns and category of assesses to whom the returns are applicable

Suggested Text Books

1. Direct Taxes Law and Practice- Dr H C Mehrotra and Dr S P Goyal- Sahitya Bhawan Publications
2. Direct Taxes Law and Practice- Dr. Girish Ahuja ;Dr. Ravi Gupta, Bharat Law House Pvt. Ltd
3. Direct Taxes Sri T N Manoharan- Snow White Publications

Reference

1. Direct Taxes Law and Practice- Singhania V K, Taxmann Publications Ltd.
2. Direct Taxes – Law and Practice, Bhagwathi Prasad- Wishwa Prakashana.
3. Study material for IPCC and Final on Direct Taxation by ICAI
4. Study material on Direct Taxes by ICMAI
5. Income Tax Act and Rules

Break up of Theory and Problems for Examination

- Section A- 6 Theory 4 problems
Section B – 4 Theory 4 Problems
Section C- 1 Theory and 3 Problems

Course Code	CM800402
Title of the Course	PERSONAL INVESTMENT AND BEHAVIOURAL FINANCE
Semester	Four
Type	Core
Credits	4
Hours	6 per week and Total 108

Objectives of the Course:

To equip the student to manage their personal finance, introduce the students the role of human behaviour in financial decision making and identify persistent or systematic behavioural factors/biases that influence investment behaviour.

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage
1	Understand the meaning and significance of Financial literacy, Financial Discipline & Financial Competency, the role of family and parents in financial socialisation	Understand and Evaluate	PSO4, 6
2	Understand and Evaluate the Significance of savings on financial destiny and its relationship with Consumerism and to understand the different elements/steps in Personal Financial Planning to attain Financial Well Being and Evaluate the different retail investment avenues.	Understanding & Evaluate	PSO4, 6
3	Know the meaning of Behavioural Finance, its evolution and related theories	Understand & Remember	PSO4, 6
4	To understand different Heuristics, Biases and other Irrational Investment Behaviours	Understanding and evaluate	PSO4, 6
5	Understand the relationship between biases and to adopt techniques to lower the impact of biases	Understand & Apply	PSO4, 6

Unit wise arrangement of the Course:

Module	Sl. No. of Units	Contents of the Unit	Remarks
Module 1: Introduction to Household Financial Management – 18 hours			
1	1.1	Financial literacy - meaning - components of financial literacy - Methodology for assessing financial literacy –	Short answer, Short Essay
	1.2	Financial Discipline - Financial Competency	Short answer,

		- Financial capability -Assessment of Financial capability	Short Essay and Long Essay
	1.3	Family Financial Socialisation - Role of parents in financial socialisation - Significance of family financial socialisation on financial capability and financial competency	Short answer, Short Essay and Long Essay
	1.4.	Financial distress of families and its causes - Significance of savings on financial destiny of individuals and families –	Short answer, Short Essay and Long Essay
	1.5.	Trends in Domestic Savings in India - Effect of Consumerism and changing attitude towards life on domestic savings	Short answer, Short Essay
Module 2: Savings, Investment & Financial Wellbeing – 20 hours			
2.	2.1.	Retail Investment Avenues: Avenues like Mutual fund, SIP, SWPs, Post Office schemes- Pension Plans-Micro finance options- Crypto Currencies- Crowd Funding- Other options – All Investment Avenues	Short answer, Short Essay and Long Essay
	2.2	Psychographic Models (Barnewall's Two Way Model, Bailard, Biehl, And Kaiser Five-Way Model)	Short answer, Short Essay and Long Essay
	2.3	Personal Financial Planning- House hold Budget- Analyzing house hold budget- Contingency Planning -Evaluating Personal Financial Position – Saving ratio- Expense ratio – Total Assets – Total Liability- Leverage Ratio – Net worth	Short answer, Short Essay
	2.4	Personal loans- Insurance, Financial Advisory Services – Need and Scope -	Short answer, Short Essay and Long Essay
	2.5	Savings and Credit behaviour of individuals – Factors affecting saving and credit behaviour - - Financial Well being – Meaning – Significance – Factors affecting financial well being – Models for studying financial well being – Economic well being and its relation with financial well being.	Short answer, Short Essay and Long Essay
Module 3: Behavioural Issues in Financial Decision making – 25 hours			
3.	3.1	Behaviour and decision making - Financial Decision Making - Expected Value - utility - The Expected Utility theory - Criticism of expected utility theory - Criticisms of EMH	Short answer, Short Essay and Long Essay
	3.2	Evolution of Behavioural Finance (BF) – Micro & Macro Behavioural Finance - Assumptions of Behavioural Finance – Building Blocks of Behavioural Finance - uses of Behavioural Finance	Short answer, Short Essay and Long Essay
	3.3	Discounting - Hyperbolic Discounting	Short answer,

		Factors - foundations of behaviour-behavioural models-	Short Essay and Long Essay
	3.4	Prospect theory- application of prospect theory	Short answer, Short Essay
Module 4: Influence of Bias on Financial Decision Making – 30 hours			
4.	4.1	Asymmetric Information – Egocentricity - Human Behavioural Theories - Heuristics (Representativeness Heuristic, Availability Heuristic) - Deficient Market Hypothesis.	Short answer, Short Essay and Long Essay
	4.2	Biases - Emotional Bias (Endowment Effect, Loss Aversion, Disposition Effect, Statistical Bias),	Short answer, Short Essay and Long Essay
	4.3	Cognitive Bias (Confirmation Bias, Familiarity Bias, Overconfidence, Anchoring, Reference Price Effect).	Short answer, Short Essay and Long Essay
	4.4	Other Irrational Investment Behaviour Groupthink Bias, House-Money Effect, Herd Behavior, The Story of Dotcom Herd,	Short answer, Short Essay and Long Essay
	4.5	Thought Contagion, Overreaction, Gambler's Fallacy, Hot-Hand Bias, Procrastination, Conservatism, Superstition.	Short answer, Short Essay and Long Essay
	4.6	Framing - Loss Aversion - Regret Aversion - Mental Accounting - Self Control - Sensation Seeking	Short answer, Short Essay and Long Essay
Module 5: Ways to Overcome Biases – 15 hours			
5	5.1	Interaction Between Biases - Outcomes Of Biases - Intermediate Outcomes - Final Outcomes	Short answer, Short Essay and Long Essay
	5.2	Dealing With Biases - Overcoming The Biases - Debiasing (Identification of Potential Bias, Considering Techniques to Lower the Impact, Evaluation of Selected Technique)	Short answer, Short Essay and Long Essay

Suggested Assignments

1. Conduct a survey regarding the attitude of the people towards savings, investment and enjoying the present life
2. Conduct a survey about the level of awareness of people about different investment avenues and their perceptions about such avenues.
3. Identify various biases in categories of investors by conducting a survey.

Recommended Text Books

1. Personal Finance , Jack R Kapoor, Les R Dlabay, Robert J Hughes McGraw Hill Education (India) Pvt Ltd, New Delhi
2. Tvede, Lars, (2002), The Psychology of Finance: Understanding the Behavioural Dynamics of Markets, Wiley

3. Monitor, James, (2002). *Behavioural Finance: Insights into Irrational Minds and Markets*, Oxford University Press.
4. Sulphey, M. M.: *Introduction to Behavioural Finance*, PHI Learning P. Ltd., New Delhi
5. Lucy A. Akert and Richard Deaves, *Understanding Behavioural Finance*, Cengage Learning.

Additional References

1. *Personal Finance: Turning Money into Wealth and Student Workbook*, Arthur J.
2. Keown, Prentice Hall Thaler, Richard H. (1993), *Advances in Behavioral Finance*, Russell Sage Foundation
3. Shefrin, Hersh, (2000). *Beyond Greed and Fear: Understanding Behavioral Finance and the Psychology of Investing*, Harvard Business School Press.
4. Shleifer, Andrei, (2000). *Inefficient Markets: An Introduction to Behavioral Finance*, Oxford University Press.
5. Singhal, Vijay, *Beyond the Random Walk: A Guide to Stock Market Anomalies and Low-Risk Investing*, Oxford University Press.
6. Thaler, Richard & Barberis, Nicholas. (2002) *A Survey of Behavioral Finance*, <http://dx.doi.org/10.2139/ssrn.327880>
7. *More Than You Know Finding Financial Wisdom in Unconventional Places* (By Michael J. Mauboussin Columbia University Press)
8. Kahneman, Daniel & Tversky, Amos. (2000). *Choices, Values and Frames*. Cambridge University Press
9. Julie Berkenmair, *Financial Capability and Asset Development, Research, Education Policy and Practice*, Oxford University Press
10. Albert Bandura, *Social Foundations of Thought & Action- A Social Cognitive Theory*, Prentice Hall

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR UNDER GRADUATE PROGRAMMES IN

B.Sc. Mathematics

UNDER CHOICE BASED CREDIT SYSTEM (UG CBCS) 2017

2017 ADMISSIONS ONWARDS

MATHEMATICS CORE COURSES

Semester	Title of the Course	Number Of hours	Total Credits	Total hours/ semester	University Exam Duration	Marks	
						Internal	External
I	MM1CRT01: Foundation of Mathematics	4	3	72	3 hrs	20	80
II	MM2CRT01: Analytic Geometry, Trigonometry and Differential Calculus	4	3	72	3 hrs	20	80
III	MM3CRT01: Calculus	5	4	90	3 hrs	20	80
IV	MM4CRT01: Vector Calculus, Theory of Numbers and Laplace transforms	5	4	90	3 hrs	20	80
V	MM5CRT01: Mathematical Analysis	6	4	108	3 hrs	20	80
	MM5CRT02: Differential Equations	6	4	108	3 hrs	20	80
	MM5CRT03: Abstract Algebra	5	4	90	3 hrs	20	80
	Human rights and Mathematics for Environmental Studies.	4	4	72	3 hrs	20	80
	Open course	4	3	72	3 hrs	20	80
VI	MM6CRT01 : Real Analysis	5	4	90	3 hrs	20	80
	MM6CRT02: Graph Theory and metric spaces	6	4	108	3 hrs	20	80
	MM6CRT03 : Complex Analysis	5	4	90	3 hrs	20	80
	MM6CRT04 : Linear Algebra	5	4	90	3 hrs	20	80
	Choice Based Course	4	4	72	3 hrs	20	80
	MM6PRT01 : Project	-	2	-	-	20	80

OPEN COURSE DURING THE FIFTH SEMESTER

Title of the Course	No. of contact hrs/week	No. of Credit	Duration of Exam
MM5OPT01: History of Indian Mathematics	4	3	3 hrs
MM5OPT02: Applicable Mathematics	4	3	3 hrs
MM5GET03: Mathematical Economics	4	3	3 hrs

CHOICE BASED COURSE DURING THE SIXTH SEMESTER

Title of the Course	No. of contact hrs/week	No. of Credit	Duration of Exam
MM6CBT01: Operations Research	4	3	3 hrs
MM6CBT02: Basic Python Programming And Typesetting in LaTeX	4	3	3 hrs
MM6CBT03: Numerical Analysis	4	3	3 hrs

B. Sc DEGREE PROGRAMME MATHEMATICS (UGCBCS 2017)

FIFTH SEMESTER

CODE : HUMAN RIGHTS AND MATHEMATICS FOR ENVIRONMENTAL STUDIES

CORE MODULE SYLLABUS FOR ENVIRONMENTAL STUDIES & HUMAN RIGHTS FOR UNDER GRADUATE COURSES OF ALL BRANCHES OF HIGHER EDUCATION

Vision

The importance of environmental science and environmental studies cannot be disputed. The need for sustainable development is a key to the future of mankind. Continuing problems of pollution, solid waste disposal, degradation of environment, issues like economic productivity and national security, Global warming, the depletion of ozone layer and loss of biodiversity have made everyone aware of environmental issues. The United Nations Conference on Environment and Development held in Rio de Janeiro in 1992 and World Summit on Sustainable Development at Johannesburg in 2002 have drawn the attention of people around the globe to the deteriorating condition of our environment. It is clear that no citizen of the earth can afford to be ignorant of environment issues..

India is rich in biodiversity which provides various resources for people. Only about 1.7 million living organisms have been described and named globally. Still many more remain to be identified and described. Attempts are made to conserve them in ex-situ and in-situ situations. Intellectual property rights (IPRs) have become important in a biodiversity-rich country like India to protect microbes, plants and animals that have useful genetic properties. Destruction of habitats, over-use of energy resource and environmental pollution have been found to be responsible for the loss of a large number of life-forms. It is feared that a large proportion of life on earth may get wiped out in the near future.

In spite of the deteriorating status of the environment, study of environment has so far not received adequate attention in our academic programme. Recognizing this, the Hon'ble Supreme Court directed the UGC to introduce a basic course on environment at every level in college education. Accordingly, the matter was considered by UGC and it was decided that a six months compulsory core module course in environmental studies may be prepared and compulsorily implemented in all the University/Colleges of India.

The syllabus of environmental studies includes five modules including human rights. The first two modules are purely environmental studies according to the UGC directions. The second two modules are strictly related with the core subject and fifth module is for human rights.

Objectives

- Environmental Education encourages students to research, investigate how and why things happen, and make their own decisions about complex environmental issues. By developing and enhancing critical and creative thinking skills, It helps to foster a new generation of informed consumers, workers, as well as policy or decision makers.
- Environmental Education helps students to understand how their decisions and actions affect the environment, builds knowledge and skills necessary to address complex environmental issues, as well as ways we can take action to keep our environment healthy and sustainable for the future, encourage character building, and develop positive attitudes and values.
- To develop the sense of awareness among the students about the environment and its various problems and to help the students in realizing the inter-relationship between man and environment for protecting the nature and natural resources.

- To help the students in acquiring the basic knowledge about environment and to inform the students about the social norms that provide unity with environmental characteristics and create positive attitude about the environment.

4 hours/week (Total Hrs: 72)

4 credits

SYLLABUS

Text Book :

1. Thomas Koshy : Fibonacci and Lucas numbers with applications, John Wiley & Sons, Inc (2001).

Unit 1 : Multidisciplinary nature of environmental studies

Definition, scope and importance

(2 hrs)

Need for public awareness.

Unit 2 : Natural Resources :

Renewable and non-renewable resources : Natural resources and associated problems.

a) **Forest resources** : Use and over-exploitation, deforestation, case studies.

Timber extraction, mining, dams and their effects on forest and tribal people.

b) **Water resources** : Use and over-utilization of surface and ground water,

floods, drought, conflicts over water, dams-benefits and problems.

c) **Mineral resources** : Use and exploitation, environmental effects of extracting

and using mineral resources, case studies.

d) **Food resources** : World food problems, changes caused by agriculture and

overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

e) **Energy resources**: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources, Case studies.

f) **Land resources**: Land as a resource, land degradation, man induced landslides, soil erosion and desertification

- Role of individual in conservation of natural resources.

- Equitable use of resources for sustainable lifestyles.

(10 hrs)

Unit 3: Ecosystems

- Concept of an ecosystem

- Structure and function of an ecosystem

- Producers, consumers and decomposers

- Energy flow in the ecosystem

- Ecological succession

- Food chains, food webs and ecological pyramids.

- Introduction, types, characteristic features, structure and function of the given ecosystem:-

Forest ecosystem

(6 hrs)

Module II

Unit 1: Biodiversity and its conservation

- Introduction
- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values.
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts
- Endangered and endemic species of India

(8 hrs)

Unit 2: Environmental Pollution

Definition

Causes, effects and control measures of: -

- Air pollution
 - Water pollution
 - Soil pollution
 - Marine pollution
 - Noise pollution
 - Thermal pollution
 - Nuclear hazards
- Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
 - Role of an individual in prevention of pollution
 - Pollution case studies
 - Disaster management: floods, earthquake, cyclone and landslides.

(8hrs)

Unit 3: Social Issues and the Environment

- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people: its problems and concerns, Case studies
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion , nuclear accidents and holocaust, Case studies
- Consumerism and waste products
- Environment Protection Act
- Air (Prevention and Control of Pollution) Act
- Water (Prevention and control of Pollution) Act
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation
- Public awareness

(10 hrs)

Module III : Fibonacci Numbers in nature

The rabbit problem, Fibonacci numbers, recursive definition, Lucas numbers, Different types of Fibonacci and Lucas numbers. Fibonacci numbers in nature : Fibonacci and the earth, Fibonacci

and flowers, Fibonacci and sunflower, Fibonacci, pinecones, artichokes and pineapples, Fibonacci and bees, Fibonacci and subsets, Fibonacci and sewage treatment, Fibonacci and atoms, Fibonacci and reflections, Fibonacci, paraffins and cycloparaffins, Fibonacci and music, Fibonacci and compositions with 1's and 2's.

Text 1 : Chapters 2 & 3 (excluding Fibonacci and poetry, Fibonacci and electrical networks)

Module IV : Golden Ratio (10 Hrs)

The golden ratio, mean proportional, a geometric interpretation, ruler and compass construction, Euler construction, generation by Newton's method. The golden ratio revisited, the golden ratio and human body, golden ratio by origami, Differential equations, Gattei's discovery of golden ratio, centroids of circles,

Text 1 : Chapters 20, 21

Module V : Human rights

Unit1-Human Rights– An Introduction to Human Rights, Meaning, concept and development, Three Generations of Human Rights (Civil and Political Rights; Economic, Social and Cultural Rights).

Unit-2 Human Rights and United Nations – contributions, main human rights related organs - UNESCO, UNICEF, WHO, ILO, Declarations for women and children, Universal Declaration of Human Rights.

Human Rights in India – Fundamental rights and Indian Constitution, Rights for children and women, Scheduled Castes, Scheduled Tribes, Other Backward Castes and Minorities

Unit-3 Environment and Human Rights - Right to Clean Environment and Public Safety: Issues of Industrial Pollution, Prevention, Rehabilitation and Safety Aspect of New Technologies such as Chemical and Nuclear Technologies, Issues of Waste Disposal, Protection of Environment

Conservation of natural resources and human rights: Reports, Case studies and policy formulation. Conservation issues of western ghats- mention Gadgil committee report, Kasthurirengan report. Over exploitation of ground water resources, marine fisheries, sand mining etc. (8 Hrs)

Internal: Field study

- Visit to a local area to document environmental grassland/ hill /mountain
- Visit a local polluted site – Urban/Rural/Industrial/Agricultural Study of common plants, insects, birds etc
- Study of simple ecosystem-pond, river, hill slopes, etc

(Field work Equal to 5 lecture hours)

References

1. .Bharucha Erach, Text Book of Environmental Studies for undergraduate Courses. University Press, IInd Edition 2013 (TB)
2. Clark.R.S., Marine Pollution, Clanderson Press Oxford (Ref)
3. Cunningham, W.P.Cooper, T.H.Gorhani, E & Hepworth, M.T.2001Environmental Encyclopedia, Jaico Publ. House. Mumbai. 1196p .(Ref)
4. Dc A.K.Environmental Chemistry, Wiley Eastern Ltd.(Ref)
5. Down to Earth, Centre for Science and Environment (Ref)
6. Heywood, V.H & Watson, R.T. 1995. Global Biodiversity Assessment, Cambridge University Press 1140pb (Ref)
7. Jadhav.H & Bhosale.V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284p (Ref)
8. Mekinney, M.L & Schock.R.M. 1996 Environmental Science Systems & Solutions. Web enhanced edition 639p (Ref)
9. Miller T.G. Jr., Environmental Science, Wadsworth Publishing Co. (TB)
10. Odum.E.P 1971. Fundamentals of Ecology. W.B. Saunders Co. USA 574p (Ref)
11. Rao.M.N & Datta.A.K. 1987 Waste Water treatment Oxford & IBII Publication Co.Pvt.Ltd.345p (Ref)
12. Rajagopalan. R, Environmental Studies from crisis and cure, Oxford University Press, Published: 2016 (TB)
13. Sharma B.K., 2001. Environmental Chemistry. Geol Publ. House, Meerut (Ref)
14. Townsend C., Harper J, and Michael Begon, Essentials of Ecology, Blackwell Science (Ref)
15. Trivedi R.K., Handbook of Environmental Laws, Rules Guidelines, Compliances and Stadards, Vol I and II, Enviro Media (Ref)
16. Trivedi R. K. and P.K. Goel, Introduction to air pollution, Techno-Science Publication (Ref)
17. Wanger K.D., 1998 Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p (Ref)
18. (M) Magazine (R) Reference (TB) Textbook

Human Rights

1. Amartya Sen, The Idea Justice, New Delhi: Penguin Books, 2009.
2. Chatrath, K. J.S., (ed.), Education for Human Rights and Democracy (Shimla: Indian Institute of Advanced Studies, 1998)

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR UNDER GRADUATE PROGRAMMES IN

B.Sc Botany

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2017 ADMISSIONS ONWARDS

B Sc BOTANY PROGRAMME – MODEL I

COMBINATION OF CORE AND COMPLEMENTARY COURSES AND SEMESTER-WISE DISTRIBUTION

Sem.	Course category	Course code	Course title	Instr. hrs.*		Credits
				Th.	Pr.	
I	Core	BO1CRT01	Methodology of Science and an Introduction to Botany	36	36	2 + 1
II	Core	BO2CRT02	Microbiology, Mycology and Plant Pathology	36	36	2 + 1
III	Core	BO3CRT03	Phycology and Bryology	54	36	3 + 1
IV	Core	BO4CRT04	Pteridology, Gymnosperms and Paleobotany	54	36	3 + 1
V	Core	BO5CRT05	Anatomy, Reproductive Botany, Microtechnique	54	36	3 + 1
	Core	BO5CRT06	Research methodology, Biophysics and Biostatistics	54	45	3 + 1
	Core	BO5CRT07	Plant Physiology and Biochemistry	54	45	3 + 1
	Core	BO5CRT08	Environmental sciences and Human Rights	54	36	3 + 1
	Open	BO5OPT01	1. Agri-based microenterprises	72	--	3
	Open	BO5OPT02	2. Horticulture and Nursery management	72	--	3
VI	Open	BO5OPT03	3. Ecotourism	72	--	3
	Core	BO6CRT09	Genetics, Plant Breeding and Horticulture	54	45	3 + 1
	Core	BO6CRT10	Cell and Molecular Biology	54	36	3 + 1
	Core	BO6CRT11	Angiosperm morphology, Taxonomy and Economic Botany	72	45	3 + 1
	Core	BO6CRT12	Biotechnology and Bioinformatics	54	36	3 + 1
	Elective	BO6PET01	1. Agribusiness	54	--	3
	Elective	BO6PET02	2. Plant Genetic Resources Management	54	--	3
Elective	BO6PET03	3. Phytochemistry and Pharmacognosy	54	--	3	
Project	BO6PRT01	Investigatory project work done individually or in groups	--	--	2	
I	Compl. 1	BO1CMT01	Cryptogams, Gymnosperms and Plant Pathology	36	36	2 + 1
II	Compl. 2	BO2CMT02	Plant Physiology	36	36	2 + 1
III	Compl. 3	BO3CMT03	Angiosperm Taxonomy and Economic Botany	54	36	3 + 1
IV	Compl. 4	BO4CMT04	Anatomy and Applied Botany	54	36	3 + 1

* 18 instructional hours is equal to one teaching hour per week

SEMESTER I

Core course 1 Code: BO1CRT01
METHODOLOGY OF SCIENCE AND AN INTRODUCTION TO BOTANY
(Theory 36 hrs; Practical 36 hrs; Credits 2 + 1)

Objectives:

- Understand the universal nature of science
- Demonstrate the use of scientific method
- To lay a strong foundation to the study in Botany
- Impart an insight into the different types of classifications in the living kingdom.
- Appreciate the world of organisms and its course of evolution and diversity.
- Develop basic skills to study Botany in detail.

Module 1: Introduction to science and the methodology of science (4 hrs)

Scientific method: steps involved - observation and thoughts, formulation of hypothesis; inductive reasoning - testing of hypothesis; deductive reasoning - experimentation - formulation of theories and laws.

Module 2: Experimentation in science (4 hrs)

Selection of a problem - searching the literature – designing of experiments - selection of variables, study area, and a suitable design. Need of control, treatments and replication. Mendel's experiments as an example of moving from observations to questions, then to hypothesis and finally to experimentation. Ethics in science.

Module 3: Origin and evolution of life (10 hrs)

Origin of life on earth from molecules to life - Oparin's hypothesis, Haldane's hypothesis, Miller-Urey experiment, Panspermia, origin of cells and the first organisms. Evolutionary history of Biological diversity – fossil record; geological time scale – major events in each era. Evidences of evolution; theories of evolution - Lamarck, Wallace, Charles Darwin, Hugo De Vries. Neo-Darwinism – major postulates - isolation, mutation, genetic drift, speciation.

Module 4: Diversity of life and its classification (12 hrs)

Diversity of life: two kingdom classification (Carolus Linnaeus, 1735); phylogenetic classification (August W Eichler, 1878); five kingdom classification (R H Whittaker, 1969). Three domains, six kingdom classification, (Carl Woese, 1990) – criteria for classification, general characters of each kingdom. The three domains of life: Archaea, Bacteria, Eucarya – general characters of each.

Diversity of plants: study the salient features of algae, fungi, bryophytes, pteridophytes, gymnosperms and angiosperms.

Module 5: Basic Botanical skills (6 hrs)

Light microscope: dissection and compound microscope – parts and uses. Preparation of specimens for light microscopy - collection and preservation of plant specimens; killing and fixing; killing agents - formalin, ethyl alcohol; fixing agents - Carnoy's fluid, Farmer's fluid, FAA; herbarium (brief study only). Whole mounts and sections – hand sectioning – TS, TLS, RLS. Staining plant tissues: purpose; stains - safranin, acetocarmine, crystal violet. Temporary and permanent mounting, mountants.

PRACTICAL (36 hrs)

1. Design an experiment to verify a given hypothesis.
2. Conduct a survey-based inquiry on a given topic (To test the validity of a given hypothesis. E.g., all angiosperm parasites are Dicot plants).
3. Select an important classical experiment and find out the different elements of the methodology of science (e.g., Robert Koch experiment).
4. Conduct field surveys to identify and collect plant specimens to appreciate the diversity of plant kingdom. Submit five preserved specimens (in bottles and/or herbarium) belonging to diverse groups.
5. Identification of plants with vascular elements, plants which produce flowers, fruits, seeds, cone, sporophyll, embryos and study their salient features.
6. Prepare temporary, stained hand sections (TS, TLS, RLS) of plant specimens appropriate for light microscopic studies.

REFERENCES

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COMPLEMENTARY COURSES FOR MODEL I B Sc ZOOLOGY

SEMESTER I

Complementary course 1 **Code: BO1CMT01**
CRYPTOGAMS, GYMNOSPERMS AND PLANT PATHOLOGY
(Theory 36 hrs; Practical 36 hrs; Credits 2 + 1)

Objectives:

- Acquire fundamental knowledge in plant science and to make the student to understand that Botany is an integral part of the human life and developments.
- Foster and encourage an attitude of curiosity, appreciation and enquiry of various life forms of plants.
- Understand the identifying characters of the different types included in the syllabus.
- Understand the diversity of plants with respect to Algae, Fungi, Lichens, Bryophytes, Pteridophytes and Gymnosperms.

CRYPTOGAMS (27 hrs)

Module 1: Algae (13 hrs)

General characters of algae and their classification up to classes (F E Fritsch); range of thallus variation in Algae. Reproduction and life history of the following groups with reference to the types mentioned: Cyanophyceae - *Nostoc*; Chlorophyceae - *Oedogonium* (*Volvox*, *Spirogyra*, *Cladophora* - vegetative features only); Phaeophyceae – *Sargassum*; Rhodophyceae – *Polysiphonia*.

Economic importance of Algae: food, industry, medicine, biofertilizers; algal bloom.

Module 2: Fungi and lichens (9 hrs)

General characters and outline on the classification of fungi by Ainsworth. General characters, thallus structure, reproduction and life history of the following groups with reference to the types mentioned: Zygomycotina – *Rhizopus*; Ascomycetes – *Xylaria*; Basidiomycetes – *Puccinia*.

Economic importance of Fungi: as food, industry, decomposition of organic matter. Fungal toxins and human health.

Lichens: Classification based on thallus morphology. *Usnea* - morphology and anatomy of vegetative and reproductive structure. Economic importance of lichen: food, industry, medicine.

Module 3: Bryophytes (2 hrs)

General characters of Bryophytes. Morphology, anatomy, reproduction and life cycle of *Riccia*.

Module 4: Pteridophytes (3 hrs)

General characters of Pteridophytes. Morphology, anatomy (stem), reproduction and life cycle of *Selaginella*.

Module 5: GYMNOSPERMS (4 hrs)

General characters of Gymnosperms. Morphology, anatomy (leaf let), reproduction and life cycle of *Cycas*.

PLANT PATHOLOGY (5 hrs)

Module 6: Plant diseases (5 hrs)

Classification of plant diseases on the basis causative organism and symptoms. Study the following diseases with special emphasis on causative organism, symptoms and control measures:

- (i) Nut fall of Arecanut (ii) Bacterial blight of Paddy (iii) Leaf mosaic of Tapioca.

PRACTICAL (36 hrs)

1. Micropreparation and identification preparation of the following:
 - (i) Algae: vegetative structure of *Nostoc*, *Volvox*, *Spirogyra*, *Oedogonium*, *Cladophora*, *Polysiphonia*. Vegetative and reproductive structure of *Sargassum*.
 - (ii) Fungi: vegetative and reproductive structure of *Rhizopus*, *Xylaria*, *Puccinia*.
 - (iii) Lichen: morphology of *Usnea* thallus and Apothecium.
 - (iv) Bryophytes: *Riccia* thallus anatomy.
 - (v) Pteridophytes: *Selaginella* - anatomy of stem and morphology of strobilus.
 - (vi) Gymnosperms: *Cycas* - Anatomy of leaflet, morphological features of megasporophyll, microsporophyll and ovule.
2. Identify plant diseases mentioned in the syllabus.

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SEMESTER II

Complementary course 2

Code: BO2CMT02

PLANT PHYSIOLOGY

(Theory 36 hrs; Practical 36 hrs; Credits 2 + 1)

Objectives:

- Make the students realize the importance of all physiological processes which take place in plants.
- Understand the mechanism of various physiological processes related to plant life.

Module 1: Water relations (11 hrs)

Plant water relations: Physical aspects of water absorption - Diffusion, DP, DPD. Imbibition. Osmosis - OP, Exosmosis, Endosmosis, Plasmolysis. Water potential and its components. Mechanism of water

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Core course 7 **Code: BO5CRT07**
PLANT PHYSIOLOGY AND BIOCHEMISTRY
(Theory 54 hrs; Practical 45 hrs; Credits 3 + 1)

Objectives:

- Acquire basic knowledge needed for proper understanding of plant functioning.
- Familiarize with the basic skills and techniques related to plant physiology.
- Understand the role, structure and importance of the bio molecules associated with plant life.

PLANT PHYSIOLOGY (Theory 36 hrs; Practical 27 hrs)

Module 1: Water relations (6 hrs)

Plant water relations - diffusion, imbibition, osmosis, OP, DPD, TP; water potential - concepts and components (pressure potential, gravity potential, osmotic potential and matric potential). Absorption of water - active and passive, pathway of water movement - apoplastic and symplastic pathway. Ascent of sap - cohesion-tension theory. Transpiration - types, mechanism, theories (Starch-sugar, Proton-K⁺ ion exchange), significance; antitranspirants. Guttation.

Module 2: Mineral nutrition (3 hrs)

Role of major and minor elements in plant nutrition, deficiency symptoms of essential nutrients; mineral uptake - passive (ion exchange) and active (carrier concept).

Module 3: Photosynthesis (12 hrs)

Photosynthetic pigments, photo excitation - fluorescence, phosphorescence; red drop and Emerson enhancement effect. Photosystems - components and organization; cyclic and non-cyclic photophosphorylation; carbon assimilation pathways - C₃, C₄ plants - Kranz anatomy, CAM. Photorespiration. Factors affecting photosynthesis - Blackmann's law of limiting factors.

Translocation of solutes: pathway of phloem transport, mechanism - pressure flow, mass flow hypothesis; phloem loading and unloading.

Module 4: Respiration (8 hrs)

Respiration: anaerobic and aerobic; glycolysis, Krebs's cycle, mitochondrial electron transport system - components, oxidative phosphorylation, ATPase, chemiosmotic hypothesis. RQ - significance. Factors affecting respiration.

Module 5: Plant growth and development (5 hrs)

Plant hormones: their physiological effect and practical applications - auxins, gibberellins, cytokinins, ABA, and ethylene. Plant movements: tropic movements - geotropism and phototropism; nastic movements - seismonastic and nyctinastic movements. Physiology of flowering - phytochrome, photoperiodism, vernalization.

Module 6: Stress physiology (2 hrs)

Concepts of plant responses to abiotic stresses (water, salt, temperature), biotic stress (pathogens). Allelopathy.

PRACTICAL (27 hrs)**Core Experiments (any four compulsory):**

1. Determination of osmotic pressure of plant cell sap by plasmolytic/weighing method.
2. Compare the stomatal indices of hydrophytes, xerophytes and mesophytes (any two).
3. Separation of plant pigments by TLC/Paper chromatography.
4. Measurement of photosynthesis by Wilmott's bubbler/any suitable method.
5. Estimation of plant pigments by colorimeter.

Demonstration experiments:

1. Papaya petiole osmoscope.
2. Demonstration of tissue tension.
3. Relation between transpiration and absorption.
4. Necessity of chlorophyll, light and CO₂ in photosynthesis.
5. Simple respiroscope.
6. Respirometer and measurement of RQ.
7. Fermentation.
8. Measurement of transpiration rate using Ganong's potometer/Farmer's potometer.

BIOCHEMISTRY (Theory 18 hrs; Practical 18 hrs)**Module 4: Water (3 hrs)**

Physical and chemical properties of water, acids and bases; pH - definition, significance; measurement of pH – colorimetric, electrometric (brief study only). Buffers: buffer action, uses of buffers.

Module 5: Carbohydrates (3 hrs)

General structure and functions; classification - mono (glucose and fructose), di (maltose and sucrose) and polysaccharides (starch and cellulose).

Module 6: Proteins (4 hrs)

General structure and classification of amino acids - peptide bond; structural levels of proteins - primary, secondary, tertiary and quaternary; functions of proteins.

Module 7: Lipids (2 hrs)

General features and roles of lipids, types of lipids; fatty acids - saturated and unsaturated; fatty acid derivatives - fats and oils; compound lipids (brief study only).

Module 8: Enzymes (6 hrs)

Classification and nomenclature, mechanism of action. Enzyme kinetics, Michaelis-Menten constant (brief study only). Regulation of enzyme action. Factors affecting enzyme action.

PRACTICAL (18 hrs)

1. General test for carbohydrates - Molisch's test, Benedict's tests, Fehling's test.
2. Colour test for starch - Iodine test.
3. Colour tests for proteins in solution – Xanthoproteic test, Biuret test, Million's test, Ninhydrin test.

4. Action of various enzymes in plant tissues: peroxidase, dehydrogenase.
5. Quantitative estimation of protein using colorimeter.

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Core course 8 **Code: BO5CRT08**
ENVIRONMENTAL SCIENCE AND HUMAN RIGHTS
(Theory 54 hrs; Practical 36 hrs; Credits 3 + 1)

Objectives:

- Acquaint the student with the significance of Environmental Science.
- Make the students aware about the extent of the total biodiversity and the importance of their conservation.
- Help the student to design novel mechanisms for the sustainable utilization of natural resources.
- Enable the students to understand the structure and function of the ecosystems.
- Enable the students to understand various kinds of pollution in the environment, their impacts on the ecosystem and their control measures
- Make the students aware about various environmental laws in India and the role of various movements in the protection of nature and natural resources.

ENVIRONMENTAL SCIENCE (48 hrs)

Module 1: Introduction to ecology (8 hrs)

Ecology: introduction, definition, scope and relevance; sub-divisions of ecology - autecology, synecology and ecosystem ecology.

Population: population size, density, natality, mortality, age, rate of natural increase, growth form and carrying capacity, population interactions between species - competition, parasitism, predation, commensalism, protooperation, mutualism, neutralism.

Community: community concept, biotic community, species diversity, species richness, dominance; growth forms and structure, trophic structure, ecotone, edge effect, habitat, ecological niche, micro-climate, ecological indicators, keystone species.

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SEMESTER III

Complementary course 3 **Code: BO3CMT03**
ANGIOSPERM TAXONOMY AND ECONOMIC BOTANY
(Theory 54 hrs; Practical 36 hrs; Credits 3 + 1)

Objectives:

- Acquaint the student with the objectives and components of Taxonomy.
- Help the student to understand the systems of classification of angiosperms.
- Help the student to identify the common angiosperm species of Kerala.
- Familiarize the student with plants of immense economic importance.

ANGIOSPERM TAXONOMY (36 hrs)

Module 1: Morphology (10 hrs)

Leaf - simple, compound; venation and phyllotaxy. Flower as a modified shoot, structure of flower - floral parts, their arrangement, relative position; cohesion and adhesion of floral parts, symmetry of flowers; types of aestivation and placentation; floral diagram and floral formula. Inflorescence: racemose - simple, spike, spadix, catkin, corymb, umbel and head; cymose - simple, monochasial-helicoid and scorpioid; special types – cyathium, verticillaster. Fruits: outline on the classification; Simple: Fleshy - drupe, berry, hesperidium; Dry - Dehiscent - legume, capsule; Indehiscent - Caryopsis, Cypsella, Schizocarpic - lomentum, carcerulus, regma, cremocarp with examples. Aggregate. Multiple: sorosis, syconus. (Examples should be from families prescribed in the syllabus).

Module 2: Plant classification and Herbarium techniques (8 hrs)

Importance of plant classification, types of classification - artificial, natural and phylogenetic (brief account only); binomial nomenclature; ICBN (Brief account only). Bentham and Hooker's system of classification (up to series) and its merits and demerits. Cytotaxonomy and chemotaxonomy (brief account only). Herbarium techniques; importance of herbarium.

Module 3: Angiosperm families (18 hrs)

Study of the following families of Bentham and Hookers system of classification with special reference to major identifying characters and economic importance: Annonaceae, Malvaceae, Rutaceae, Leguminosae (Mimosaceae, Caesalpinaceae and Fabaceae), Apiaceae (Umbelliferae), Rubiaceae, Asteraceae (Compositae), Apocynaceae, Lamiaceae (Labiatae), Euphorbiaceae, Arecaceae (Palmae), Poaceae (Gramineae).

ECONOMIC BOTANY (18 hrs)

Module 4: Classes of economically important plants (10 hrs)

Classification of economically important plants based on their uses. Study of the following groups of plants with special reference to their botanical name, family, morphology of useful part, economic products and uses: Cereals - Paddy, Wheat; Pulses - Green gram, Bengal gram; Tuber crops -

Tapioca; Spices - Pepper, Cardamom; Beverages - Tea, Coffee; Oil yielding plants - Coconut, Groundnut; Fibre yielding plants - Cotton, Coir; Timber yielding plants - Teak, Rose wood; Latex yielding plants - Para rubber; Bio pesticides - Neem, Tobacco; Ornamental plants - Rose, Orchids, Anthurium.

Module 5: Medicinal plants (8 hrs)

Study of the following medicinal plants with special reference to their binomial, family, morphology of useful parts and uses: *Adhatoda*, *Aloe*, *Bacopa*, *Catharanthus*, *Eclipta*, *Neem*, *Ocimum*, *Phyllanthus amarus*, *Rauwolfia*, *Sida*.

PRACTICAL (36 hrs)

1. Students should be trained to identify the different types of inflorescence and fruits of typical plants belonging to the families prescribed in the syllabus.
2. Students should be trained to identify typical local plants belonging to the families prescribed in the syllabus.
3. Students should be trained to describe the floral parts in technical terms and draw the L.S. of flower, construct the floral diagrams and write the floral formula of at least one flower from each family.
4. Study of the groups of plants mentioned in the economic botany syllabus with special reference to their botanical name, family, morphology of useful part, economic products and uses.
5. Students should study the botanical name, family, morphology of the useful part and the uses of the medicinal plants listed in the syllabus.

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SEMESTER IV

Complementary course 4 Code: BO4CMT04
ANATOMY AND APPLIED BOTANY
(Theory 54 hrs; Practical 36 hrs; Credits 3 + 1)

Objectives:

- Understand different types of plant tissues.
- Understand the internal structure of different plant organs with reference to their functions.
- Understand the process of normal and anomalous secondary thickening in plants.
- Know the morphological and anatomical adaptations of plants growing in different habitats.
- Understand how botanical knowledge could be applied for crop improvement.

PLANT ANATOMY (27 hrs)

Module 1: Cells and tissues (9 hrs)

Gross structure of primary and secondary cell walls; structure and function of plasmodesmata; non-living inclusions - cystolith, raphides; Tissues – meristematic and permanent, types of meristems; simple and complex tissues, secretory tissues (nectaries, hydathodes, mucilage ducts and lactiferous tissue).

Module 2: Anatomy of plant organs (12 hrs)

Primary structure of stem and root in dicots and monocots; anatomy of monocot and dicot leaf. Secondary thickening in dicot stem and dicot root, heart wood and sap wood; tyloses; hard wood and soft wood; growth rings, dendrochronology. Anomalous secondary thickening in *Bignonia*.

Module 3: Ecological anatomy (6 hrs)

Study of the morphological and anatomical adaptations of the following groups: Hydrophytes – *Nymphaea*, *Hydrilla*; Xerophytes – *Nerium*; Epiphytes - *Vanda*.

APPLIED BOTANY: Plant breeding, Horticulture and Micropropagation (27 hrs)

Module 4: Plant breeding (12 hrs)

Objectives of plant breeding, methods of plant improvement - plant introduction, acclimatization, plant quarantine; selection - mass selection, pureline selection and clonal selection; hybridization - intervarietal, interspecific and intergeneric; procedure of hybridization.

Module 5: Artificial vegetative propagation methods (5 hrs)

Propagation of plants through cutting, layering - air layering; budding T and patch budding; grafting - tongue and splice grafting. Role of cambium in budding and grafting.

Module 6: Plant tissue culture (10 hrs)

Principles of tissue culture, micropropagation - different steps - selection of explants, culture media – general composition and preparation; sterilization of media and explants; callus. Regeneration of plants: organogenesis, somatic embryogenesis; artificial seeds. Applications of plant tissue culture.

PRACTICAL (36 hrs)

1. Primary structure of stem and root of dicots and monocots; Dicot stem - *Centella*; Monocot stem – Bamboo, grass, asparagus; Dicot root - *Tinospora*; Monocot root - *Colocasia*, *Musa*.
2. Structure of dicot stem and dicot root after secondary thickening; Stem - *Vernonia*, *Eupatorium*; Root - *Tinospora*, *Papaya*.

3. Anomalous secondary thickening in *Bignonia*.
4. Anatomical adaptations of Hydrophytes - *Nymphaea* petiole, *Hydrilla* stem; Xerophytes - *Nerium* Leaf; Epiphytes - Velamen root of *Vanda*.
5. Emasculation of pea or *Caesalpinia* flower.
6. Demonstrate T and patch budding.
7. Demonstration of tissue culture techniques: culture media, surface sterilization and inoculation of explants.
8. Identification of non living inclusions - cystolith, raphides.

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OPEN COURSES

Open course 1 Code: BO5OPT01
AGRI-BASED MICROENTERPRISES
(Theory 72 hrs; Credits 3)

Objectives:

- Provide basic information about the business opportunities in plant sciences.
- Inform the student about sustainable agriculture and organic farming.
- Inculcate an enthusiasm and awareness about ornamental gardening, nursery management and mushroom cultivation.

Module 1: Organic farming and composting techniques (9 hrs)

Advantages of organic manures and fertilizers. Composition of fertilizers – NPK content of various fertilizers. Common organic manures – bone meal, cow dung, poultry waste, oil cakes, organic mixtures and compost. Preparation of compost - aerobic and anaerobic - advantages of both; vermicompost - preparation, vermiwash. Biofertilizers: definition, types – *Trichoderma*, *Rhizobium*, PGPR. Biopesticides – Tobacco and Neem decoction. Biological control.

Module 2: Horticulture and Nursery management (18 hrs)

Soil components. Preparation of potting mixture. Common Garden tools and implements. Methods of plant propagation - by seeds - advantages and disadvantages. Vegetative propagation - advantages and disadvantages. Natural methods of vegetative propagation. Artificial methods - cutting, grafting,

budding and layering. Use of growth regulators for rooting. Gardening - types of garden - ornamental, indoor garden, kitchen garden, vegetable garden for marketing.

Module 3: Food spoilage and preservation techniques (9 hrs)

Causes of spoilage. Preservation techniques - asepsis, removal of microorganisms, anaerobic conditions and special methods – by drying, by heat treatment, by low temperature storage and by chemicals (Food Additives). Preparation of wine, vinegar and dairy products.

Module 4: Mushroom cultivation and Spawn production (9 hrs)

Types of mushrooms - button mushroom, oyster mushroom and milky mushroom, poisonous mushroom – methods of identification. Spawn – isolation and preparation. Cultivation milky mushrooms – using paddy straw and saw dust by polybag. Value added products from mushroom – pickles, candies, dried mushrooms.

Module 5: Plant tissue culture and micropropagation (9 hrs)

Concept of totipotency. Micropropagation: different methods – shoot tip, axillary bud and meristem culture; organogenesis, somatic embryogenesis. Infra structure of a tissue culture laboratory. Solid and liquid media - composition and preparation. Sterilization techniques. Explant - inoculation and incubation techniques. Stages of micropropagation – hardening and transplantation. Packaging and transportation of tissue culture regenerated plantlets.

ON HAND TRAINING (18 hrs)

1. Prepare a chart showing the NPK composition of minimum 6 manures and fertilizers.
2. Identification and familiarization of the following organic manures: cow dung (dry), Coconut cake, Vermicompost, neem cake, organic mixture, bone meal.
3. Preparation of potting mixture.
4. Make a vermicompost pit /pot in the campus/ house of the student.
5. Familiarization of common garden tools and implements.
6. Estimation of germination percentage of seeds
7. Demonstrate the effect of a rooting hormone on stem cutting.
8. Demonstration of T budding and air layering on live plants.
9. Familiarization of garden components from photographs.
10. Preparation of vinegar/dairy product (any two) in class or home.
11. Familiarization of different mushrooms and preparation of a polybag of *Pleurotus* using straw/sawdust.
12. Visit to a well established tissue culture lab, nursery and mushroom cultivation unit.

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Open course 2 **Code: BO5OPT02**
HORTICULTURE AND NURSERY MANAGEMENT
(Theory 72 hrs; Credits 3)

Objectives:

- Understand the importance of horticulture in human welfare.
- Understand the propagation and cultural practices of useful vegetable, fruit and garden plants.
- Understand the impact of modern technologies in biology on horticultural plants.
- Understand the basic concepts of landscaping and garden designing.
- Inculcate interest in landscaping, gardening and flower and fruit culture.

HORTICULTURE (48 hrs)

Module 1: Introduction (10 hrs)

Introduction to horticulture: definition, history; classification of horticultural plants, disciplines of horticulture. Soil: formation, composition, types, texture, pH and conductivity. Garden tools and implements.

Preparation of nursery bed; manures and fertilizers - farm yard manure, compost, vermicompost, biofertilizers; chemical fertilizers - NPK; time and application of manures and fertilizers, foliar spray. Irrigation methods - surface, sub, drip and spray irrigations - advantages and disadvantages - periodicity of irrigation.

Module 2: Propagation of plants (10 hrs)

Propagation of horticultural plants - by seeds; seed development and viability, seed dormancy, seed health, seed testing and certification. Growing seedlings in indoor containers and field nurseries, seed bed preparation, seedling transplanting; advantages and disadvantages of seed propagation.

Vegetative propagation - organs used in propagation - natural and artificial vegetative propagation; methods - cutting, layering, grafting and budding; advantages and disadvantages of vegetative propagation; micropropagation.

Module 3: Gardening (10 hrs)

Gardening - ornamental gardens, indoor gardens, kitchen gardens- terrestrial and aquatic gardens - garden adornments; garden designing; garden components - lawns, shrubs and trees, borders, hedges, edges, drives, walks, topiary, trophy, rockery; famous gardens of India. Landscape architecture - home landscape design, urban planning, parks, landscaping and public buildings, industrial and

4. Action of various enzymes in plant tissues: peroxidase, dehydrogenase.
5. Quantitative estimation of protein using colorimeter.

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Core course 8 **Code: BO5CRT08**
ENVIRONMENTAL SCIENCE AND HUMAN RIGHTS
(Theory 54 hrs; Practical 36 hrs; Credits 3 + 1)

Objectives:

- Acquaint the student with the significance of Environmental Science.
- Make the students aware about the extent of the total biodiversity and the importance of their conservation.
- Help the student to design novel mechanisms for the sustainable utilization of natural resources.
- Enable the students to understand the structure and function of the ecosystems.
- Enable the students to understand various kinds of pollution in the environment, their impacts on the ecosystem and their control measures
- Make the students aware about various environmental laws in India and the role of various movements in the protection of nature and natural resources.

ENVIRONMENTAL SCIENCE (48 hrs)**Module 1: Introduction to ecology (8 hrs)**

Ecology: introduction, definition, scope and relevance; sub-divisions of ecology - autecology, synecology and ecosystem ecology.

Population: population size, density, natality, mortality, age, rate of natural increase, growth form and carrying capacity, population interactions between species - competition, parasitism, predation, commensalism, proto cooperation, mutualism, neutralism.

Community: community concept, biotic community, species diversity, species richness, dominance; growth forms and structure, trophic structure, ecotone, edge effect, habitat, ecological niche, micro-climate, ecological indicators, keystone species.

Module 2: Ecosystems (10 hrs)

Structure and function of ecosystems, ecosystem components: abiotic - atmosphere, climate, soil, water; biotic - producers, consumers, decomposers. Productivity - primary and secondary - gross and net productivity - homeostasis in the ecosystem. Concept of energy in ecosystems - energy flow, food chain, food web, trophic levels, trophic structure and ecological pyramids - pyramid of numbers, biomass, energy. Nutrient cycles - biogeochemical cycles of C and N₂.

Ecosystem development: ecological succession, process, climax community, hydrosere, xerosere. Adaptations of plants to environment - xerophytes, hydrophytes, epiphytes, halophytes, mangroves.

Module 3: Biodiversity and its conservation (10 hrs)

Biodiversity: definition, types, examples – endemism - hot spots; hot spots in India - Western Ghats as hot spot. Wetlands and their importance. Biodiversity loss - IUCN threat categories, Red data book; causes and rate of biodiversity loss - extinction, causes of extinction. Conservation: methods - *in-situ*, *ex-situ*. Joint Forest management - people's participation in biodiversity conservation: community reserve, eg. Kadalundi-vallikkunnu. Remote sensing and GIS: introduction, principle, application of remote sensing and GIS in environmental studies and biodiversity conservation (brief account). Ecotourism: ecotourism centers in Kerala - Thenmala and Thattekkad WLS.

Module 4: Environmental pollution (10 hrs)

Environmental studies - definition, relation to other sciences, relevance. Environmental pollution - introduction, definition; Air pollution - air pollutants, types, sources, effect of air pollution on plants and humans, control measures; Water pollution – common pollutants, sources, impact, control measures; water quality standards - DO and BOD; eutrophication. Soil Pollution - causes, sources, solid waste, biodegradable, non-biodegradable, management of solid waste, composting, e – waste. Environmental issues - global warming, greenhouse effect, climate change - causes and impact, ozone layer depletion. Carbon sequestration.

Module 5: Conservation of nature (10 hrs)

Global conservation efforts - Rio Earth summit - Agenda 21, Kyoto protocol, COP15 (15th Conference of the parties under the UN framework convention on climate change) and Paris protocol - major contributions. Conservation strategies and efforts in India and Kerala.

Organizations, movements and contributors of environmental studies and conservation: organizations - WWF, Chipko, NEERI; contributors - Salim Ali, Sunder Lal Bahuguna, Madhav Gadgil, Anil Agarwal, Medha Patkar, Vandana Siva (brief account only).

Environmental Legislation and Laws: Environment (protection) Act 1986, Air (protection and control of pollution) act, 1981 Water (protection and control of pollution) Act, 1974, Wildlife (protection) Act, 1972, Forest (conservation) Act, 1980, Biological Diversity Act (2002) [brief account only].

Module 6: Human rights (6 hrs)

Introduction, meaning, concept and development. Three generations of human rights - civil and political rights, economic, social and cultural rights. Human Rights and United Nations: contributions; main human rights related organizations - UNESCO, UNICEF, WHO, ILO; Declarations for women and children, Universal declaration of human rights. Human rights in India: fundamental rights and Indian constitution, rights for children and women, scheduled castes, scheduled tribes, other backward castes and minorities.

Environment and human rights: right to clean environment and public safety; issues of industrial pollution; prevention, rehabilitation and safety aspect of new technologies such as chemical and nuclear technologies, issues of waste disposal, protection of environment. Conservation of natural resources and human rights: reports, case studies and policy formulation. Conservation issues of Western Ghats – Madhav Gadgil committee report, Kasturi Rangan report. Over-exploitation of ground water resources, marine fisheries, sand mining etc.

PRACTICAL (36 hrs)

1. Estimation of CO₂, Cl, and alkalinity of water samples (Titrimetry)
2. Determination of pH of soil and water.
3. Assessment of diversity, abundance, and frequency of plant species by quadrat method (Grasslands, forests).
4. Study of the most probable number (MPN) of Coliform bacteria in water samples.
5. EIA studies in degraded areas (Sampling, Line transect, Quadrat).
6. Ecological adaptations in xerophytes, hydrophytes, epiphytes, halophytes and mangroves.

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Core course 10 **Code: BO6CRT10**
CELL AND MOLECULAR BIOLOGY
(Theory 54 hrs; Practical 36 hrs; Credits 3 + 1)

Objectives:

- Understand the ultra structure and functioning of cell in the sub-microscopic and molecular level.
- Get an idea of origin, concept of continuity and complexity of life activities.
- Familiarization of life processes.
- Understand the basic and scientific aspect of diversity.
- Understand the cytological aspects of growth and development.
- Understand DNA as the basis of heredity and variation.

CELL BIOLOGY (Theory 27 hrs; Practical 27 hrs)

Module 1: Ultra structure of cell components (8 hrs)

Cell biology through ages: a brief history of cell biology. Cytosol - chemical composition. Composition, structure and function of plasma membrane - fluid mosaic model.

The ultra-structure of a plant cell with structure and function of the following organelles: Endoplasmic reticulum, chloroplasts, Mitochondria, Ribosomes, Dictyosomes, Microbodies - peroxisomes and glyoxisomes, lysosomes and vacuole. Cytoskeleton - microtubules and microfilaments.

Ultra structure of nucleus: nuclear envelope - detailed structure of pore complex, nucleoplasm - composition, nucleolus.

Module 2: Chromosomes (6 hrs)

Chromosomes: introduction, chromosome number, autosomes and allosomes, morphology - metacentric, submetacentric, acrocentric and telocentric. Structure - chromatid, chromonema, chromomere, centromere and kinetochore, telomere, secondary constriction and nucleolar organizer. Chromatin fibres: heterochromatin and euchromatin. Karyotype and ideogram.

Chemical composition of chromatin: histones and non-histones, arrangement of proteins and DNA in chromatin - the 10 nm fibre (nucleosome model), 30 nm fibre (solenoid model) and central axis with radial loops of 300 nm fibre.

Special type of chromosomes: giant chromosomes (salivary gland chromosomes, Lamp brush chromosomes), supernumerary chromosomes (B chromosome).

Module 3: Cell division (6 hrs)

Cell cycle - definition, different stages – interphase (G₁, S and G₂) and division phase. Mitosis: karyokinesis and cytokinesis, significance of mitosis. Meiosis: stages - first meiotic division (reduction division) and second meiotic (equational division), structure and function of synaptonemal complex, significance of meiosis; comparison of mitosis and meiosis.

Module 4: Chromosomal aberrations (4 hrs)

Numerical: heteroploidy; euploidy – haploidy; polyploidy – autopolyploidy, allopolyploidy (*Raphanobrassica*); aneuploidy - monosomy, trisomy (Fruit morphology in *Datura*), nullisomy (*Triticum*). Numerical chromosomal abnormalities in man: Down's syndrome, Klinefelter's syndrome, Turner's syndrome.

Structural: deletion (Cri-du-chat syndrome), duplication (Bar eye in *Drosophila*), inversions (paracentric and pericentric) and Translocations (Robertsonian translocation).

Module 5: Mutation (3 hrs)

Mutation: definition, importance. Types of mutations: somatic and germinal; spontaneous and

induced; chromosomal and gene or point mutations. Molecular basis of mutation: frame shift, transition, transversion and substitution. Mechanism of mutation induction: base replacement, base alteration, base damage, errors in DNA replication. Mutagens: physical - non-ionizing and ionizing radiations; chemical - base analogs, alkylating agents, deaminating agents.

PRACTICAL (27 hrs)

1. Make acetocarmine squash preparation of onion root tip to identify mitotic stages.
2. Study the mitotic index of onion root tip cells (Demonstration only).
3. Study of the different stages of meiosis and identification of different substages of prophase I using photomicrographs or pictures.
4. Identify and study the chromosomal anomalies, patterns and karyotype in man such as Down's syndrome, Turner's syndrome and Klinefelter's syndrome.

MOLECULAR BIOLOGY (Theory 27 hrs; Practical 9 hrs)**Module 6: The genetic material (8 hrs)**

Molecular biology: a brief historical prelude. Identification of DNA as genetic material: direct evidences – transformation experiment by Avery *et al.*; Hershey and Chase Experiment. Evidences for RNA as genetic material in some viruses.

Nucleic acids: DNA and RNA, important features of Watson and Crick model of DNA; Chargaff's rule. Alternate forms of DNA - comparison of A, B and Z forms. Structure and function of different types of RNA - tRNA, mRNA, rRNA, snRNA, miRNA.

Module 7: Replication of DNA (4 hrs)

Semiconservative replication of DNA - Messlson and Stahl's experiment; process of semiconservative replication with reference to the enzymes involved in each step.

Module 8: Gene expression (8 hrs)

Gene expression: concept of gene, split genes, one gene one enzyme hypothesis, one gene one polypeptide hypothesis, the central dogma, reverse transcription. Details of transcription in prokaryotes and eukaryotes; hnRNA, splicing, release of mRNA. Translation - initiation, elongation and termination. Genetic code and its features, wobble hypothesis.

Module 9: Regulation of gene expression (5 hrs)

Regulation of gene expression in prokaryotes: operon concept, inducible and repressible systems, negative control and positive control. Lac operon, catabolic repression. Tryptophan operon, attenuation. Regulation in eucaryotes (brief account only).

Module 10: Genetics of cancer (2 hrs)

Genetic basis of cancer – brief description of proto-oncogenes and oncogenes, tumour suppressor genes; characteristics of cancer cells.

PRACTICAL (9 hrs)

6. Work out elementary problems based on DNA structure, replication, transcription and translation and genetic code.

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Core course 11 **Code: BO6CRT11**
ANGIOSPERM MORPHOLOGY, TAXONOMY AND ECONOMIC BOTANY
(Theory 72 hrs; Practical 45 hrs; Credits 3 + 1)

Objectives:

- Acquaint with the aims, objectives and significance of taxonomy.
- Identify the common species of plants growing in Kerala and their systematic position.
- Develop inductive and deductive reasoning ability.
- Acquaint with the basic technique in the preparation of herbarium.
- Familiarizing with the plants having immense economic importance.

ANGIOSPERM MORPHOLOGY

Module 1: Leaf, Inflorescence and Fruit morphology (13 hrs)

Leaf Morphology: types, venation, phyllotaxy. Morphology of flower: flower as modified shoot; detailed structure of flowers - floral parts - their arrangement, relative position - symmetry, aestivation and placentation types - cohesion and adhesion. Floral diagram and floral formula. Inflorescence: racemose types - simple raceme, corymb, umbel, spike, spadix, head and catkin; cymose types - simple cyme; monochasial - scorpid and helicoid, dichasial and polychasial; special type - cyathium, hypanthodium, verticillaster, thyrus and panicle. Fruits: simple - fleshy, dry - dehiscent, schizocarpic, indehiscent, aggregate, multiple (sorsis and syconus).

TAXONOMY

Module 2: Principles of Plant systematics (12 hrs)

Aim, scope, significance and components of taxonomy. Types of classification - artificial (brief account), natural – Bentham and Hooker (Detailed account) and Phylogenetic (Brief account). Angiosperm phylogeny group system (introduction only). Plant nomenclature - binomial, ICBN/ICN principles - rule of priority and author citation. Interdisciplinary approach in taxonomy -

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Core course 12 **Code: BO6CRT12**
BIOTECHNOLOGY AND BIOINFORMATICS
(Theory 54 hrs; Practical 36 hrs; Credits 3 + 1)

Objectives:

- Understand the current developments in the field of Biotechnology and Bioinformatics.
- Equip the students to carry out plant tissue culture.
- Introduce the vast repositories of biological data knowledge.
- Equip to access and analyze the data available in the databases.

BIOTECHNOLOGY (36 hrs)

Module 1: Plant tissue culture (6 hrs)

Biotechnology - an overview; plant tissue culture - basic concepts, totipotency, differentiation, de-differentiation and re-differentiation. Tissue culture media: components, role of plant growth regulators in tissue culture. Preparation of MS medium; sterilization of equipments, glassware and culture medium, surface sterilization of explants.

Module 2: Applications of plant tissue culture (10 hrs)

Micropropagation, methods - axillary bud proliferation, adventitious regeneration – shoot organogenesis and somatic embryogenesis - direct and indirect; meristem culture. Stages of micropropagation, hardening and transplantation. Advantages and disadvantages of micropropagation - somaclonal variations. Embryo culture, callus and cell suspension culture, *in vitro* production of haploids - anther and pollen culture; uses of haploids. Protoplast culture: isolation of protoplast, culture methods, applications; protoplast fusion - cybrids. Artificial seeds, advantages and disadvantages. *In vitro* production of secondary metabolites; cell immobilization, bioreactors (brief study only).

Module 3: Recombinant DNA technology and its applications (10 hrs)

Steps in rDNA technology, cloning vectors and their desirable properties; plasmids, cosmids, phage vectors, Phasmids, YAC and BAC; structure and applications of pBR322, M13 and Ti plasmid. Cutting and joining of DNA molecules - Restriction endonucleases and ligases - ligation techniques. Transformation and selection of transformants - using antibiotic resistances markers and complementation.

Achievements of recombinant DNA technology: in medicine (Human insulin and gene therapy); in agriculture – Bt cotton; in environmental cleaning - super bugs.

Module 4: Techniques in rDNA technology (10 hrs)

DNA isolation, agarose gel electrophoresis, southern hybridization, autoradiography. DNA finger printing and its applications. PCR and its applications. DNA sequencing by Sanger's dideoxy method. Uses of refrigerated centrifuges, UV trans-illuminator, gel documentation system and Laminar Air Flow chamber (brief account only).

GENOMICS AND BIOINFORMATICS (18 hrs)**Module 4: Genomics (4 hrs)**

A brief account on genomics and proteomics; major findings of the following genome projects – *E. coli*, Human, *Arabidopsis thaliana*.

Module 5: Basic bioinformatics (7 hrs)

An introduction to bioinformatics, objectives and applications of bioinformatics. Biological data bases: types - primary, secondary and composite databases; nucleotide sequence databases – NCBI (GenBank), EMBL, DDBJ; Protein Sequence databases - SWISS-PROT, PIR; Protein structure database – PDB; bibliographic database – PubMed.

Module 6: Sequence analysis and molecular phylogeny (7 hrs)

Sequence analysis tools - BLAST and FASTA, Molecular visualisation tool - RASMOL (basic commands), Sequence alignment - Scoring matrices, global and local alignment, Pairwise and multiple sequence alignment; common software used in alignment - CLUSTAL W & CLUSTAL X. Molecular phylogeny - homologs, orthologs and paralogs; phylogenetic tree - rooted and unrooted tree, advantages of phylogenetic tree, use of PHYLIP software.

PRACTICAL (36 hrs)

1. Preparation of nutrient medium – Murashige and Skoog medium (Demonstration only).
2. Sterilization and inoculation of plant tissue in culture media.
3. Establishing shoot tip, axillary bud cultures (Demonstration only).
4. Immobilization of whole cells or tissues in sodium alginate.
5. Isolation of DNA from plant tissue.
6. Agarose gel electrophoresis of the isolated DNA (Demonstration only).
7. Familiarise the instruments included in the syllabus such as Autoclave, laminar air flow chamber, UV- trans-illuminator, PCR machine, Electrophoresis apparatus, centrifuge etc. and prepare short notes with diagrammatic sketch or photographs.

8. Familiarizing GENBANK, DDBJ, ENA, SWISS-PROT and PDB databases (Demonstration only).
9. Analysis of structural features of proteins using RASMOL.
10. Local alignment of sequences using BLAST (Demonstration only).
11. Retrieving a few research papers related to genetic engineering from PubMed (Demonstration only).

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PROGRAMME ELECTIVE COURSES

Programme elective course 1

Code: **BO6PET01**

AGRIBUSINESS

(Theory 54 hours; Credit 3)

Objectives:

- Inculcate and impart an idea about the business opportunities in the field of plant sciences.
- Develop an entrepreneurial mindset and also to stick on to the core subject among the Botany students.
- Give an idea about the need of sustainable development and organic farming.
- Harness the opportunities and potentials in the field of ecotourism, processing technology and food sciences.

Module 1: Entrepreneurship (2 hrs)

Basic qualities of an Entrepreneur. Financial assistance from Banks, role of Institutions like MSME Training Institute, Khadi and village industries board, self help groups, Co-operative sector, Kudumbasree projects and microenterprises.

Module 2: Value added food products (8 hrs)

Preparation and preservation techniques, causes of spoilage of food. Principles of preservation - asepsis, removal of microorganisms, anaerobic situation and special methods - drying, thermal processing - pasteurization, sterilization and canning - low temperature, use of chemical preservatives

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Programme elective course 2 **Code: BO6PET02**
PLANT GENETIC RESOURCES MANAGEMENT
(Theory 54 hours; Credit 3)

Objectives:

- Acquaint the student with the history and evolution of crop plants, and their diversity.
- Familiarize the student with the available plant genetic wealth and the measures adopted for the conservation of these resources.
- Help the student to identify the crop plants and their wild relatives.
- Help the student to explore the potentialities of various underutilized plants to project as the future food prospects.
- Understand the significance of modern technology to locate the distribution of endangered species.

Module 1: Introduction (5 hrs)

Introduction - historical developments in crop botany, Centers of origin - Vavilovian concept - primary and secondary centers. Exploration and collection of genetic resources - importance of wild relatives of crop plants and their genetic diversity in crop improvement.

Module 2: Plant genetic resources (10 hrs)

Major threats to the genetic resources: human interference and deforestation, alien invasive plants, over exploitation of resources. Endemism and biodiversity hot spots. Conservation of genetic resources: in situ - biosphere reserves, national parks and wildlife sanctuaries; ex situ - in vivo - botanic gardens, field gene banks; in vitro - seed banks - short term, medium term and long term storage of seeds, tissue culture storage and cryopreservation.

Module 3: Study of biodiversity (5 hrs)

Remote sensing: principle, concept of remote sensing and components of remote sensing, application of remote sensing in conservation of endangered plants and habitat studies; IUCN - role and activities. Documentation of endangered and threatened plants - red data book.

Module 4: Ethnobotany and conservation (4 hrs)

Ethnobotany in relation to conservation of genetic resources: mythology and conservation of ecosystems, sacred groves and their role in the conservation of gene pool; taboos for conservation of selected plant species.

Module 5: Regulations and rules (4 hrs)

Role of Governmental and non-governmental organizations in plant genetic resource management; Governmental organizations - regional – TBGRI and KFRI; national - BSI and NBPGR; International – IPGRI (IBPGR) and ICRISAT; Non-Governmental Organizations - WWF and MNHS.

Module 6: Crop plants of Kerala (18 hrs)

Important Crop plants of Kerala - taxonomy and uses and cultivation of, food crops - Rice, Tapioca; Vegetables - Elephant foot yam, Cow pea, Bitter gourd; Spices. Ginger, Black pepper, Nutmeg, Cardamom; Medicinal plants - Vasaka, Aloe; Plantation crops – Rubber, Coffee; cashew, Coconut and Tea; Fruits - Banana, Pineapple and Mango.

Module 7: Unexploited and underutilized plants (9 hrs)

Underutilized plants and its importance for future food requirements. Botany and uses of the following under exploited edible plants - Vegetables - *Averrhoa bilimbi* (Bilimbi, Chemmeenpuli, Irumbampuli), *Averrhoa carambola* (Carambola apple, Chathurappuli), *Dioscorea esculenta* (Cherukizhangu, Nanakizhangu), *Canavalia gladiata* (Sword bean, Valpayar), *Psophocarpus tetragonolobus* (Winged bean, Chathurapayar), (Sessile joyweed), *Sauropus androgynus* (Velicheera, Chikurmanis, Sauropus), *Ipomoea turbinate* (Nithya Vazhuthana); Fruits; *Artocarpus heterophyllus* (Jack, Plavu, chakka), *Artocarpus hirsutus* (Anjili, Ayani, Wild jack), *Aporosa cardiosperma* (Vetti), *Spondias pinnata* (Ambazham, Hog plum), *Syzygium cumini* (Njara, Njaval, Black plum), *Flacourtia montana* (Kattuloovika). Millets - *Echinochloa crus-galli* (Barnyard grass, Indian Barnyard Millet)

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Programme elective course 3 **Code: BO6PET03**
PHYTOCHEMISTRY AND PHARMACOGNOSY
(Theory: 54 hours; Credit 3)

Objectives:

- Understand the structure and function of basic secondary metabolites in medicinal and aromatic plants.
- Familiarize with the common separation and characterization techniques used in phytochemistry
- Understand the basic officinal part present in the common medical plants and their use in ayurvedic formulations

PHYTOCHEMISTRY

Module 1: Introduction (2 hrs)

Introduction to phytochemical approaches: morphological, organoleptic, microscopic - to study drug and aromatic plants.

Module 2: Extraction of phytochemicals (4 hrs)

Extraction and characterisation techniques: cold extraction, hot extraction - soxhlet-clevenger apparatus; Solvents - petroleum ether, chloroform, ethanol, water. Separation techniques - TLC, Column, HPLC. Characterization techniques - GC/MS, HPTLC, UV Spectra, IR Spectra.

Module 3: Effect of phytochemicals (10 hrs)

Study of the drug plants and their active principles. Alkaloids - introduction, properties, occurrence, structure, classification, functions, and pharmacological uses.

Triterpenoids. Introduction, properties, occurrence, classification, functions and pharmacological uses.

Phenolics. Quinines - benzoquinones, naphthoquinones, anthraquinone, and coumarins.

stakeholders, linkages, economics, ecotourism auditing. Problems with ecotourism. Carrying capacity of ecotourism. ecotourism facilities – Green report card. Ecotourism management – issues.

Module 8: Ecotourism and livelihood security (4 hrs)

Community, biodiversity conservation and development – Eco-development committees.

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SEMESTER VI

Core course 9

Code: BO6CRT09

GENETICS, PLANT BREEDING AND HORTICULTURE

(Theory 54 hrs; Practical 45 hrs; Credits 3 + 1)

Objectives:

- Imparting an insight into the principles of heredity
- Understand the patterns of inheritance in different organisms
- Understand the inheritance pattern of nuclear and extra nuclear genes
- Understand the methods of crop improvement
- Understand the importance of horticulture in human welfare
- Develop skill in gardening technique among students

GENETICS (Theory 27 hrs; Practical 27 hrs)

Module 1: Origin and development of Genetics (3 hrs)

Genetics as a science: origin - experiments of Mendel with *Pisum sativum*, general terminology used in genetics. Principles of inheritance, Mendelian laws - monohybrid and dihybrid cross, test cross and backcross.

Module 2: Exceptions to Mendelism (10 hrs)

Modification of Mendelian ratios: incomplete dominance - *Mirabilis*; Co-dominance - MN blood group in man; Lethal genes – pigmentation in Snapdragon..

Geneic interaction: epistasis, (a) Dominant - fruit colour in summer squashes (b) Recessive - coat colour in mice; Complementary genes - flower colour in sweet pea. Non-epistasis - comb pattern in Fowls. Multiple alleles – ABO blood groups in man; self sterility in *Nicotiana*.

Module 3: Linkage of genes (3 hrs)

Linkage and crossing over: chromosome theory of linkage; crossing over - types of crossing over, mechanism of crossing over. Linkage map - 2 point cross, interference and coincidence.

Module 4: Determination of sex (6 hrs)

Sex determination: sex chromosomes and autosomes; chromosomal basis of sex determination; XX-XY, XX-XO mechanism; sex determination in higher plants (*Melandrium album*). Sex linked

inheritance: X-linked - Morgan's experiment e.g. eye colour in *Drosophila*, Haemophilia in man; Y-linked inheritance; sex limited and sex influenced inheritance. Pedigree analysis.

Module 5: Quantitative inheritance (2 hrs)

Quantitative characters: polygenic inheritance, continuous variation - kernel color in wheat, ear size in maize.

Module 6: Extra-chromosomal inheritance (2 hrs)

Extra chromosomal inheritance: chloroplast mutation - variegation in 4O'clock plant; mitochondrial mutations in yeast. Maternal effects - shell coiling in snail; infective heredity - kappa particles in *Paramecium*.

Module 7: Population genetics (1 hr)

Concept of population, gene pool, Hardy-Weinberg principle (brief).

PRACTICAL (18 hrs)

1. Students are expected to work out at least two problems each from: monohybrid, dihybrid, back-cross and test cross; all types of modified Mendelian ratios mentioned in the syllabus.

PLANT BREEDING (Theory 13 hrs; Practical 9 hrs)

Module 1: Introduction to plant breeding (1 hr)

Introduction and objectives of plant breeding. Plant breeding centers in Kerala, their achievements – CPCRI, CTCRI, RRII.

Module 2: Plant introduction (2 hrs)

Plant introduction: domestication - centers of origin - procedure of plant introduction - quarantine regulations, acclimatization, agencies of plant introduction in India, major achievements.

Module 3: Selection (2 hrs)

Plant Selection: mass, pure-line, clonal.

Module 4: Hybridization (4 hrs)

Hybridization: types, procedure, important achievements. Heterosis in plant breeding, inbreeding depression, genetics of heterosis and inbreeding depression. Handling segregating generation - pedigree method, bulk method, back cross method. Disease resistance breeding.

Module 5: Mutation breeding and polyploidy breeding (2 hrs)

Mutation breeding: methods, applications and important achievements. Polyploidy breeding: methods and applications.

Module 6: Tissue culture as method in plant breeding (2 hrs)

Application of meristem culture, embryo culture and pollen culture in plant breeding. Role of tissue culture in the creation of transgenic plants.

PRACTICAL (9 hrs)

1. Emasculation and bagging.
2. Demonstration of hybridization in plants.
3. Estimation of pollen sterility/viability.

HORTICULTURE (Theory 14 hrs; Practical 18 hrs)

Module 1: Introduction (3 hrs)

Introduction to horticulture - definition, history. Classification of horticultural plants. Disciplines of horticulture - pomiculture, olericulture, floriculture, arboriculture.

Garden implements - budding knife, secateurs, hedge shear, hand cultivator, sprayers, lawn mower, garden rake, spade.

Irrigation methods: surface, sub, drip and spray irrigations; mist chambers - advantages and disadvantages.

Module 2: Plant propagation: (5 hrs)

Seed propagation: seed testing and certification, seed bed preparation, seedling transplanting, hardening of seedling; advantages and disadvantages of seed propagation. Vegetative propagation: natural and artificial; artificial methods - cutting, layering, grafting and budding, micro-propagation; advantages and disadvantages of vegetative propagation.

Module 3: Gardening (6 hrs)

Types of garden: brief study on ornamental garden, indoor garden, kitchen garden, aquatic garden, vertical garden, medicinal garden, terrace garden, terrarium.

Garden designing: garden components - lawns, shrubs and trees, borders, topiary, hedges, edges, walks, drives.

Physical control of plant growth: training and pruning. Bonsai - selection of plant - bonsai containers and method of bonsai formation.

Plant growing structures: green house, orchidarium, conservatory; Potting mixture – components.

PRACTICAL (18 hrs)

1. Approach grafting (demonstration only), budding (T, patch), air layering.
2. Identification of different garden tools and their uses.
3. List out the garden components in the photograph of the garden given.
4. Visit to established horticultural/agricultural/ornamental/kitchen gardens and observe the components there.

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Core course 11 **Code: BO6CRT11**
ANGIOSPERM MORPHOLOGY, TAXONOMY AND ECONOMIC BOTANY
(Theory 72 hrs; Practical 45 hrs; Credits 3 + 1)

Objectives:

- Acquaint with the aims, objectives and significance of taxonomy.
- Identify the common species of plants growing in Kerala and their systematic position.
- Develop inductive and deductive reasoning ability.
- Acquaint with the basic technique in the preparation of herbarium.
- Familiarizing with the plants having immense economic importance.

ANGIOSPERM MORPHOLOGY

Module 1: Leaf, Inflorescence and Fruit morphology (13 hrs)

Leaf Morphology: types, venation, phyllotaxy. Morphology of flower: flower as modified shoot; detailed structure of flowers - floral parts - their arrangement, relative position - symmetry, aestivation and placentation types - cohesion and adhesion. Floral diagram and floral formula. Inflorescence: racemose types - simple raceme, corymb, umbel, spike, spadix, head and catkin; cymose types - simple cyme; monochasial - scorpid and helicoid, dichasial and polychasial; special type - cyathium, hypanthodium, verticillaster, thyrus and panicle. Fruits: simple - fleshy, dry - dehiscent, schizocarpic, indehiscent, aggregate, multiple (sorsis and syconus).

TAXONOMY

Module 2: Principles of Plant systematics (12 hrs)

Aim, scope, significance and components of taxonomy. Types of classification - artificial (brief account), natural – Bentham and Hooker (Detailed account) and Phylogenetic (Brief account). Angiosperm phylogeny group system (introduction only). Plant nomenclature - binomial, ICBN/ICN principles - rule of priority and author citation. Interdisciplinary approach in taxonomy -

Cytotaxonomy and Chemotaxonomy. Herbarium technique – importance of herbarium; preparation of herbarium and their preservation. Important herbaria in India, BSI.

Module 3: Detailed study of families (30 hrs)

Study the following families of Bentham and Hooker's System with special reference to their vegetative and floral characters; special attention should be given to common and economically important plants within the families: Annonaceae, Nymphaeaceae, Malvaceae, Rutaceae, Anacardiaceae, Leguminosae (Mimosaceae, Caesalpiniaceae and Fabaceae), Combretaceae, Myrtaceae, Cucurbitaceae, Umbelliferae (Apiaceae), Rubiaceae, Compositae (Asteraceae), Sapotaceae, Apocynaceae, Asclepiadaceae, Solanaceae, Convolvulaceae, Scrophulariaceae, Acanthaceae, Verbenaceae, Labiatae (Lamiaceae), Amaranthaceae, Euphorbiaceae, Orchidaceae, Palmae (Arecaceae), Graminae (Poaceae).

ECONOMIC BOTANY AND ETHNOBOTANY (Theory 9 hrs; Practical 9 hrs)

Module 4: Economic botany (12 hrs)

Study the following groups of plants with special reference to the botanical name, family and morphology of the useful part and uses: Cereals - Rice, Wheat; Millets Ragi; Pulses - Green gram, Bengal gram, Black gram; Sugar yielding plants – Sugarcane; Fruits - Apple, Pineapple, Orange, Mango and Banana; Vegetables - Bittergourd, Ladies finger, Carrot and Cabbage; Tuber crops - Tapioca; Beverages - Tea, Coffee; Oil yielding plants - Ground nut, Coconut, Gingelly; Spices – Cardamom, Pepper, Cloves, Ginger; Timber yielding plants - Teak wood and Rose wood; Fibre yielding plants - Coir, Jute, Cotton; Rubber yielding plants - Para rubber; Gums and Resins - White damer, Gum Arabic, Asafoetida; Insecticide yielding Plants - Tobacco and Neem.

Module 5: Ethnobotany (5 hrs)

Introduction, scope and significance of ethnobotany. Study of the following plants used in daily life by tribals and village folks for food, shelter and medicine: Food - *Artocarpus heterophylla*, *Corypha*; Shelter - *Bambusa*, *Ochlandra* and *Calamus*; Medicine – *Curcuma longa*, *Trichopus zeylanicus* and *Alpinia galanga*.

PRACTICAL (45 hrs)

1. Identify the following inflorescence and fruits with reference to their morphological specialities: (a) Inflorescence - simple raceme, spike, corymb, head, simple cyme, cyathium and hypanthodium. (b) Fruits - simple - (fleshy) - berry drupe, pepo, hesperidium. Dry indehiscent - nut. Dry dehiscent - legume, capsule (loculicidal). Aggregate.
2. Preparation of floral formula and floral diagram from floral description (of families studied).
3. Identify the families mentioned in the syllabus by noting their vegetative and floral characters.
4. Students must describe the floral parts, draw the L.S., floral diagram and write the floral formula of at least one flower from each family.
5. Prepare herbarium of 25 plants with field notes.
6. Conduct field work for a period of not less than 5 days under the guidance of a teacher and submit field report.
7. Study the finished products of plants mentioned in the syllabus of economic botany with special reference to the morphology of the useful part, botanical name and family.
8. Identify and describe the ethnobotanical uses of the items mentioned in the syllabus.

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Core course 12 **Code: BO6CRT12**
BIOTECHNOLOGY AND BIOINFORMATICS
(Theory 54 hrs; Practical 36 hrs; Credits 3 + 1)

Objectives:

- Understand the current developments in the field of Biotechnology and Bioinformatics.
- Equip the students to carry out plant tissue culture.
- Introduce the vast repositories of biological data knowledge.
- Equip to access and analyze the data available in the databases.

BIOTECHNOLOGY (36 hrs)

Module 1: Plant tissue culture (6 hrs)

Biotechnology - an overview; plant tissue culture - basic concepts, totipotency, differentiation, de-differentiation and re-differentiation. Tissue culture media: components, role of plant growth regulators in tissue culture. Preparation of MS medium; sterilization of equipments, glassware and culture medium, surface sterilization of explants.

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR POST GRADUATE PROGRAMMES IN

M.Sc BOTANY

UNDER CREDIT AND SEMESTER SYSTEM (PG CSS) 2019

2019 ADMISSIONS ONWARDS

THE PROGRAM STRUCTURE

Course code	Title of the course	Teaching hours		Credits
		Theory	Practical	
SEMESTER I				
BY010101	Microbiology	27	9	4
	Phycology	45	36	
BY010102	Mycology	36	36	4
	Crop pathology	36	18	
BY010103	Bryophytes	36	18	4
	Pteridophytes	36	36	
BY010104	Gymnosperms and Paleobotany	36	27	3
	Evolution	18	--	
BY010105	Microbiology, Phycology, Mycology and Crop Pathology Practical			2
BY010106	Bryology, Pteridology, Gymnosperms, and Paleobotany Practical			2
Total		270	180	19
SEMESTER II				
BY010201	Anatomy	36	27	4
	Developmental Biology	18	9	
	Horticulture	18	9	
BY010202	Cell Biology	27	18	4
	Genetics	27	18	
	Plant Breeding	18	9	
BY010203	Plant Physiology	45	36	4
	Biochemistry	27	27	
BY010204	Molecular Biology	54	18	3
BY010205	Anatomy, Developmental Biology, Horticulture, Cell biology, Genetics and Plant breeding Practical			2
BY010206	Plant Physiology, Biochemistry and Molecular biology Practical			2
Total		270	180	19
SEMESTER III				
BY010301	Research Methodology	18	9	4
	Micro-technique	18	27	
	Biostatistics	18	9	
	Biophysical Instrumentation	18	18	
BY010302	Biotechnology, Bioinformatics and Bio-nanotechnology	72	36	4
BY010303	Angiosperm Taxonomy, Economic Botany and Ethanobotany	72	63	4
BY010304	Environmental Science	54	18	3
BY010305	Research Methodology Micro technique, Biostatistics, Biophysics and Biotechnology and Bioinformatics Practical			2
BY010306	Angiosperm Taxonomy, Economic Botany and Environmental Science Practical			2
Total		270	180	19

SEMESTER IV				
BY800401	Elective course IBiotechnology - Plant tissue Culture and Microbial Biotechnology	90	72	4
BY800402	Elective course IBiotechnology – Genetic Engineering, Genomics and Immunology	90	54	4
BY800403	Elective course IBiotechnology – Genomics, Transcriptomics, Proteomics and Bioinformatics	90	54	4
BY800404	Elective course IBiotechnology- Practical Paper I Plant Tissue Culture and Microbial Biotechnology			2
BY800405	Elective course IBiotechnology- Practical Paper II Genetic Engineering, Genome Editing, Immunology, Genomics, Transcriptomics, Proteomics and Bioinformatics			2
BY810401	Elective course IIMicrobiology- Food, Agricultural and Environmental Microbiology	90	72	4
BY810402	Elective course IIMicrobiology – Clinical Microbiology	90	54	4
BY810403	Elective course IIMicrobiology – Industrial Microbiology	90	54	4
BY810404	Elective course IIMicrobiology- Practical paper I Food, Agricultural and Environmental Microbiology			2
BY810405	Elective course IIMicrobiology- Practical paper II Clinical Microbiology and Industrial Microbiology			2
BY820401	Elective course III Environmental Science – Basic Concepts in Environmental Studies	90	72	4
BY820402	Elective course III Environmental Science –Natural Resources and their management	90	54	4
BY820403	Elective course III Environmental Science – Environmental Monitoring and Management	90	54	4
BY820404	Elective course III Environmental Science – Practical paper I Basic Concepts in Environmental Studies			2
BY820405	Elective course III Environmental Science – Practical paper II Environmental Science –Environmental Monitoring and Management, Environmental Monitoring and Management	/		2
	Project work			4
	Viva-voce			3
Total		270	180	23

BY010101: Microbiology and Phycology
(Theory 27+45=72 Hrs; Practical 9+36=45Hrs)Credits4

MICROBIOLOGY (27 hrs)

Module 1: Introduction to microbiology (2 hrs)

Milestones in Microbiology, Microbial taxonomy and phylogeny - Major groups and their characteristics (Fivekingdom system and three domain system of classification).

Module 2: Bacteria (7 hrs)

Bacterial morphology. Classification of Bacteria according to Bergey's manual of systematic bacteriology (Brief study up to family). Ultra structure of Gram positive and Gram negative bacteria; cell membrane, cell wall, flagella, pili, fimbriae, capsule and slime, ribosome and endospores. Major groups of Bacteria: Nanobes, VBNC, Spirochetes, Rickettsias, Chlamydias, Mycoplasmas, Actinomycetes, Myxobacteria, Archaeobacteria (general account only). Extremophiles - thermophilic, halophilic, acidophilic and alkalophilic bacteria. Nutritional types, Bacterial genome chromosome, plasmids-types of plasmids-R plasmids, Col plasmids and F plasmids

Module 3: Bacterial systematics (4 hrs)

Systematic identification of bacteria: Phenotypic-Morphology, Motility, Colony characters, Biochemical tests (Tests for carbohydrates, proteins and enzymes). Molecular techniques for the identification of bacteria-16SrRNA sequencing. A brief account on metagenome analysis for the identification of non-culturable microbes.

Module 4: Culture of microorganisms (4 hrs)

Sterilization techniques in microbiology-physical and chemical methods(Physical-dry heat and moist heat, radiation, filter sterilization; Chemical-commonly used surface sterilant), Disinfection;Methods of isolation of pure cultures. Types of culture media. Enrichment culture techniques. Maintenance and preservation of pure cultures.

Module 5: Plant-Microbe interactions (2 hours)

Brief study on endophytes- bacteria and fungi, their role in plant growth promotion and secondary metabolite production.

Module 6: Viruses (8 hrs)

Nomenclature and classification-types of viruses-DNA and RNA Viruses, properties of viruses, morphology (symmetry) of viruses; Capsid and their arrangements; types of envelopes and their composition, Viral genome. Structure of bacteriophages belonging to 'T' series- ultra structure of TMV. Viral replication: Lytic and Lysogenic cycles - Lytic cycle in T even phages, and lysogeny in lambda phage. Sub viral particles - prions, viroids, virusoids (brief description only).

Practical (9 hrs)

1. Preparation and sterilization of microbial culture media -Nutrient broth and nutrient agar
2. Inoculation of bacteria-stabbing and streaking
3. Differential staining of bacteria using Gram stain.
4. Endospore staining
5. Isolation of Rhizobium from root nodules.
6. Isolation of microbes from soil: Serial dilution - pour plate/spread plate method.
7. Streak out a bacterial culture on an agar plate and isolation of colonies –Quadrant streaking method
8. Antibacterial assay - disc diffusion/agar well method.

References

1. Ananthanarayan and Panicker. Text Book of Microbiology, Sterling Publications
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18. L R Haahelm, J R Pattison, R J Whitley. *Clinical virology*.
19. Thandavarayan Ramamurthy, Amit Ghosh, Gururaja P. Pazhani, and Sumio Shinoda Current Perspectives on Viable but Non-Culturable (VBNC) Pathogenic Bacteria. *Frontiers in Public Health*, 2014; 2: 103.
20. Nanobes and Nanobacteria -SERC. <https://serc.carleton.edu/microbelife/topics/nanobes/index.html>

Phycology (45 hrs)

Module 1: Introduction (4 hrs)

History of algal classification. Detailed study of the classification by F. E. Fritsch. Brief account on the classification (Upto groups and divisions) by Edward Lee (2008). Gene sequencing and algal systematics (Brief study only). Centers of algal research in India. Contributions of Indian phycologists – M O P Iyengar, GS Venkataraman, T V Desikachary.

BY010103: BRYOLOGY AND PTERIDOLOGY

(Theory 36 + 36 = 72 Hrs; Practical 18 + 36 = 54 Hrs) Credits: 4

Module 1: Introduction (4hrs)

Diversity in forms habit and habitat. Origin and evolution of bryophytes. Trends in classification of Bryophytes: traditional and modern systems of classification (Rothmaler 1951, Goffinet *et al* 2008) Contributions of Indian bryologists (Shiv Ram Kashyap, SK Pande, SC Srivastava). Fossil bryophytes.

Module 2: Ecological significance of bryophytes (3hrs)

Ecological significance of bryophytes with special reference on environmental monitoring. Water relations and regeneration techniques. Symbiotic associations of bryophytes.

Module 3: Economic importance of bryophytes (3hrs)

Economic importance of bryophytes. Cultivation and conservation of bryophytes *with* special note on *In vitro* culture techniques of bryophytes (brief description only).

Module 4: General characters and thallus organization (26 hrs)

General characters and comparative account of sporophyte, gametophyte, their interrelationships, spore dispersal mechanisms of following orders with reference to the types mentioned in the practical (development of sex organs not necessary). Hepaticopsida (Sphaerocarpaceae, Marchantiales, Jungermanniales and Calobryales) Anthocerotopsida (Anthocerotales). Bryopsida (Sphagnales, Polytrichales and Bryales).

Practical (18 hrs)

1. Detailed study of the structure of gametophytes and sporophytes of the following genera of Bryophytes by suitable micropreparation: *Riccia*, *Targionia*, *Cyathodium*, *Marchantia*, *Lunularia*, *Dumortiera*, *Reboulia*, *Pallavicinia*, *Porella*, *Anthoceros*, *Notothylas*, *Sphagnum*, *Pogonatum*.
2. Students are expected to submit a report of field trip to bryophytes natural habitats to familiarize with the diversity of bryophytes.

References

1. Kashyap S R (1932). *Liverworts of Western Himalayas and the Punjab plains* (Vol. I & II). Research Co. Publications.
2. Chopra R N, P K Kumar (1988). *Biology of Bryophytes*. Wiley Eastern Ltd.

BY010104: GYMNOSPERMS, PALAEOBOTANY AND EVOLUTION

(Theory: 27 + 09 + 18= 54 hrs; Practical: 27 hrs) Credits: 4

GYMNOSPERMS (27 hrs)

Module 1: Introduction (3 hrs)

General characteristics, distribution and classification of gymnosperms (K R Sporne). Brief account of classification by Christenhusz *et al.*, (2011). Distribution of living gymnosperms in India.

Module 2: Vegetative and reproductive structures of Gymnosperms (20 hrs)

Detailed study of the vegetative morphology, internal structure, reproductive structures, and evolution of the orders and families (with reference to the genera mentioned).

Class Cycadopsida: *Lyginopteris*, *Lagenostoma*, *Glossopteris*, *Medullosa*, *Caytonia*, *Bennettites*, *Williamsonia*, *Pentoxylon*, *Cycas*, *Zamia*. Class Coniferopsida: General account of families under Coniferales, range of form and structure of stem, leaves. Range of form and structure of female cones in Coniferales -*Pinus*, *Cupressus*, *Podocarpus*, *Agathis*, *Araucaria*, *Taxus* and *Ginkgo*. Class Gnetopsida: *Gnetum*. General account of Ephedraceae and Welwitschiaceae

Module 3: Gametophyte development of Gymnosperms (2 hrs)

General account on the male and female gametophyte development in *Cycas*. Comparative study of male gametophytes of living Coniferales

Module 4: Economic importance of Gymnosperms (2 hrs)

Economic importance of gymnosperms; pharmacological importance of *Ginkgo*

Practical (27 hrs)

1. Study the morphology and anatomy of vegetative and reproductive parts of *Cycas*, *Zamia*, *Pinus*, *Cupressus*, *Agathis*, *Araucaria*, *Podocarpus* and *Gnetum*.
2. Study of fossil gymnosperms through specimens and permanent slides.
3. Conduct field trips to familiarize various gymnosperms in nature and field, identification of Indian gymnosperms and submit a report.

References

1. Andrews H N Jr (1961). *Studies in Palaeobotany*. John Wiley and sons.
2. Arnold C A (1947). *An introduction to Palaeobotany*. John Wiley and sons.
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7. Christenhusz M J M, Reveal J C, Farjon A, Gardner M F, Mill R R, Chase MW (2011). *A new classification and linear sequence of extant gymnosperm*. Phytotoxa, 19:55-70.

8. Coulter J M, Chamberlain C J (1977). *Morphology of Gymnosperms*. University of Chicago Press.
9. Dallimore W, A B Jackson (1964). *A Handbook of Coniferae and Ginkgoaceae* (IV Edn). Edward Arnold & Co.
10. Delevoryas T (1962). *Morphology and evolution of Fossil Plants*. Holt, Rinehart and Winston.
11. Dettmann M E, Clifford H T (2005). Biogeography of Araucariaceae. In Dargavel (ed) *Australia and New Zealand forest histories: australian forests*. Australian Forest History Society Inc. Occasional Publication 2: 1-9.
12. Hori T, Ridge R W, Tulecke W, Del P T, Tremouillaux-Guiller J, Tobe H (Eds.) (1997). *Ginkgo Biloba A Global Treasure. From Biology to Medicine*. Springer.
13. Khurajam J S, Singh R (2015). *Gymnosperms of Northeast India: distribution and conservation status*. Pleione (East Himalayan Society for Spermatophyte Taxonomy)9: 283 – 288.
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15. Sahni, K. C. 1990 *Gymnosperms of India and adjacent countries*. Bishen Singh Mahendra Pal Singh, Dehradun.
16. Sharma O P, S Dixit (2002). *Gymnosperms*. Pragati Prakashan.
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18. Sporne K R (1974). *The morphology of gymnosperms*. Hutchinson Univ. Library.
19. Srivastava R C (2006). *Diversity, distribution and economic importance of living gymnosperms of India*. *Punjab University Research Journal*, 56:45-87.

PALEOBOTANY (Theory: 9 hrs; Practical: 9 hrs)

Module 1: Introduction (1 hr)

Evolutionary Time scale: Eras, Periods and Epochs (Including: Meghalayan, Northgrippian and Greenlandian ages).

Module2: Fossils (3 hrs)

Fossils-Definition, types.Fossilization: mode of preservation and their importance. Stages in primate evolution-including *Homo*.

Module 3: Techniques and Preservation (3 hrs)

Techniques in Palaeontology: Mega and Micro-fossils, Nanofossils, Ichnofossils- collection. Reformation and illustration- Binomial Nomenclature. Methods of Plant-fossil studies: Preservation and preparation, age determination: Carbon dating.

Module4: Nomenclature and applied aspects (2 hrs)

Fossil record: Systematic, reconstruction and nomenclature. Fossil records from India. Applied aspects of Paleobotany.

References

1. Agashe S. N. (1995). *Palaeobotany*. Oxford & IBH, New Delhi.
2. Ruop D. M. and Stanley S.M (1999). *Principles of Palaeontology*. W.H. Freeman and Co. Toppan Co. Ltd.
3. Siddiqui, K.A. (2002). *Elements of Palaeobotany*. Kitab Mahal. Allahabad.
4. Stewart, W.N. and Rothwell G.W. (1993). *Palaeobotany and the Evolution of Plants*. Cambridge University Press.
5. Thomas, B.A. & Spicer R.A. (1987). *The Evolution and Palaeobiology of land plants*. Discordies Press, Fortland, USA.

EVOLUTION: (Theory: 18 hrs)

Module 1: Introduction (3 hrs)

Evolution of biomes. Mixing process, intercontinental connections. Climatic zonations, dispersal opportunities, dispersal availability, sub-climax and climax dispersal. Phylogeny and age of biomes: Interwoven biome phylogeny and biome extension and resurrection.

Module 2: Evidences for evolution (2 hrs)

Morphology, comparative anatomy, embryology, physiology, biochemistry, paleontology and biogeography. Micro and macro-evolution and punctuated equilibrium.

Module 3: Natural Selection (3 hrs)

Natural selection and adaptation. Nature of natural selection, limiting factors, origin of races and species, Kins Selection and Hamilton's Rule. Rate of evolutionary change: Internal and external factors. Significance of genetic drift in natural selection.

Module 4: Mutation as an Evolutionary Force (3 hrs)

Mutation and genetic divergence. Evolutionary significance of mutations. Genetic assimilations (Baldwin effect). Genetic homeostasis. Mutation for natural selection. Eugenics and eugenics.

Module 5: Speciation (3 hrs)

Species concept; morphological species, biological species and evolutionary species. Mode of speciation – allopatric, sympatric and parapatric. Types of Speciation-Phyletic and true-speciation. Hybridization (Double cross hybrid of field Corn); Rate of hybridization and introgression in evolution of species. Reproductive isolation: Pre-zygotic and post-zygotic isolation.

Module 6: Co-evolution (2 hrs)

Symbiosis. Plant-animal Co-evolution; mutualism, commensalism. Protective -colouration and shape. Mimicry: Batesian and Mullerian mimicry. Molecular tools in phylogeny.

References

1. Allan C. Hutchinson (2005). *Evolution and the Common Law*. Cambridge University Press.
2. Douglas J. Futuyma (2009). *Evolution*. Sinauer Associates. INC-Publishers. USA.
3. George Ledyard Stebbins (1971). *Process of Organic evolution*.
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5. Hancock J. F (2003). *Plant Evolution and the Origin of Crop Species*. CABI.
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9. Kenneth V. Kardong (2005). *An introduction to Biological Evolution*. McGraw-Hill publications. New York.
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11. Maxtoshi Nei and Sudhir Kumar (2000). *Molecular Evolution and phylogenetics*. Oxford University Press.
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BY010203: PLANT PHYSIOLOGY AND BIOCHEMISTRY
(Theory 45+27 =72 Hrs; Practical 36+27=63 Hrs; Credits: 4)

PLANT PHYSIOLOGY (Theory: 45 Hrs; Practical: 63 Hrs)

Module 1: Transport and Translocation of water and solutes (8 hrs)

(a) Absorption and translocation of water, apoplast and symplast, pathways of water uptake and transport, xylem transport, passive and active transport. Aquaporins. Water pathway in the leaf – driving force of transpiration, leaf anatomy for regulating transpiration. Stomatal biology – light dependent stomatal opening. Soil-plant-atmosphere continuum.

(b) Absorption of minerals: Soil characters influencing nutrient availability – size and charge of soil particles, soil pH. Mechanism of entry of minerals into roots.

(c) Transport of ions, solutes and macromolecules: Electrical properties of membranes, Membrane potential. Transport across cell membranes: Passive – diffusion, facilitated diffusion, membrane channels; plasmodesmata, porins, ion channels – gated channels, structure and working of K⁺ ion channels. Active transport: Carrier proteins; P-type H⁺ ATPase, ABC transporters.

Module 4: Photosynthesis (12 hrs)

(a) Light harvesting complexes: PS I, PSII; Structure and composition of reaction centers. Basic principles of light absorption, excitation energy transfer, mechanism of electron transport, photooxidation of water, proton electrochemical potential – photophosphorylation.

(b) Structure and function of RuBisCo, CO₂ fixation – Calvin cycle. Photorespiration, role of photorespiration in plants. CO₂ concentrating mechanisms – algal and cyanobacterial pumps, C₄ cycle, CAM pathway. Synthesis of starch and sucrose, photosynthetic quantum yield and energy conversion efficiency. Transport of photoassimilates – phloem loading and unloading, mechanism of phloem translocation – pressure flow. Thylakoid ET inhibitors, Photoinhibition and its tolerance mechanism.

Module 5: Respiration (10 hrs)

Three stages of respiratory metabolism (brief study only). Plant mitochondrial electron transport and ATP synthesis – organization of electron transfer complexes (complex I – IV). ATPase (Complex V) – detailed structure of F₁ and F_o subunits, binding change mechanism of ATP synthesis. Comparison of mitochondrial and chloroplast ATP synthesis. Cyanide resistant pathway - alternative oxidase, its regulation and significance. Rotenone-insensitive pathway in plants.

Module 6: Nitrogen metabolism: (4 hrs)

N cycle. N fixation processes. Biological N fixation – structure of nitrogenase complex, reduction of N. Symbiotic N fixation – nodule formation, nodulin gene and nodulation genes, leghaemoglobin. Nitrate and ammonium assimilation. Transport of amides and ureides.

Module 7: Stress physiology (4 hrs)

Plant stress - biotic and abiotic. Stress sensing mechanisms in plants. Acclimation and adaptation mechanisms in plants.

Module 8: Sensory photobiology (4 hrs)

Plant photoreceptors - phytochromes, cryptochromes and phototropins, their function and mechanism of action. Photoperiodism and biological clocks – circadian rhythms. Floral induction and development.

Module 9: Plant growth regulators (3 hrs)

Physiological effects and mechanism of action of plant growth hormones. Role of elicitors in growth regulation.

Practical (36 hrs)

1. Measurement of Photosynthesis - Hill Reaction.
2. Estimation of proline in plant tissues under various abiotic stresses.
3. Estimation of phenol in plant tissues affected by biotic stress.
4. Determination of peroxidase activity in plant tissues affected by biotic/abiotic stresses.
5. Estimation of free amino acids in senescing leaves to understand the source to sink transformation phenomenon.
6. Determination of osmotic potential by tissue weight method.
7. Separation of photosynthetic pigments by TLC/paper chromatography and calculating the Rf value
8. Demonstration of amylase activity and GA effect in germinating cereal seeds.
9. Estimation of total chlorophyll and study of absorption pattern of chlorophyll solution.
10. Separation and collection of leaf pigments by silica gel column chromatography.
11. Determination of nitrate reductase activity.
12. Extraction and estimation of leghaemoglobin from root nodules.

References

1. Lincoln Taiz, Eduardo Zeiger, Ian Max Moller, Angus Murphy (2015). Plant Physiology and development (VI Edn). Sinaeur Associates, Inc. Publishers.
2. Lincoln Taiz, Eduardo Zeiger (2002). *Plant physiology* (II Edn). Sinaeur Associates, Inc. Publishers.
3. Bob B Buchanan, Wilhelm Gruissem, Russel L Jones (2000). *Biochemistry and molecular biology of plants*. L K International Pvt. Ltd.
4. Reginald H Garrett, Charles M Grisham (2005). *Biochemistry*. Thomson Brooks/Cole
5. H Robert Horton, Laurence A Moran, Raymond S Ochr, J David Rawn, K Gray Scrimgeour (2002). *Principles of Biochemistry* (III Edn). Prentice Hall.
6. Frank B Salisbury, Cleon W Ross (1992). *Plant Physiology* (IV Edn). Wadsworth Publishing Company.
7. Bruce Alberts, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts, Peter Walter (2002). *Molecular biology of the cell* (IV Edn). Garland Science, Taylor and Francis group.
8. Gerald Karp (2008). *Cell and Molecular biology: Concepts and experiments* (V Edn). John Wiley & Sons.
9. Harvey Lodish, Arnold Berk, Chris A. Kaiser, Monty Krieger, Matthew P. Scott, Anthony Bretscher, Hidde Ploegh, Paul Matsudaira (2007). *Molecular cell biology* (VI Edn). W H Freeman & Company.

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11. Jeremy M Berg, John L Tymoczko, Lubert Stryer, Gregory J Gatto Jr. (2007). *Biochemistry*. W H Freeman and company.
12. David E Sadava (2009). *Cell biology: Organelle structure and function*. CBS
13. S Sadasivam, A Manickam (1996). *Biochemical methods* (II Edn). New age international Publishers.

BIOCHEMISTRY (Theory: 27 Hrs; Practical 27 Hrs)

Module 1: Introduction (2 hrs)

Acid and Bases, ionisation of water, dissociation of acids, Henderson-Hasselbalch equation, pKa. Buffers - Common buffers (acetate, citrate and phosphate), buffer action, buffer capacity. Measurement of pH.

Module 2: Carbohydrates (4 hrs)

General structure and biological importance of carbohydrates. Monosaccharids and Oligosaccharides: classification and structure with common examples. Polysaccharides: Classification, structure and functions - starch, cellulose. Glycoproteins and glycolipids.

Module 3: Lipids (5 hrs)

(a) Classification, important biological functions. Structure of fatty acids, triglycerides, waxes, Phosphoglycerides and Sterols. Lipids with biological specific activities – steroids and isoprenoids. (b) Lipid metabolism in oilseeds – Oxidation of fatty acids, glyoxylate cycle, gluconeogenesis.

Module 4: Amino acids and proteins (5 hrs)

Classification and structure of aminoacids, peptide bond. Structure and functions of protein – primary, secondary, tertiary and quaternary structure. Ramachandran plot, alpha helix and beta conformations. Protein degradation in cells (brief account).

Module 5: Enzymes (7 hrs)

- (a) Classification and naming, IUB system.
- (b) Mechanism of enzyme action. Measurement and expression of enzyme activity, factors affecting enzyme activity.
- (c) Enzyme kinetics - Michaelis-Menten kinetics, Lineweaver-Burk plot.
- (d) Regulation of enzyme activity. Enzyme inhibition
- (e) Co-enzymes and co-factors, Ribozymes and Abzymes.
- (f) Enzyme technology - isolation and purification of enzymes, modifying enzymes for stability (brief study).

Module 6: Secondary metabolites (4 hrs)

Classification, Biosynthesis and functions of terpenoids, alkaloids and phenolics.

Practical (27 Hrs)

1. Preparation of buffers-Citrate and Phosphate-various strengths.
2. Quantitative estimation of reducing sugar.
3. Separation of amino acids by TLC.
4. Quantitative estimation of protein (Lowry's method).

5. Preparation of Molar, Normal, Percentage and PPM solutions and their dilutions
6. Estimation of total phenolics in plant tissue
7. Isolation and estimation of amylase from germinating seeds.

References

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2. David L Nelson, Michael M Cox (2013). Lehninger Principles of Biochemistry (VI Edn). Macmillan International.
3. T A Brown (2018). Biochemistry. Viva Books.
4. Arti Nigam, Archana Ayyagari. Lab Manual in Biochemistry Immunology and Biotechnology (2007) Tata McGraw Hill Pvt. Ltd.
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12. Rastogi S C Biochemistry (2010) Tata McGraw Hill.

BY010202: CELL BIOLOGY, GENETICS AND PLANT BREEDING

(Theory: 27+27+18=72Hrs; Practical: 18+18+9=45 Hrs; Credits: 4)

CELL BIOLOGY (Theory: 27 Hrs; Practical: 18 Hrs)

Module 1: Introduction to plant cells (7 hrs)

Structural organization of plant cell. Plasma membrane – chemical composition, organization, membrane fluidity, dynamic nature. Ultrastructure and functions of mitochondria, peroxisomes, glyoxysomes and chloroplast. Endomembrane system – structure and functions of endoplasmic reticulum, Golgi complex, lysosomes and vacuoles. Transport of materials – biosynthetic (secretory) and endocytic pathway. Chromosomes – organization of chromatin and chromosomes - histones and nonhistone proteins, nucleosomal organization of chromatin, higher levels of chromatin organization in chromosomes. Heterochromatin and Euchromatin, formation of heterochromatin. Molecular structure of the Centromere and Telomere.

Module 2: Cell signaling (6 hrs)

Cell communication - general principles. Signaling molecules and their receptors; external and internal signals that modify metabolism, growth, and development of plants. Receptors: cell surface receptors - ion-channel linked receptors (Voltage-gated ion channels and Ligand-gated ion channels in neurons), G-protein coupled receptors (β -adrenergic receptor), Tyrosine-kinase linked receptors (Insulin receptor), and Steroid hormone receptors (Estrogen receptor). Signal transduction pathways, second messengers, regulation of signaling pathways. Bacterial and plant two-component signaling systems (Brief study).

Module 3: Cell interaction (4 hrs)

Extra cellular matrix, Cell adhesion molecules - cadherins, integrins, selectins, fibronectins, laminin and Immunoglobulin superfamily. Cell-cell adhesions (Junctional and non-junctional adhesive mechanisms; occluding junctions, anchoring junctions, communicating junctions (Connexons and plasmodesmata).

Module 4: Cytoskeleton (3 hrs)

Functions of cytoskeleton; Structure, assembly, disassembly and regulation of filaments involved – actin filaments (microfilaments), microtubules, and intermediate filaments. Molecular motors – kinesins, dyneins, and myosins.

Module 5: Cell cycle and its regulation (7 Hrs)

Phases of cell cycle, mitosis and meiosis (Brief study), Spindle formation and its disintegration, Mechanisms of chromosome movement and separation during anaphase, Role of cohesins and condensins. Role of motor proteins. Cell cycle control mechanisms - extracellular and intracellular signals. Cell cycle checkpoints – DNA damage checkpoint, centrosome duplication checkpoint, spindle assembly checkpoint - role of cyclins and cyclin dependent kinases. Apoptosis – process of programmed cell death, extrinsic and intrinsic pathways of apoptosis.

Practical (18 hrs)

1. Identification of different stages of mitosis and study of morphology of metaphase chromosomes from Onion root meristems (Recorded by photomicrographs).
2. Identification of different stages of meiosis from suitable plant material (Recorded by photomicrographs).

3. Microscopic observation (Chloroplast).
5. Study of mitotic index from suitable plant material.

References

1. Gerald Karp (2014). *Cell Biology* (VII Edn). Wiley.
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3. George Plopper, David Sharp, Eric Sikorski (2015). *Lewin's Cells* (III Edn). Jones and Bartlett Learning.
4. Harvey Lodish, Arnold Berk, Chris A. Kaiser, Monty Krieger, Matthew P. Scott, Anthony Bretscher, Hidde Ploegh, Paul Matsudaira (2007). *Molecular cell biology* (VI Edn). W H Freeman & Company.
5. Wayne M Becker, Lewis J Kleinsmith, Jeff Hardin (2007). *The world of the cell* (VI Edn). Pearson.
6. Geoffrey M Cooper, Robert E Hausman (2009). *The Cell: A molecular approach* (V Edn). Sinauer.
7. Bruce Alberts, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts, Peter Walter (2002). *Molecular biology of the cell* (IV Edn). Garland Science, Taylor and Francis group.
8. Bruce Alberts, Dennis Bray, Karen Hopkin, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts, Peter Walter (2010). *Essential Cell Biology*. Garland Science.
9. David E Sadava (2009). *Cell biology: Organelle structure and function*. CBS.

GENETICS (Theory: 27Hrs; Practical: 18 Hrs)

Module 1: Genetics - From “Factors” to “Genes” and gene interactions (6 hrs)

Introduction to Mendelian genetics and principles of inheritance; Extensions of Mendelism (Brief study). Model organisms in Genetics - *Arabidopsis thaliana*, *Neurospora crassa*, *E. coli*, *Drosophila melanogaster* and *Caenorhabditis elegans* (Brief study). Linkage, crossing over and chromosome mapping in eukaryotes. Cytoplasmic inheritance, multiple alleles, quantitative inheritance, QTL; Penetrance and expressivity, Sex determination in plants and animals, X-chromosome inactivation in mammals – dosage compensation.

Module 2: Human Genetics and Cancer (9 hrs)

Inheritance of traits in Humans - Pedigree analysis (Nail Patella Syndrome and ABO locus), genetic disorders in humans - autosomal recessive - ADA deficiency, Sickle cell anemia; autosomal dominant - Huntington's chorea, familial hypercholesterolemia; inborn errors of metabolism - phenylketonuria, Alkaptonuria, Albinism. Cancer - a genetic disease; Cancer and cell cycle, oncogenes, chromosome rearrangements and cancer (Philadelphia Chromosome), Tumour suppressor genes, causes of cancer, properties of cancer cells, types of cancer, Genetic pathways to cancer

Module 3: Mutations (4 hrs)

Classification and types: Chromosomal mutations - changes in structure and number; Gene mutations, Effect of different mutagens on the structure of DNA.

Module 4: Population Genetics (8 hrs)

Emergence of evolutionary theory and population genetics; Concepts in population genetics - Gene pool, Gene frequency, genotype frequency; Hardy Weinberg's Law and its applications; Exceptions to Hardy-Weinberg's Principle; Factors affecting gene frequency - Mutation, selection, migration, natural selection and Genetic drift (Bottle neck effect and Founder effect); Populations in Genetic equilibrium - balancing selection, mutation-selection balance, mutation drift balance. Speciation - pre-zygotic and post-zygotic isolation (Brief account); modes of speciation - Allopatric, sympatric and parapatric.

Practical (18 Hrs)

1. Workout problems related to linkage, crossing over and gene mapping, human pedigree analysis, Cytoplasmic Inheritance, Multiple alleles and quantitative inheritance.
2. Work out problems in population genetics-gene and genotype frequency, Hardy-Weinberg equilibrium.

References

1. Benjamin Lewin (2000). *Genes VII*. Oxford university press.
2. Daniel L Hartl, Elizabeth W Jones (2009). *Genetics: Analysis of genes and genomes* (VII Edn). Jones and Bartlett publishers.
3. Gardner E J, Simmons M J, Snustad D P (1991). *Principles of Genetics* (III Edn). John Wiley and Sons Inc.
4. Klug W.S., Cummings, M.R., Spencer, C.A and Palladino, M.A (2010). *Concepts of Genetics* (10th Edition). Pearson Education Limited.
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8. William S Klug, Michael R Cummings (1994). *Concepts of Genetics*. Prentice Hall.

PLANT BREEDING (Theory: 18 Hrs; Practical 9 hrs)

Module 1: Introduction (2 hrs)

Objectives of plant breeding, important achievements and future prospects. Domestication and centers of origin of cultivated plants.

Module 2: Hybridization (3 hrs)

Hybridization-role and methods, inter-varietal, inter-specific and inter-generic crosses. Incompatibility and male sterility in plant breeding (brief account). Back-cross breeding. Heterosis, inbreeding depression.

Module 3: Idiotypic breeding (2 hrs)

Role and methods, applications of idiotypic breeding.

Module 4: Breeding for resistance (3 hrs)

Breeding for biotic (disease) and abiotic (drought) stresses; loss due to diseases, disease development, disease escape, disease resistance, vertical and horizontal- resistances of biotic stress; methods of breeding for disease resistance.

Module 5: Mutation breeding (6 hrs)

Mutagens and crop improvement. Spontaneous and induced mutations, effects of mutation. Physical and chemical mutagens; principles and working of gamma gardens, methods of mutation breeding, mutations in oligogenic traits, mutations in polygenic traits, limitations of mutation breeding, achievements of mutation breeding. Role of mutation in plant breeding.

Module 6: Modern breeding methods (2 hrs)

Modern trends in plant breeding: Tissue culture technologies (DNA marker-assisted Selection (MAS) - a brief study only).

Practical: (9 Hrs)

1. Hybridization techniques in self and cross pollinated plants.
2. Estimation of pollen sterility through in-vitro germination/staining-technique.
3. Visit a Plant Breeding station to familiarize with breeding programmes. Submit a report of the visit.

References

1. Allard R. W. (1995). *Principles of Plant Breeding*. John Wiley and Sons, Inc.
2. Denis Murphy (2007). *Plant Breeding and Biotechnology*. Cambridge University Press.
3. Ghahal G. S. and Gosal S. S. (2002). *Principles and procedures of Plant Breeding*. Narosa Publishing House.
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BY010301: RESEARCH METHODOLOGY, MICROTÉCHNIQUE, BIostatISTICS AND BIOPHYSICAL INSTRUMENTATION

(Theory: 18+18+18+18= 72 Hrs; Practicals: 09+27+09+18 = 63Hrs) Credits:4

RESEARCH METHODOLOGY (Theory: 18 Hrs)

Module 1: Introduction (3 hrs)

Need for research, objectives of research, types of research, stages of research; generation of a research problem, execution of work; interpretation of results: Analysis of data, interpretation and conclusions. Research ethics. Intellectual property rights (IPR): Copy right and patenting-*Brief account*.

Module 2: Review of literature (6 hrs)

Library: Structure of a Scientific Library, Journals (Current and Back-volumes), Books.
Catalogue: Types of catalogues- card catalogue, computerized catalogue. Classification of books (Universal decimal system). Journals: indexing journals, abstracting journals, research journals, review journals, e- journals. Impact factor of journals; h-Index; NCBI, PubMed, Medline. Other sources of references: reprints-acquisition and filing. Internet, open access initiative, INFLIBNET, INSDOC, N-list and Shodhganga. Preparation of index cards: author index and subject index. Open source bibliography. Management system, citation management tools (*E.g. Mendeley, EndNot*).

Module 3: Preparation of project report and Dissertation/Thesis (3 hrs)

Project report. Dissertation/Thesis: Selection of problem and its relevance; available information collected; Execution of experimental programmes; Writing dissertation (*IMRAD-System*): General Format; General principles in writing: Preliminary pages - title page, certificates, acknowledgements, and contents page. Main text of the Dissertation/Thesis: title, introduction, review of literature, material(s) and method(s), heading(s), result(s): table(s) and illustration(s), marginal indicator(s), caption(s), camera ready copy; discussion, summary and conclusion; references, abstract(s) and appendix.

Module 4: Preparation of Project Proposals, Presentation and Publication of Research Outcomes (6 hrs)

(a) Preparation of project proposal: title, introduction, literature review and abstract; aim and scope; present status; location of experiments; materials and methods; justification; expected outcome; date of commencement; estimated date of completion; estimated cost; references; funding agencies.

(b) Presentation and publication of research outcomes:

(i) Statistical analysis by using software (*Eg: - SPSS*). (ii) Preparation of research paper and short communications. (iii) Preparation of review articles. (iv) Proofreading-standard abbreviations for proof correction. (v) Presentation of Research findings in Seminars and Workshops.

Practical (9 Hrs)

1. Visit a scientific library or documentation center and submit a report.
2. Prepare a project proposal.
3. Prepare an outline of dissertation and research paper.
4. Prepare a list of references.

References

1. Anderson J., Durston B. H. and Poole (1970). *Thesis and assignment writing*. Wiley eastern.
2. Bedekar V. H. (1982). *How to write assignment and research papers, dissertations and thesis*.
3. Bercy R. (1994). *The research project, how to write it*. Rutledge, London.
4. Clifford Hawkins and Marco Sorghi. *Research: How to plan and speak about it and write about it*. Narosa Publishing Company.
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MICROTECHNIQUE (Theory: 18 Hrs)

Module 1: Killing and Fixing (3 hrs)

Principles and techniques of killing and fixing; properties of reagents, fixation images; properties and composition of important fixatives - Carnoy's Fluid, FAA, FPA, Chrome acetic acid fluids, Zirkle- Erliki fluid.

Module 2: Dehydration, Clearing, Embedding and Sectioning (5 hrs)

Dehydration: Principles of dehydration, properties and uses of important dehydrating and clearing agents - alcohols, acetone, xylol, glycerol, chloroform, dioxan. Dehydration Methods: (i) Tertiary-butyl alcohol method. (ii) Alcohol-xylol method. Embedding: Paraffin embedding. Sectioning: Free hand sections – Prospects and problems; sectioning in rotary microtome, sledge microtome and cryotome.

Module 3: Staining (5 hrs)

Principles of staining; classification of stains, protocol for preparation of; (i) Natural stains - Haematoxylin and Carmine (ii) Coal tar dyes – Fast green, Orange G, Safranin, Crystal violet, Cotton Blue and Oil Red O. Techniques of staining: (i) Single staining; Staining with Safranin or crystal violet. Double staining; Safranin-Fast green method, Safranin-Crystal violet method. Triple staining; Safranin-Crystal Violet-Orange G method. Histochemical localization of starch, lipid and lignin.

Module 4: Whole mounts (5 hrs)

Principles and techniques of whole mounting, TBA/Hygrobutole method, Glycerine-xylol method. Staining of whole mount materials (haematoxylin, fast green or Safranin-fast green

combination). Significance of whole mounts. Techniques of smear, squash and maceration. Mounting: Techniques, common mounting media used - DPX, Canada balsam, Glycerin jelly and Lacto phenol. cleaning, labeling and storage of slides.

Practical (27 Hrs)

1. Students are expected to be thorough with the following techniques.
 - (a) Preparation of semi-permanent slides.
 - (b) Preparation of permanent slides.
 - (c) Preparation of whole mounts.
 - (d) Maceration.
 - (e) Preparation of fixatives (FAA, Carnoys' fluid).
 - (f) Preparation of dehydration series (Alcohol, Acetone, TBA).
 - (g) Preparation of paraffin blocks.
 - (h) Preparation of serial sections.
2. Candidates should prepare and submit 10 permanent slides in which the following categories should be included:
 - (a) Free hand sections (single/double stained).
 - (b) Serial sections (single/double stained).
 - (c) Wood sections and whole mounts.

References

1. Johanson D A (1940). *Plant microtechnique*. McGraw Hill co.
2. John E Sass (1967). *Botanical Microtechnique*. Oxford IBH Publ. Company.
3. Gray (1964). *Handbook of Basic Microtechnique*. McGraw Hill co.
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BIOSTATISTICS (Theory 18 Hrs)

Module 1: Introduction to Statistics (4 hrs)

Basic principles and methods of Biostatistics: data collection, Primary and Secondary data. Tools for data collection and presentation. Measures of central tendency and dispersion.

Module 2: Probability, Correlation and Regression (5 hrs)

Probability - Definition, Mutually exclusive and Independent events. Binomial and Normal - distribution. Linear Regression and Correlation (*Simple and Multiple*).

Module 3: Design of experiments (4 hrs)

Experimental Designs: Principles -Replication, Randomization and Local control. Common designs in Biological experiments: Completely Randomized Design (CRD), Randomized Block Design (RBD), Latin Square Design (LSD), Factorial Design (FD).

Module 4: Tests of Significance (5 hrs)

Statistical Inference-Estimation-Testing of Hypothesis: - t-Test, Chi-square Test (Goodness of fit, Independence or Association, Detection of Linkages), F-test, ANOVA.

Practical (9 Hrs)

1. Test the significance of a given data using t-Test, Chi square -test.
2. Analysis of a set of data for Correlation / Regression (Scatter diagram).
3. Determine the probability for different types of events.

References

1. Chandel R. S. (1975). *A handbook of Agricultural statistics*. Achal prakashan Mandir.
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8. Thomas M. Little and F. Jackson Hills (1978). *Agricultural Experimentation*. Johnwiley and sons, Newyork.

BIOPHYSICAL INSTRUMENTATION (Theory 18 Hrs)

Module 1: Introduction to Microscopy (3 hrs)

Parts of Microscope, Principles of Microscopy. Types of Microscopes- Simple and Compound; Stereo Microscope, Phase contrast Microscope, Fluorescence Microscope. Electron Microscopy (Eg: TEM, SEM, and E-SEM-Brief account).

Module 2: Principles and Applications of Instruments (6 hrs)

Micrometry. Basic principles and applications of pH meter, colorimeter, UV-Visible spectrophotometer and centrifuges (E.g. Table top and ultra centrifuge). Flow cytometry. Immunoassay system-RIA and ELISA. Cryobiology- Lyophilisation and its applications. Auto radiography and Liquid Scintillation counter.

Module 3: Basic Principles and Applications of Chromatography (4 hrs)

Types of Chromatography: Paper, TLC, Column chromatography, ion exchange chromatography, GCMS, HPLC, HPTLC and LCMS.

Module 4: Basic principles and applications of Electrophoresis and Spectroscopy (5 hrs)

Electrophoresis: Agarose gel Electrophoresis, SDS PAGE, Pulse Field Gel Electrophoresis. Fluorescence, UV, IR, ORD, Visible, NMR, ESR, and Atomic Absorption.

Practical: (18 Hrs)

1. Micrometry; calibrate the ocular and stage micrometre on a light microscope and measure an object.
2. Calibrate the pH meter and measure the pH of different samples.

3. Estimate the concentration of the given sample using colorimeter or spectrophotometer.
4. Separate plant pigments by TLC or Column chromatography.

References

1. Ackerman E A, Ellis L E E, Williams L E (1979). *Biophysical Science*. Prentice-Hall Inc.
2. Chang R (1971). *Basic principles of spectroscopy*. McGraw Hill.
3. Pesce A J, Rosen C G, Pasty T L. *Fluorescence Spectroscopy: An introduction for Biology and Medicine*. Marcel Dakar.
4. Stanford J R (1975). *Foundation of Biophysics*. Academic press.
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7. Garry D Christian, James E O'reilvy (1986). *Instrumentation analysis*. Alien and Bacon, Inc.
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BY010302: BIOTECHNOLOGY, BIOINFORMATICS AND BIONANOTECHNOLOGY
(Theory 72 Hrs; Practical 36 Hrs; Credits: 4)

BIOTECHNOLOGY (54 hrs)

Module 1: Bioprocess Technology (5 hrs)

(a) Introduction to classical and modern biotechnology. Microbial biotechnology: Mode of operation of a bioprocess – basic concepts of batch, fed batch and continuous operation of a bioprocess.

(b) Basic design and construction of various types of bioreactors used in bioprocesses.

(c) Commercial production of metabolites using bioreactors. Submerged and solid state fermentation. Microbes in production of enzymes, antibiotics, biopolymers, bioethanol, organic acids, SCP.

Module 2: Plant tissue culture (12 hrs)

(a) Brief history and important milestones in plant tissue culture. Types of cultures: organized structures - meristem, shoot tip, node, embryo, root cultures; unorganized structures - callus, suspension and protoplast cultures. Cellular totipotency. Differentiation of cells in callus - tracheid formation, chloroplast differentiation. Factors influencing vascular differentiation. Organogenic and embryogenic differentiation.

(b) Culture protocol: General composition of the culture media; solid and liquid media – gelling agents. Preparation and standardization of MS medium for shoot and root differentiation. Sterilization of medium, glasswares, instruments, plant material, transfer area. Preparation of explants and inoculation, incubation. Pattern of growth and development, subculturing.

(c) Micropropagation: Methods – shoot tip and nodal segment culture, stages of micropropagation. Advantages and disadvantages of micropropagation. Applications of tissue culture.

Module 3: Genetic engineering (15 hrs)

(a) Important steps in Gene cloning: Basic principles of gene cloning. Isolation and purification of DNA from cells (Brief study). Isolation of DNA fragments of interest, creation of recombinant DNA – introduction into host cells, selection and screening of recombinants, propagation of recombinants.

(b) Tools and techniques: Restriction endonucleases, Ligases. Vectors – necessary properties of a vector, types of vectors based on origin; shuttle vectors, expression vectors.

(c) Plant transformation: *Agrobacterium tumefaciens* mediated gene transfer in plants - details of vector system based on *A. tumefaciens*, binary vector and cointegrate vector. Steps involved in *Agrobacterium* mediated gene transfer to plants. Plant transformation by direct transfer of DNA (Vectorless methods) - microprojectiles, electroporation, microinjection, chemical, lipofection.

(d) Applications of genetic engineering -in genetic studies, agriculture, and medicine (brief study citing specific examples)

Module 4: Genome editing (3 hrs)

Introduction, scope, methods and applications

Module 5: Advanced tools and techniques in Biotechnology (10 hrs)

(a) cDNA synthesis, artificial DNA synthesis – solid-phase synthesis.

- (b) PCR - Procedure and applications, variants of PCR - Real time PCR and reverse transcriptase PCR and their applications.
- (c) Automated DNA sequencing.
- (d) *In vitro* mutagenesis, site directed mutagenesis.
- (e) Blotting techniques - procedure and applications of southern, northern, western, and dot blotting. Microarray (gene chip) technology and its applications.
- (f) Procedure and applications of DNA profiling, Footprinting.
- (g) Procedure and applications of FISH and GISH

Module 6: Genomics (5 hrs)

Introduction to genome, genomics, transcriptomics and proteomics. Structural genomics - genome sequencing strategies. Genome annotation – structural and functional annotation, gene expression study using microarrays.

Module 7: Societal concerns with biotechnology (4 hrs)

Harm to the environment - potential impact of GMOs on the ecosystem; GM food – effect on health and environment. Misuse of modern molecular biology tools and techniques, bioweapons, bioterrorism. Ethical issues relating to rDNA techniques. Patents – issues relating to patenting living organisms, their genes and other bioresources.

BIOINFORMATICS (13 hrs)

Module 1: Methods, tools and applications of bioinformatics (3 hrs)

- (a) Databases: Organization, primary and secondary databases. DNA sequence databases - Genbank, EMBL & DDBJ. Protein databases - SWISS-PROT, PDB. Sequence alignment: Significance; Global Alignment, pair wise analysis, Scoring Matrices (an introduction). Database similarity search – query sequence search; BLAST – Algorithm and different versions. FASTA. Multiple sequence analysis dynamic programming.
- (b) Molecular Phylogeny: molecular clock hypothesis. Phylogenetic Trees, Terminology in Phylogenetic tree. Tree drawing Methods. Cladogram and Phylogram. Significance of Molecular Phylogeny.
- (c) Structural Bioinformatics: Molecular structure viewing tool – Rasmol; Protein structure prediction – Secondary Structure prediction (Chou Fasman method), Tertiary structure prediction (Homology modeling).

Module 2 Advanced tools and techniques in Biotechnology (10 hrs)

- (a) cDNA synthesis, artificial DNA synthesis – solid-phase synthesis. Construction of genomic and cDNA library.
- (b) PCR - Procedure and applications, variants of PCR - Real time PCR and reverse transcriptase PCR and their applications.
- (c) Automated DNA sequencing.
- (d) *In vitro* mutagenesis, site directed mutagenesis.
- (e) Blotting techniques - procedure and applications of southern, northern, western, and dot blotting. Microarray (gene chip) technology and its applications.
- (f) Procedure and applications of DNA profiling, Footprinting.
- (g) Procedure and applications of FISH and GISH

BIONANOTECHNOLOGY (5 Hrs)

Module 1: Introduction to nanoparticles and nanotechnology (3 hrs)

(a) An overview on concepts, strategies and tools. Types of nanoparticles and their relative merits and demerits.

(b) Method of biological synthesis of Zn and Ag nanoparticles – plant extract, bacteria and fungi.

Module 2: Applications of bionanotechnology (2 hrs)

Use of nanoparticles in agriculture, medicine and environment. Impact of NPs on germination and seedling emergence, parameters in various crops. Effect of NPs on gene expression. Translocation and accumulation of NPs in plant tissues and organs.

Practical (36 Hrs)

1. Production of amylase by solid state and submerged fermentation.
2. Preparation of the stock solutions of MS medium.
2. Preparation of MS medium from stock solutions.
3. Isolation, preparation, sterilization and inoculation of different explants like shoot tip, node, anther, embryo and cambium.
4. DNA isolation from coconut/onion/cauliflower and separation using agarose gel.
5. Blast search with Protein Sequence (*Magnolia latahensis* sequence)
6. Blast search with Nucleic Acid Sequence (Neanderthal man's Paleo DNA)
7. Phylogenetic tree creation with the help of CLUSTAL X, W or MUSCLE and tree drawing tools.
8. Creation of phylogenetic trees for selected families of Eudicots
9. Molecular docking (using either free or commercial software)

References

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BY010303:ANGIOSPERM TAXONOMY, ECONOMIC BOTANY AND ETHNOBOTANY

(Theory - 72 Hrs; Practical - 63 Hrs; Credits: 4)

Module 1: Introduction (6 hrs)

Scope and significance of taxonomy. Major classification systems with emphasis on conceptual basis of classifications of (i) Linnaeus (ii) Bentham & Hooker (iii) Engler & Prantl (iv) Bessey (v) APG (brief synoptic account – current views).

Module 2: Units of classification and Phylogeny of Angiosperms (9hrs)

(a) Taxonomic hierarchy

(b) Concept of taxa: Concept of species: taxonomic, biological & phylogenetic species. Concept of genus, family and infraspecific categories - subspecies, variety, forma.

(c) Phylogenetic terms: Primitive and advanced; Homology & Analogy; Parallelism and convergence; monophyly & polyphyly; phylogenetic tree (brief study).

(d) Numerical taxonomy and Cladistics – methodologies of study.

Module 3: Data sources of taxonomy (brief account): (5hrs)

(a) Concept of character

(b) Sources of taxonomic characters: Anatomy, cytology, phytochemistry, Molecular taxonomy, DNA barcoding.

Module 4: Methodology of Identification of plants (9 hrs)

(a) Usage of floras; Preparation of indented and bracketed keys

(b) Brief accounts on Flora of the British India, Flora of the Presidency of Madras, Hortus Malabaricus. Important Floras of Kerala

(c) Familiarization of Technical terms associated with the following: Habit, Habitat; Root, Stem, Leaf, Inflorescence; Bract & bracteoles; Flowers; Fruits and Seeds.

Module 5: Tools of Taxonomy (3 hrs)

Field study, Herbarium and Virtual herbarium, Important Botanical gardens; BSI; Botanical literature (Journals- print and online, Floras, Revisions, Monographs, Indices).

Module 6: Botanical Nomenclature (4 hrs)

(a) History of Botanical nomenclature and code

(b) Aims and principles of botanical nomenclature

(c) Study of major provisions of the code (ICN): Typification; Author citation; rule of priority; Effective and valid publication – as per the current code; Retention, rejection and choice of names.

Module 7: Study of angiosperm diversity (27 hrs)

Study of following families with reference to tropical flora, as per Bentham and Hooker's concept in detail with economic importance of members:

1. Ranunculaceae 2. Magnoliaceae 3. Annonaceae 4. Polygalaceae 5. Caryophyllaceae 6. Clusiaceae 7. Malvaceae 8. Tiliaceae 9. Geraniaceae 10. Rutaceae 11. Vitaceae 12. Sapindaceae 13. Leguminosae 14. Myrtaceae 15. Melastomaceae 16. Lythraceae 17. Cucurbitaceae 18. Aizoaceae 19. Apiaceae 20. Rubiaceae 21. Asteraceae 22. Campanulaceae 23. Myrsinaceae 24. Sapotaceae 25. Oleaceae 26. Apocynaceae 27. Asclepiadaceae 28. Boraginaceae 29. Convolvulaceae 30. Solanaceae 31. Scrophulariaceae 32. Acanthaceae 33. Verbenaceae 34. Lamiaceae 35. Polygonaceae 36. Aristolochiaceae 37. Lauraceae 38. Euphorbiaceae 39. Orchidaceae 40. Zingiberaceae 41. Liliaceae 42. Araceae 43. Cyperaceae 44. Poaceae.

Module 8: Economic Botany (6 hrs)

(a) Importance of economic botany. Important Plantation crops of Kerala and brief study on their various products - Rubber, Cardamom, Tea, Coffee, Coconut, Catechu.

(b) Major food plants: **Cereals:** Rice, wheat, maize, oats. **Milletts:** Sorghum, Pearl millet, Ragi, Italian millet. **Pulses:** Pigeon pea, Garden pea, Black gram, Green gram, Bengal gram. **Sugar:** Sugar cane. **Fruits:** Banana, Mango, Jack fruit, Apple, Pineapple, Orange, Lemon. **Vegetables:** All common vegetables used in traditional Kerala kitchen. **Oil plants:** Coconut, Ground nut, Gingelly. **Spices:** Cardamom, Pepper, Ginger, Clove, Cinnamon, Coriander, Fennel, Fenugreek. **Fibre:** Coir, Jute, Cotton.

(c) **Gums and Resins:** White Damar, Gum Arabic, Asafoetida.

(d) **Medicinal plants:** Liquorice, Indian Sarsaparilla, Chitraka (*Plumbago*), Serpentine, Aswagandha, Asafoetida, Greater galanga, Turmeric, Mango ginger, Garlic, Ginger, Asoka tree, Vasaka, Indian Aloe, Holy Basil, Bel, Betel, Pepper, Belleric, Myrobalan, Chebulic myrobalan, Neem, Apple of Peru (*Datura*).

Module 9: Ethnobotany (3 hours)

Importance, sources and methods; important tribal people of Kerala; plants used by them such as *Trichopus zeylanicus*, *Ochlandra travancorica*, *Dendrocalamus strictus*, *Gloriosa superba*, *Emilia sonchifolia*, *Andrographis paniculata*.

Practical (63 Hrs)

1. Workout a minimum of 2 members from each family with suitable sketches and description in technical terms of locally available plants. Record reasons assigned for Class, subclass, series/order, family and draw at least one species from each family in the record.

2. Identification of local flora using Flora of Presidency of Madras- J. S. Gamble.
3. Conduct study tour for not less than 5 days to study angiosperm diversity and collect plants from diverse habitats belonging to plant families specified above and also visit important botanical gardens and institutions of taxonomic research and submit a report.
4. Preparation of 25 herbarium specimens from the plant families of study and submit.
5. Study of preparation of dendrogram using a suitable software (of a family or Genus of study).
6. Workout nomenclatural problems regarding priority and author citations.
7. Familiarization of morphological terms from live specimens; specimens of economic botany from families of study.

References

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3. Conduct study tour for not less than 5 days to study angiosperm diversity and collect plants from diverse habitats belonging to plant families specified above and also visit important botanical gardens and institutions of taxonomic research and submit a report.
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BY010304: ENVIRONMENTAL SCIENCE

(Theory 54 Hrs; Practical 27 Hrs; Credits 3)

Module 1: Introduction to Ecological Science (2 hrs)

Definition, history and scope of ecology, Interdisciplinary nature of environmental sciences.

Module 2: Autecological concepts - Population Ecology (5 hrs)

- (a) Characteristics of populations - size and density, dispersion, age structure, natality and mortality.
- (b) Population growth - factors affecting population growth, environmental resistance, biotic potential, carrying capacity, positive and negative interaction, migration, subsistence density. Ecological consequence of overpopulations.
- (c) Genecology - ecological amplitude, ecads, ecotypes, ecospecies, coenospecies,

Module 3: Synecological concepts - Community ecology (5 hrs)

- (a) Ecological processes of community formation, ecotone, edge effect. Classification of communities - criteria of classification, dynamic system of classification by Clement.
- (b) Special plant communities - quantitative, qualitative and synthetic characteristics of plant communities, coefficient of communities; Sorenson's Index of similarity.
- (c) Dynamic community characteristics - cyclic replacement changes and non-cyclic replacement changes.

Module 4: Dynamic Ecology - Ecological succession (3 hrs)

- (a) The concept, definition and reasons of succession. Classification of succession: Changes - autogenic and allogenic, primary and secondary, autotrophic and heterotrophic.
- (b) Retrogressive changes or the concept of degradation, concept of climax or stable communities, resilience of communities.

Module 5: Biosphere and Ecosystem (7 hrs)

- (a) Significance of habitat, biodiversity, ecological niche, trophic level, primary and secondary productivity, food chains, food webs, ecological pyramids, energy flow and nutrient cycles.
- (b) Comparative study of the major tropical ecosystems: Tropical rain forests, Wetlands and tropical coastal ecosystems. Special emphasis to tropical coastal ecosystems: Conservation and management of tropical coastal ecosystems: The values of coastal ecosystems, issues of coastal ecosystems in the tropics, goals for conservation and management of tropical ecosystems: Providing for resilience, maintain/restore connectivity, protect water quality, conservation and recovery of Species-at-Risk, understanding the socio-economic context.

Module 6: Phytogeography (5 hrs)

- (a) Definition, principles governing plant distribution, factors affecting plant distribution, theories of distribution, different types of distribution of vegetations on the earth, continuous and discontinuous distribution.
- (b) Climate, vegetation and botanical zones of India.
- (c) Remote sensing: Definition and data acquisition techniques. Application of remote sensing, geospatial variability and geotagging.

Module 7: Environmental pollution (10 hrs)

- (a) Definition and classification.
- (b) Water pollution: Water quality parameters and standards, different types of pollutants and their consequences. Types of water pollution, prevention and control - water shed management, waste water treatment. Waste water treatment with aquatic macrophytes.
- (c) Air pollution: Air quality standards and index, ambient air monitoring using high volume air sampler, types and sources of air pollutants, air pollution and human health hazards, control of air pollution.
- (d) Noise pollution.
- (e) Radioactive and thermal pollution: Causes and hazardous effects, effective management.

Module 8: Environmental biotechnology and solid waste management (4 hrs)

Concept of waste, types and sources of solid wastes including e-waste. Bioremediation, Phytoremediation, bioaugmentation, biofilms, biofilters, bioscrubbers and trickling filters. Use of bioreactors in waste management.

Module 9: Global environmental problems and climate change (4 hrs)

- (a) Global warming, green house gases, acid rain, ozone depletion. Holistic relationship between air water and land pollution.
- (b) Factors responsible for climate change, *El-Nino* and *La Nina* phenomenon and its consequences.
- (c) Effect of climate change on biogeography.
- (d) Environmental laws, environmental monitoring and bio indicators, environmental safety provisions in Indian constitution, major environmental laws in India, ISO-14000.
- (e) Disaster management; preparedness and planning

Module 10: Biodiversity and its conservation (9 hours)

- (a) Biodiversity- definition, the number of known plants in the world (upto groups), current biodiversity loss - concept of endemism, rare, endangered and threatened species (RET), key stone species, IUCN account of biodiversity, red data book and hot spots, reasons to stop extinction, methods to save species.

(b) Principles of conservation - *ex-situ* and *in-situ* conservation techniques. Biodiversity conservation: Species diversity, community diversity, ecosystem diversity. Role of biotechnology in conservation of species.

(c) The natural longevity of species, rain forests as centres of diversity, ecological restoration

(d) Ecotourism - positive and negative impacts.

Practical (27 hrs)

1. Analysis of water quality for; (a) Dissolved CO₂ (b) Dissolved oxygen (c) COD (d) Total dissolved minerals (e) Quantitative estimation of dissolved chloride ions and dissolved sulphate (f) Total alkalinity.
2. Quantitative estimation of dissolved silicate, dissolved sulphate, nitrite and total alkalinity.
2. Physico-chemical analysis of soil: (a) Total water soluble mineral ions (b) estimation of soil organic carbon (Walkey and Black method).
3. Quantitative and qualitative community analysis. Carry out a project on species structure and the frequency, abundance, density of different species and similarity index of different communities in a natural system. Students must be able to explain the structure of vegetation from the given data on the above mentioned characteristics.
4. Phytoplankton counting using Sedgwick Rafter counter.
5. Field visit to natural ecosystem and identification of trophic levels, food webs and food chains, plant diversity (species and community) and submit a report.
6. Students should be aware of the common environmental problems, their consequences and possible solutions.

References

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PROGRAMME ELECTIVE - BIOTECHNOLOGY
BY800401. PLANT TISSUE CULTURE AND MICROBIAL BIOTECHNOLOGY
(Theory 90 hrs; Practical 72 hrs; Credits 4)

Module 1: Tissue culture regeneration of plants (10 hrs)

(a) **Adventitious shoot regeneration:** Direct and indirect regeneration; factors influencing adventitious regeneration.

(b) **Somatic embryogenesis:** Direct and indirect, initiation of embryogenic cultures and regeneration of plants; factors regulating somatic embryogenesis. Synthetic seed production - protocol, types of synthetic seeds. Applications and limitations of synthetic seeds.

Module 2: Somaclonal variation (8 hrs)

Origin of somaclonal variation. Reasons for somaclonal variation – molecular basis. Applications of somaclonal variation.

Module 3: Embryo and meristem culture (3 hrs)

Methodology and applications.

Module 4: Protoplast culture (8 hrs)

(a) Isolation, purification and culture of protoplasts. Regeneration of plants from protoplasts. Significance of protoplast culture.

(b) Protoplast fusion (somatic hybridization) – chemical, mechanical, electrofusion. Isolation and selection of heterokaryons, regeneration and analysis of somatic hybrids; Cybrids. Applications of protoplast culture and somatic hybridization.

Module 5: Production of ploidy variants (12 hrs)

(a) **Haploids:** In vitro androgenesis – protocol for anther and microspore culture, advantages, applications. **Gynogenesis** - Developmental stage at inoculation, *in vitro* maturation of embryo sacs, origin of embryos, triggering factors – pretreatment, medium. Uses and limitations of haploid plants.

(c) **Triploids:** importance of triploid plants, conventional production of triploid plants, endosperm culture - advantages and limitations.

Module 6: In vitro germplasm conservation (6 hrs)

Importance of *in vitro* conservation. Short and medium term storage of germplasm, Cryopreservation technique – importance and methodology of cryopreservation. DNA banking for germplasm conservation.

Module 7: Production of secondary metabolites (6 hrs)

Culture conditions for producing secondary metabolites, selection of high yielding lines, elicitation. Hairy root culture – advantages of using hairy root culture, establishment of hairy root culture and production of secondary metabolites. Biotransformation.

Module 8: Cell and enzyme technology (5 hrs)

(a) **Cell immobilization:** Methods, advantages and applications.

(b) **Enzyme immobilization:** Methods and applications. Enzymes as biosensors. Enzyme engineering,

Module 9: Microbial technology (16 hrs)

(a) Screening of microbes for metabolite production - selection of media, strain improvement. Bioreactors – airlift, stirred tank, bubble column, rotary drum. Fermentation process - batch, fed batch, continuous fermentation. Process control during fermentation - pH, aeration, agitation, temperature, foam control. Downstream processing.

(b) Large scale production of antibiotics - penicillin, streptomycin; industrial chemicals - ethanol, acetone, citric acid; SCP – *Spirulina* and *Chlorella*; Biofertilizers – *Azotobacter* and *Rhizobium*; Bioinsecticides – *B. thuringiensis*, NPV. Commercial production of enzymes and their uses - amylase, cellulase, polygalacturonase.

Module 10: Tissue engineering and Stem cell technology (6 hrs)

Regenerative medicine, methods and applications of tissue engineering. Stem cells – embryonic stem cell and adult stem cells – production and applications.

Module 11: Bioremediation (10 hrs)

Importance and advantages of bioremediation, bioleaching, xenobiotics, organisms used for bioremediation. Cleaning strategies for water and soil - *in situ* and *ex situ* technologies. Bioremediation of radioactive wastes. Use of GMOs in bioremediation.

Practical (72 hrs)

1. Isolation of explants, establishment, subculture and maintenance of callus.
2. In vitro morphogenetic studies in any one plant system
3. Study of the morphology of callus cells – callus smear preparation, histological aspects, microtomy.
4. Isolation and fusion of plant protoplasts.
5. Preparation of synthetic seeds.
6. Preparation of selective medium for drought or salinity resistance. Preparation of MS medium from stock solutions containing auxin and cytokinin, NaCl or PEG, and inoculation.
7. Cell immobilization.
8. Application of immobilized yeast cells for ethanol production.
9. Isolation of microbes producing Organic acids/Enzymes.
10. Find out the uninucleate stage of pollen for anther culture.
11. Dissect out an embryo from any seed and culture it on a suitable solid medium.
12. Cell plating technique.

References

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PROGRAMME ELECTIVE - BIOTECHNOLOGY
BY800402: GENETIC ENGINEERING, GENOME EDITING AND IMMUNOLOGY
(Theory 90 hrs; Practical 54 hrs; Credits 4)

Module 1: Important tools and techniques in gene cloning (18 hrs)

(a) **DNA cutting and modifying enzymes:** restriction endonucleases – types, mode of action; alkaline phosphatase, polynucleotide kinase, S1 nuclease, exonucleases, Ligases.

(b) **In vitro DNA ligation strategies:** Joining with ligases – adaptors, linkers and homopolymer tailing; topoisomerases, and site-specific recombinase

(c) **Vectors:** plasmid vectors, phage vectors and artificial chromosomes – BAC, YAC, PAC, HAC – important features, construction and applications of each.

(d) **Cloning strategies:** Genomic libraries, preparation of DNA fragments for cloning. Bacterial transformation, *in vitro* phage packaging and transfection.

(e) **Selection and screening of recombinants:** insertional inactivation, complementation of defined mutation, microarray techniques, immunological screening for expressed genes. Reporter systems – *Lac Z* system, GFP.

Module 3: Gene library (10 hrs)

(a) Genomic and cDNA library. Procedure for the construction of a genomic library using phage λ system. Identification of desirable clones from library – hybridization probing, colony and plaque hybridization probing, immunological screening. Locating and isolating a gene - *in situ* hybridization, positional cloning, chromosome walking and jumping.

Module 4: Advanced transgenic technology (6 hrs)

Inducible expression systems – tetracycline expression system; site-specific recombination for *in vivo* gene manipulation, gene targeting, gene silencing using antisense RNA and RNAi. RNAi therapy.

Module 5: Applications of rDNA technology (10 hrs)

(a) Uses of GM microbes: Bacteria and yeast– production of useful proteins, basic genetic research. Applications of GM animals: In basic research, producing novel proteins; disease studies, prevention and cure diseases.

(b) Uses of transgenic plants: Herbicide, insect and disease resistance, stress resistance. Genetic engineering for increasing nutritional and other novel qualities in plants, pharming.

Module 6: Genome editing (12 hrs)

(a) **Process of genome editing:** basic principle and steps involved in genome editing.

(b) **Genome editing methods:** Meganucleases, ZFN, TALEN, CRISPR/Cas9.

(c) **Applications of genome editing:** tool to study gene function, in genetic engineering, in gene therapy.

Module 7: Gene therapy (8 hrs)

Approaches to gene therapy- somatic cell and germline therapy, vectors used in gene therapy. *In vivo* and *ex vivo* therapy. Gene augmentation therapy. Problems and fears associated with gene therapy.

Module 8: Protein engineering (5 hrs)

Approaches to protein engineering - protein modification by site-directed mutagenesis, combinatorial methods. Applications of protein engineering.

Module 9: Biosensors (6 hrs)

Design and operation, types. Applications - medical, food and agriculture, industrial, pollution monitoring. GMOs as biosensors.

Module 10: Immunology (14 hrs)

(a) Innate and acquired immunity. Cells and molecules involved in innate and acquired immunity, humoral and cellular immunity, Antigens, Epitopes. Structure, function and types of antibody molecules.

(a) Generation of antibody diversity. Antigen-antibody interactions. Antigen processing and presentation. Activation and differentiation of B cells – formation, role. T cells – types, roles, T cell receptors. Primary and secondary immune modulation, complement system, pattern recognition receptors – toll-like receptors. MHC molecules. Cell-mediated effector functions, inflammation, hypersensitivity and autoimmunity, congenital and acquired immunodeficiencies.

(b) Production and uses of monoclonal antibodies, antibody engineering.

(c) Vaccines: Basic strategies, inactivated and live attenuated pathogens, subunit vaccines, recombinant vaccines (e.g., Hepatitis B vaccine), DNA vaccines. Modern approaches to vaccine development - edible vaccines.

Practical (54 hrs)

1. Identification of chemicals/reagents, tools, techniques, and procedures used in genetic engineering.
2. Work out problems based on restriction digestion of DNA, gel separation pattern etc.
3. Isolation of plant genomic DNA and its quantification.
4. Isolation of plasmids and its purification, by minipreparation and midipreparation.
5. Isolation of bacterial genomic DNA and its quantification by using UV spectrophotometer.
6. Separation of DNA by agarose gel electrophoresis.
7. Extraction and quantification of protein by Bradford method.
8. Separation of proteins by PAGE.
9. Conduct PCR.

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PROGRAMME ELECTIVE - BIOTECHNOLOGY
BY800403: GENOMICS, TRANSCRIPTOMICS, PROTEOMICS AND
BIOINFORMATICS

(Theory 90 hrs; Practical 54 hrs; Credits 4)

Module 1: Genome mapping (12 hrs)

(a) Genome map – definition, types, and significance in genomics.

(b) Cytogenetic map – types (Brief study)

(c) Genetic mapping – basic principles for the construction of linkage maps. Markers for genetic mapping – genes, biochemical markers, molecular markers. Construction of linkage maps using molecular markers - RFLP, RAPD, AFLP, SSLP, SNP.

(d) Physical mapping – restriction mapping, STS mapping, EST.

Module 2: Genome sequencing (14 hrs)

(a) Basic steps in genome sequencing. Shot gun sequencing of small genomes. Hierarchical shot gun sequencing. Whole genome shot gun approach.

(b) Sequence assembly – methods used.

(c) Next generation sequencing strategies: Preparation of sequencing library. Reversible terminator sequencing (Illumina sequencing), Pyrosequencing, 454 sequencing, ion torrent method, SOLiD. Third and Fourth generation sequencing.

(e) Important findings of the completed genome projects: Human genome project, Rice genome project, Arabidopsis genome project, *E. coli* genome project, Wheat genome project.

Module 3: Genome annotation (11 hrs)

(a) **Structural annotation:** by computer analysis of sequence data and experimental techniques

(b) **Functional annotation:** by computer based methods and experimental methods

Module 4: Comparative genomics (5 hrs)

Orthologs and Paralogs, gene identification by comparative genomics, comparative genomics as a tool in evolutionary studies. Metagenomics.

Module 5: Transcriptomics (5 hrs)

Components of the transcriptome. Methods of transcriptome analysis and its importance in genome annotation.

Module 4: Proteomics (8 hrs)

Proteome, proteomics. Protein profiling – steps in protein profiling. Protein sequencing. Protein expression analysis using protein microarray, protein localization using GFP.

Module 5: Bioinformatics (27 hrs)

(a) Internet and WWW. National Centre for Biotechnology Information – SRS. Computational Biology and Bioinformatics. Database organization and function. Types of databases based on the data storage pattern. Submission to and retrieval from databases – BankIt and sequin. Secondary Databases (PROSITE, PRINTS, BLOCKS).

(b) Sequence Analysis: Global Alignment, pairwise analysis, Scoring Matrices (an introduction), Database similarity search – query sequence search; BLAST – Algorithm and different versions; FASTA. Multiple Sequence Analysis dynamic programming for sequence alignment. Tools for multiple sequence alignment – CLUSTAL X/W.

(c) Structural Bioinformatics: Molecular Structure viewing tool – Rasmol; Protein structure prediction, secondary structure prediction - Chou Fasman method and other Bioinformatics tools

for secondary structure prediction; Tertiary structure prediction - comparative modeling, Abinitio prediction, Homology modeling.

(d) Gene prediction strategies, ORF search, gene prediction programs – Grail/Exp, GENSCAN, ORF finder. RNA secondary structure prediction.

(e) Computer assisted drug design - concept, methods and practical approaches. Brief study about Docking tools, AutoDock, molegro virtual docker, GOLD.

(f) Applications of bioinformatics in evolutionary studies, molecular clock hypothesis. Molecular Phylogeny – Gene and Species tree. Molecular evolution and Kimuras theory, Phylogenetic Trees, Terminology in Phylogenetic tree. Tree drawing Methods. Cladogram and Phylogram, Significance of Molecular Phylogeny.

Module 6: Ethical, legal, and social impact of complete genome analysis (8 hrs)

Genome data availability – Problems with public availability of sequence data, privacy concerns, legal problems, gene and DNA sequence patenting, patenting transgenics.

Practical (54 Hrs)

1. Blast search with Protein sequence (e.g. *Cytochrome C* sequence)
2. Blast search with Nucleic Acid Sequence (e.g. *Magnolia latahensis* & Neanderthal man Paleo DNAs)
3. Carry out multiple sequence alignment using the given DNA sequences.
4. Phylogenetic tree creation with CLUSTAL X, W and MUSCLE and tree viewing tools. NJ Plot, Tree View, MEGA
5. Creation of phylogenetic trees for selected families of Eudicots
6. Molecular structure viewing - use of Rasmol (supply structure of a few proteins downloaded from PDB).
7. Locate specific sequences like TATA box, promoters, start signals, stop signals etc. in a DNA sequence using computer programmes e.g., *E. coli* promoter, human promoter.
8. Laboratory/Industry visit: Students are expected to conduct a visit to a sophisticated biotechnology laboratory/research centre/biotechnology industry to have an idea on the type of work going on there. A report of the visit should be prepared and submitted.

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MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR UNDER GRADUATE PROGRAMMES IN

B.Sc Zoology

UNDER CHOICE BASED CREDIT SYSTEM (UG CBCS) 2017

2017 ADMISSIONS ONWARDS

10. SCHEME OF EXAMINATIONS

a. SCHEME OF EXAMINATION - THEORY (CORE COURSE)

Theory Examinations will be conducted by the University at the end of the respective semester in which the course is conducted. Duration 3 Hrs (Internal External ratio =1:4)

Sem	Course Code	Course Title	Course Category	Duration	Marks ratio		Credits
				Hrs	Internal (I)	External (E)	
1	ZY1CRT01	General perspectives in Science & Protistan Diversity	1	2	1	4	2
2	ZY2CRT02	Animal Diversity – Non Chordata	2	2	1	4	2
3	ZY3CRT03	Animal Diversity- Chordata	3	3	1	4	3
4	ZY4CRT04	Research Methodology, Biophysics and Biostatistics	4	3	1	4	3
5	ZY5CRT05	Environmental Biology & Human rights	5	3	1	4	3
5	ZY5CRT06	Cell Biology & Genetics	6	3	1	4	3
5	ZY5CRT07	Evolution, Ethology & Zoogeography	7	3	1	4	3
5	ZY5CRT08	Human Physiology, Biochemistry & Endocrinology	8	3	1	4	3
6	ZY6CRT09	Developmental Biology	9	3	1	4	3
6	ZY6CRT10	Microbiology and Immunology	10	3	1	4	3
6	ZY6CRT11	Biotechnology, Bioinformatics & Molecular Biology	11	3	1	4	3
6	ZY6CRT12	Occupational Zoology (Aquaculture, Apiculture, Vermiculture)	12	3	1	4	3

		& Quail farming)					
Zoology Open Course Sem 5 (Select any 1 from 3)	ZY5OPT01	Vocational Zoology (Apiculture, Vermiculture, & Ornamental Fish Culture)	Open course (for other streams)-1	4	1	4	3
	ZY5OPT02	Public Health & Nutrition	Open course -2				
	ZY5OPT03	Man, Nature & Sustainable Development	Open course -3				
Sem 6 (Select any 1 from the four)	ZY6CBT01	Ecotourism & Sustainable Development	Choice Based Course-1	4	1	4	3
	ZY6CBT02	Agricultural Pest Management	Choice Based Course-2				
	ZY6CBT03	Vector & Vector Borne Diseases	Choice Based Course-3				
	ZY6CBT03	Nutrition, Health & Life Style Management	Choice Based Course -4				

b. SCHEME OF PRACTICAL EXAMINATIONS

University Practical Examinations will be conducted at the end of even semester 2,4 and 6.

Semester	Code	Practical No.	Course Title	Duration	Marks ratio		Credits
				Hrs	Internal (I)	External (E)	
2	ZY2CRP01	I	General Perspectives in Science, Protistan Diversity Biodiversity & Animal Diversity – Non Chordata	3 Hrs	1	4	2
4	ZY4CRP02	II	Animal Diversity – Chordata, Research methodology, Biophysics &	3 Hrs	1	4	2

			Biostatistics				
6	ZY6CRP03	III	Environmental Biology, Toxicology, Cell Biology & Genetics	3 Hrs	1	4	2
6	ZY6CRP04	IV	Evolution, Ethology, Zoogeography, Human Physiology, Biochemistry & Endocrinology	3 Hrs	1	4	2
6	ZY6CRP05	V	Developmental Biology, Microbiology & Immunology	3 Hrs	1	4	2
6	ZY6CRP06	VI	Biotechnology, Bioinformatics, Molecular Biology & Occupational Zoology	3 Hrs	1	4	2

c. Total Credits for Core Course

Theory	
Core + Choice Based Core (Elective)	37
Open course	3
Practical	12
Project	2
Total	54

d. SCHEME OF FIELD STUDY, RESEARCH INSTITUTE VISIT, GROUP ACTIVITY, PROJECT AND VIVA-CORE COURSE (Credit 2)

Marks Maximum 100

	Internal Assessments (I)	External Assessments (E)
Project:- Log book showing the progress of project work duly signed by the supervising teacher & HOD	20	<p>Project report – 50 marks</p> <p>Title- 2 Marks</p> <p>Abstract- 3 Marks</p> <p>Introduction & Review of literature- 10 Marks</p> <p>Methodology- 10 Marks</p> <p>Results- 10 Marks</p> <p>Discussion & Conclusion - 10 Marks</p> <p>Neat presentation and Novelty- 5 Marks</p> <p>Presentation & Viva- 30Marks</p> <p>(Student can present the project using OHP or LCD, in 7 Minutes) Viva Voce.</p>
Total	20	80

11. COMPLEMENTARY ZOOLOGY COURSES OFFERED BY ZOOLOGY**DEPARTMENT FOR - MODEL I – BSc BOTANY / BSc****HOME SCIENCE****MODEL II – BSc BOTANY / VOCATIONAL****SUBJECTS****MODEL III – BSc (BIOLOGICAL TECHNIQUES AND SPECIMEN PREPARATION)**

Semester	Code	Title of the Course	Hrs	Inst Hrs/week	Credit
1	ZY1CMT01	Non Chordate Diversity	36	2	2
1		Non Chordate Diversity (Practicals)	36	2	0
2	ZY2CMT02	Chordate Diversity	36	2	2
2		Chordate Diversity (Practicals)	36	2	0
2	ZY2CMP01	Practical 1 Non Chordate Diversity + Chordate Diversity (Practicals)			2
3	ZY3CMT03	Physiology and Immunology	54	3	3
3		Physiology and Immunology (Practicals)	36	2	0
4	ZY4CMT04	Applied Zoology	54	3	3
		Applied Zoology (Practicals)	36	2	
4	ZY4CMP02	Practical 2 Physiology and Immunology + Applied Zoology (Practical)			2

SEMESTER 1. ZY1CRT01. CORE COURSE 1.

GENERAL PERSPECTIVES IN SCIENCE & PROTISTAN DIVERSITY

36 Hrs

Credits 2

Objectives:

- To create an awareness on the basic philosophy of science, concepts and scope
- To understand different levels of biological diversity through the systematic classification
- To familiarize taxa level identification of animals
- To make interest in Protistan diversity
- To impart knowledge on parasitic forms of lower invertebrates.

PART I PERSPECTIVES IN SCIENCE

8Hrs

Module I Introduction to Scientific Studies

4Hrs

Types of knowledge: practical, theoretical, and scientific knowledge. What is science, features of science, Deductive and inductive models, scientific temper, empiricism vocabulary of science.

Module II What is Biology?

4 Hrs

Life and its manifestations, History of Biology: Biology in ancient times Landmarks in the progress of Biology. Branches of Zoology , Scope of Zoology

PART II SYSTEMATICS

10 Hrs

Module III–Taxonomical Principles and tools

Systematic, Taxonomy, Phylogeny [Brief account] , Approaches to taxonomy, Molecular taxonomy, .Bar coding. Zoological nomenclature, International Code of Zoological Nomenclature (ICZN), Law of Priority. Five Kingdom Classification; Linnaean classification, Basis for Animal kingdom classification [Levels of organization, Symmetry, Coelom]

Identification tools

Taxonomic key. Types: Single access key- Dichotomous [linked and nested] and Polytomous key, Multi access key, Computer aided Interactive Key
Advantages and Disadvantages

PART III: PROTISTAN DIVERSITY **18 Hrs**

Module IV – Kingdom Protista Type: *Paramecium* **5 Hrs**

Salient features of Kingdom Protista **10 Hrs**

Classification of Protista up to phyla

1. Phylum Rhizopoda :Eg. *Amoeba*
2. Phylum Actinopoda : Eg. *Actinophrys*
3. Phylum Dinoflagellata : Eg. *Noctiluca*
4. Phylum Parabasalia : Eg. *Trychonympha*
5. Phylum Metamonada : Eg. *Giardia*
6. Phylum Kinetoplasta : Eg. *Trypanosoma*
7. Phylum Euglenophyta : Eg. *Euglena*
8. Phylum Cryptophyta : Eg. *Cryptomonas*
9. Phylum Opalinata : Eg. *Opalina*
10. Phylum Bacillariophyta :Eg. Diatoms
11. Phylum Chlorophyta :Eg. *Volvox*
12. Phylum Choanoflagellata :Eg. *Proterospongia*
13. Phylum Ciliophora : Eg. *Balantidium coli*
14. Phylum Sporozoa : Eg. *Plasmodium*
15. Phylum Microsporidia :Eg. *Nosema*
16. Phylum Rhodophyta :Eg. Red Alga

(Mention any five general characters for each phylum. Detailed accounts of examples are not necessary.)

General Topics: **3 Hrs**

1. Parasitic protists (diseases mode of transmission and prophylactic measures) -
Entamoeba, Trypanosoma, Plasmodium (detailed account of life cycle), Leishmania .

References

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COMPLEMENTARY COURSE : ZOOLOGY –MODEL I

SEMESTER I. ZY1CMT01.

COMPLEMENTARY COURSE 1
NON CHORDATE DIVERSITY

36 hrs
Credits 2

Objectives:

1. To study the scientific classification of invertebrate fauna.
2. To learn the physiological and anatomical peculiarities of some invertebrate phyla through type study.
3. To learn the unity of life with rich diversity of organisms & evolutionary significance of certain invertebrate fauna
4. To stimulate the curiosity of students' in the biota living around them.

Module I

10 Hrs

Introduction: Five kingdom classification

Kingdom Protista: Salient features (any five important salient features) of each phylum with one example each (detailed account of example is not necessary).

Phylum Rhizopoda	(eg: Amoeba)
Phylum Actinopoda	(eg: Actinophrys)
Phylum Dinoflagellata	(eg: Noctiluca)
Phylum Parabasalia	(eg: Trypanosoma)
Phylum Metamonada	(eg: Giardia)
Phylum Kinetoplasta	(eg: Trypanosoma)
Phylum Euglenophyta	(eg: Euglena)
Phylum Cryptophyta	(eg: Cryptomonas)
Phylum Opalinata	(eg: Opalina)
Phylum Bacillariophyta	(eg: Diatoms)
Phylum Chlorophyta	(eg: Volvox)
Phylum Choanoflagellata	(eg: Proterospongia)
Phylum Ciliophora	(eg: Paramecium)
Phylum Sporozoa	(eg: Plasmodium)
Phylum Microsporidia	(eg: Nosema)
Phylum Rhodophyta	(eg: Red algae)

General Topic: Pathogenic Protists – Plasmodium, Entamoeba

Module II

3 Hrs

Phylum Porifera: Salient features (eg: Leucosolenia)

Phylum Coelenterata: Salient features and classification upto class.

Class 1: Hydrozoa (eg: Physalia)

Class 2: Schyphozoa (eg: Aurelia)

Class 3: Anthozoa (eg: Adamsia)

General Topic: Corals and Coral reefs.

Module III

6 Hrs

Phylum Platyhelminthes: Salient features and classification up to class.

Class 1: Turbellaria (eg: Planaria)

Class 2: Trematoda (eg: Fasciola)

Class 3: Cestoda (eg: *Taenia solium*)

Phylum Nematoda: Salient features and classification up to class.

Class 1: Phasmida (eg: Wuchereria)

Class 2: Aphasmida (eg: Trichinella)

Phylum Annelida: Salient features and classification up to class.

Class 1: Polychaeta (eg: Nereis)

Class 2: Oligochaeta (eg: Pheretima)

Class 3: Hirudinomorpha (eg: Hirudinaria)

Module IV

11 Hrs

Phylum Arthropoda: Salient features. Type study – *Fenneropenaeus* (Penaeus) - habitat, morphology, appendages, sexual dimorphism, digestive system, respiratory system, circulatory system, excretory system, nervous system, sense organs, reproductive system, larval stages.

Classification up to class with one example each

Subphylum Trilobitomorpha

Class 1: Trilobita (Extinct) (eg: Dalmanites)

Subphylum: Chelicerata

Class 1: Merostoma (eg: Limulus)

Class 2: Arachnida (eg: Spider)

Class 3: Pycnogonida (eg: Nymphon)

Subphylum Mandibulata

Class 1: Crustacea (eg: Daphnia)

Class 2: Chilopoda (eg: Centipede)

Class 3: Symphyla (eg: Scutigera)

Class 4: Diplopoda (eg: Millipede)

Class 5: Pauropoda (eg: Pauropus)

Class 6: Insecta (eg: Butterfly)

Module V

6 Hrs

Phylum Mollusca: Salient features and classification up to class

Class 1: Aplousobranchia (eg: Neomenia)

Class 2: Monoplousobranchia (eg: Neopilina)

Class 3: Polyplousobranchia (eg: Chiton)

Class 4: Bivalvia (eg: Perna)

Class 5: Gastropoda (eg: Xancus)

Class 6: Cephalopoda (eg: Sepia)

Class 7: Scaphopoda (eg: Dentalium)

Phylum Echinodermata : Salient features and classification up to class.

Class 1: Asterozoa (eg: Astropecten)

Class 2: Ophiurozoa (eg: Ophiothrix)

Class 3: Echinozoa (eg: Echinus)

Class 4: Holothurozoa (eg: Holothuria)

Class 5: Crinozoa (eg: Antedon)

Phylum Hemichordata : Salient features (eg: Balanoglossus.)

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SEMESTER 1

CORE COURSE PAPER 1 PERSPECTIVES IN SCIENCE & PROTISTAN DIVERSITY (PRACTICAL)

36 Hrs

2 Credits

1. Taxa, identification techniques
Bird body parts
Butterfly/ dragonfly body parts
2. Identification using keys
Insect, Fish, Snake (Poisonous & Non Poisonous)
(Any 3 specimens from each category)
3. General identification - The students are expected to identify any 6 Protiatans studied by their generic names and write the general characters of their Phylum.
4. Identification of any 4 economically important protists/parasitic protists
(Slides/figures may be used for identification)
5. Identification of two Protistan from pond water

SEMESTER 11. ZY2CRT02

CORE COURSE 11: ANIMAL DIVERSITY - NON CHORDATA

36 Hrs

Credits 2

Objectives:

- To create appreciation on diversity of life on earth
- To understand different levels of biological diversity through the systematic classification of invertebrate fauna
- To familiarize taxa level identification of animals
- To understand the evolutionary significance of invertebrate fauna

- To instill curiosity on invertebrates around us
- To impart knowledge on parasitic forms of lower invertebrates.

MODULE I Kingdom Animalia

7 Hrs

Outline classification of Kingdom Animalia

Three branches - **Mesozoa, parazoa and Eumetazoa**

Mesozoa: Phylum Orthonectida - eg. *Rhopalura* (mention 5 salient features)

Parazoa:

1. **Phylum Placozoa** – Eg. *Trypanoxenus*

2. **Phylum Porifera** – Classification upto classes; Mention gemmules

Class I- Calcarea. Eg. *Sycon*.,

Class II – Hexactinellida .Eg. *Euplectella*.

Class III - Demospongia Eg. *Cliona*.

General Topics

1. Canal system in sponges.

Phylum Coelenterata -Classification upto classes

Class I - Hydrozoa Eg. *Obelia* - mention Metagenesis

Class II- Scyphozoa Eg. *Rhizostoma*.

Class III- Anthozoa Eg. *Metridium*.

General Topics:

1. Coral and coral reefs with special reference to conservation of reef fauna.

2. Polymorphism in Coelenterates

Phylum Ctenophora - Eg. *Pleurobrachia*.

MODULE II

Phylum Platyhelminthes Salient features; classification up to classes **3 Hrs**

Class I - Turbellaria. Eg. *Planaria*.

Class II –Trematoda Eg. *Fasciola*

Class III- Cestoda Eg. *Taenia saginata*.

General Topics:

1. Life history of *Fasciola hepatica*.

2. Platyhelminth parasites of Man and Dog (*Schistosoma, Taenia solium, Echinococcus*).

Phylum Nematelminthes(Nematoda)

2 Hrs

Salient features, classification up to classes

Class: Phasmdia Eg. *Enterobius*,

Class: Aphasmdia Eg. *Trichinella*

General Topic

Pathogenic nematodes in man. (*Wuchereria bancrofti*, *Ascaris lubricoides*, *Ancylostoma duodenale*, *Trichinella*).

Phylum Annelida:

2 Hrs

Salient features, Classification upto classes.

Class I- Archiannelida Eg. *Polygordius*

Class II -Polychaeta Eg. *Chaetopterus*

ClassIII- Oligochaeta Eg. *Megascolex*.

Class IV- Hirudinea Eg. *Ozobranchus*, *Hirudinaria*

MODULE III

14 Hrs

Phylum Onychophora

Eg. *Peripatus* (Mention its affinities).

Phylum Arthropoda Salient features, Classification upto classes

Type: Prawn –*Fenneropenaeus (Penaeus)*

1. Sub Phylum - Trilobitomorpha

Class -Trilobita (mention the salient features).

Eg. *Triarthrus* – A trilobite (extinct)

2. Subphylum –Chelicerata

Class 1 Merostomata (Xiphosura) (Eg. *Limulus*)

Class 2. Arachnida (Eg., *Palamnaeus*- Scorpion)

Class 3 Pycnogonida (Eg. *Pycnogonum* – Sea spider)

3. Subphylum- Crustacea

Class 1 Branchiopoda Eg. *Daphnia*

Class 2 Ostracoda Eg. *Cypris* -seed shrimp

Class 3 Copepoda Eg. *Cyclops*

Class 4 Remipedia Eg. *Speleonectes* (eyeless crustacean seen in caves)

Class 5. Branchiura Eg., *Argulus* (common fish louse)

Class 6 Cirripedia Eg. *Sacculina* (parasitic castrator of crabs)

Class 7 Malacostraca Eg. *Squilla* (spot tail mantis shrimp)

4. Subphylum- Uniramia

Class 1 Chilopoda Eg. *Scolopendra* – (Centipede)

Class 2 Symphyla Eg. *Scutigereilla* – (garden centipedes or pseudocentipedes)

Class 3 Diplopoda Eg. *Spirostreptus*- (Millipede)

Class 4 Pauropoda Eg. *Pauropus*

Class 5 Hexapoda (Insecta) Eg. *Bombyx mori* – (silk moth)

MODULE IV

Phylum Mollusca

3 Hrs

Salient features, Classification upto classes

Class I- Aplousobranchia Eg. *Neomenia*

Class II- Monoplacophora Eg. *Neopilina*

Class III Amphineura Eg. *Chiton*

Class IV Gastropoda Eg. *Aplysia*

Class V Scaphopoda Eg. *Dentalium*

Class VI Pelecypoda (Bivalvia) Eg. *Pinctada*

Class VII Cephalopoda Eg. *Sepia*

Phylum Echinodermata

3 Hrs

Classification upto classes

Class I- Asterozoa Eg. *Astropecten*

Class II- Ophiurozoa Eg. *Ophiothrix*

Class III- Echinozoa Eg. *Echinus*

Class IV- Holothurozoa Eg. *Holothuria*

Class V – Crinozoa Eg. *Antedon*

General Topics

1. Water vascular system in Echinodermata

Phylum Hemichordata:

2 Hrs

Eg. *Balanoglossus*

Minor Phyla

1. Chaetognatha Eg. *Sagitta*

2. Sipunculida Eg. *Sipunculus*

References:

1. Barnes, R.D. (1987). Invertebrate Zoology, W.B. Saunders, New York.
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18. Thomas A P (Editor) 2010 The Invertebrates, Green leaf publications Kottayam

PRACTICAL

ANIMAL DIVERSITY- NON CHORDATA

36 Hrs.

Credit 1

Scientific Drawing:-

SEMESTER III. ZY3CMT03.

COMPLEMENTARY COURSE -3

PHYSIOLOGY AND IMMUNOLOGY

54 hrs
Credits 3

Objectives

- 1 To appreciate the correlation between structure and function of organisms
- 2 To make the student aware of the health related problems, their origin and treatment.
- 3 To understand how efficiently our immune system work in our body.
- 4 To acquire knowledge about preventing common diseases rather than curing.

Module I

14 Hrs

Nutrition: Types of nutrition – autotrophy, heterotrophy. Nutritional requirements – carbohydrates, proteins, lipids, minerals (Ca, Fe, I), vitamins (sources and deficiency disorders), nutritional disorders

Respiration: Transport of respiratory gases in blood - transport of oxygen, transport of carbon dioxide, chloride shift. Respiratory disturbances – Hypoxia, Hypercapnia, Asphyxia, physiological effect of smoking, carbon monoxide poisoning.

Circulation: Composition and functions of blood. Plasma and formed elements - WBC, RBC and platelets, Mechanism of blood coagulation – clotting factors, intrinsic and extrinsic pathways, anticoagulants. ECG, Blood pressure, Arteriosclerosis, Hemophilia, cerebral and pulmonary thrombosis.

Module II

14 hrs

Excretion: Structure of a nephron. Urine formation – glomerular filtration, tubular reabsorption, tubular secretion. Urine concentration – counter current mechanism. Composition of urine – normal and abnormal constituents. Hormonal regulation of kidney function. Kidney stone, dialysis.

Neuro physiology: Structure of a neuron. Myelinated and non myelinated nerve fibre, nerve impulse production (resting membrane potential, action potential), Impulse propagation, All or none law, saltatory conduction, synaptic transmission. Neurotransmitters (acetyl choline, adrenalin, dopamine), brain waves, EEG. Neural disorders - Parkinson's disease, Alzheimer's disease.

Muscle physiology: Types of muscles: striated, non striated and cardiac. Ultra structure of striated muscle, Mechanism of muscle contraction, cori cycle and muscle relaxation. Muscle fatigue, oxygen debt, Rigor mortis.

Module III

8 hrs

Endocrinology: Introduction to Endocrine system. Mechanism of hormone action, Endocrine glands - hypothalamus, pituitary gland, pineal gland, thyroid gland, parathyroid gland, endocrine pancreas, adrenal gland, thymus gland, testis and ovary. Physiological role of hormones, Hormonal disorders.

Module IV

12 Hrs

Immunology: Introduction to immunology, types of immunity – innate, acquired, passive, active, mechanism of innate immunity (barriers, inflammation, phagocytosis). Types of antigens. Basic structure of immunoglobulins, Classes of immunoglobulins and functions. Antigen antibody reactions, Precipitation test, agglutination test, WIDAL, VDRL, HIV test (ELISA),

Module V

6 Hrs

Immune response system: (Brief accounts of the followings)

Primary and secondary lymphoid organs, Cells of Immune system - T&B lymphocytes, natural killer cells, macrophages, plasma cells , memory cells, Monoclonal antibodies, Hybridoma technology.

Immune disorders: Hypersensitivity, Auto immunity (rheumatoid arthritis) & Immunodeficiency (AIDS), Vaccines - BCG, DPT, Polio vaccine.

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- Chatterjee C.C 1973: Human Physiology, Vol I 8th edn. Medical Allied Agency, Calcutta
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- Roger Eckert; D Randall; George Augustine 1988: Animal Physiology, Mechanism and Adaptations, W.H Freeman, New York
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- Zoological Society of Kerala, Study material 2002. *Biochemistry, Physiology and Developmental Biology* Published by Zoological Society of Kerala

Make scientific drawings of 5 locally available invertebrate specimens belonging to different phyla.

Anatomy:-

Study of sections. (Any two)

1. Hydra.
2. Ascaris(male and female)
3. Earthworm
4. Fasciola

Dissections

1. Prawn - Nervous system
2. Cockroach - Nervous system

Mounting:-

1. Prawn appendages.
2. Mouth parts - Cockroach/ Plant bug/ House fly / Mosquito. (Any Three)

Identification:-

General identification &classification - The students are expected to identify, classify and describe the following Phylum -wise number of animals by their common names, generic names and 30% of these by their scientific names. Porifera-1, Coelenterata-3, Platyhelminthes-2, Annelida-2, Arthropoda-5, Mollusca- 4, Echinodermata-3

Identification of (a) Parasitic protist – any 2 (b) larval forms of *Fasciola*- any 2 (c) Nematode parasites of man- any 3 (Slides/figures may be used for study)

Taxonomic identification with key:-

Identification of insects up to the level of Order (any Four).

SEMESTER 111. ZY3CRT03

CORE COURSE 111: ANIMAL DIVERSITY –CHORDATA

54 Hrs

3 Credits

Objectives

- To acquire in depth knowledge on the diversity of chordates and their systematic position.
- To make them aware of the economic importance of some classes.
- To understand the evolutionary importance of selected chordate groups

MODULE I

Introduction

1 Hr

General Characters and outline classification of Chordata up to class, Origin of Chordates – mention theories in brief

Protochordates: General characters and Classification

2 Hrs

1. Sub phylum: Urochordata

Class I Larvacea Eg. *Oikopleura*

Class II Ascidiacea Eg: *Ascidia* (Mention Retrogressive Metamorphosis)

Class III Thaliacea Eg: *Doliolum*

2. Sub phylum: Cephalochordata

2 Hrs

Example - *Amphioxus* (Structure and affinities)

MODULE II

3. Sub phylum: Vertebrata General characters and Classification

2 Hrs

4. Division 1– Agnatha

Class I Ostracodermi Eg: *Cephalaspis*

Class II Cyclostomata Eg: *Petromyzon*

Division 2 – Gnathostomata

10 Hrs

Super class Pisces General Characters and Classification

Class: Chondrichthyes - General Characters

Sub class – ElasmobranchI Eg: *Narcine*

Sub class - Holocephali Eg: *Chimaera*

Class: Osteichthyes - General Characters

Sub class – Choanichthyes

Order 1 Crossopterigii(Coelocanth) Eg: *Latimeria*(Evolutionary

Significance)

Order 2 Dipnoi Eg: *Lepidosiren* - Distribution, affinities and systematic position of lung fishes.

Sub class: - Actinopterygii

Super order 1. Chondrostei Eg: *Acipenser*

Super order 2. Holostei Eg: *Amia*

Super order 3. Teleostei Eg: Sardine

General topics

1. Accessory respiratory organs in fishes.
2. Parental care in fishes.
3. Scales in fishes.
4. Migration in fishes

MODULE III

Super class: Tetrapoda General characters, Classification up to Orders **11 Hrs**

Class Amphibia - Type Frog (*Euphlyctis hexadactylus*)

Order I Anura Eg: *Hyla*

Order II Urodela Eg: *Amblystoma* (mention axolotl larva and Paedomorphosis /neotony)

Order III Apoda Eg: *Ichthyophis*.

Class Reptilia

4 Hrs

Sub class I: Anapsida

Order Chelonia Eg: *Chelone*

Sub class II: Parapsida Eg: *Ichthyosaurus*

Sub class III: Diapsida

Order I Rhynchocephalia Eg: *Sphenodon*

Order II Squamata Eg: *Chamaleon*

Order III. Crocodilia Eg: *Crocodylus*

Sub class IV: Synapsida Eg: *Cynognathus*

General topic

Identification of poisonous and non-poisonous snakes

Class Aves

5 Hrs

Sub class I: Archeornithes Eg: *Archaeopteryx* (Affinities)

Sub class II: Neornithes

Super order I: Palaeognathe Eg: *Struthio*

Super order II: Neognathe Eg: Brahminy kite

General topics

1. Migrations in birds
2. Flight adaptations in birds

MODULE IV

Class Mammalia Type: Rabbit (*Oryctolagus cuniculus*)

17 Hrs

Brief mention of general characters and classification up to order with example. (Mention any five salient features of each order, detailed accounts of examples are not necessary)

Sub class I: Prototheria Eg: Echidna, *Ornithorhynchus*

Sub class II: Metatheria Eg: *Macropus*

Sub class III: Eutheria

Order 1 Insectivora Eg: *Talpa*

Order 2 Dermoptera Eg: *Galeopithecus*

Order 3 Chiroptera Eg: *Pteropus*

Order 4 Primates Eg: *Loris*

Order 5 Carnivora Eg: *Panthera*

Order 6 Edentata Eg: *Armadillo*

Order 7 Pholidota Eg: *Manis*

Order 8 Proboscidea Eg: *Elephas*

Order 9 Hydracoidea Eg: *Procavia*

Order 10 Sirenia Eg: *Dugong*

Order 11 Perissodactyla Eg: *Rhinoceros*

Order 12 Artiodactyla Eg: *Camelus*-mention ruminant stomach

Order 13 Lagomorpha Eg: *Oryctolagus*

Order 14 Rodentia Eg: *Hystrix* (Porcupine)

Order 15 Tubulidentata Eg: *Orycteropus*

Order 16 Cetacea Eg: *Delphinus*

General topics

1. Dentition in Mammals
2. Aquatic Mammals and their adaptations.

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2. Jhingran (1977), Fish and Fisheries of India, Hindustan Publishing Co.
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Zoological Society of Kerala, Kottayam
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SEMESTER IV. ZY4CMT04.

COMPLEMENTARY COURSE - 4

APPLIED ZOOLOGY

54 hrs
Credits 3

Objectives

1. To acquire basic knowledge and skills in applied branches of zoology.
2. To understand the technology for utilising ecofriendly organisms around them for beneficial purpose.
3. To equip the students for self employment opportunities with scientific knowledge to perform profitably & confidently.

Module I

24 Hrs

Aquaculture: Advantages of aquaculture, Traditional methods of aquaculture, Biotic and abiotic factors in water, Pond culture – construction and maintenance. Types of aquaculture, composite fish culture, integrated fish culture, induced breeding of carp & prawn, Importance of algae in aquaculture. Aquarium management - Setting up of an aquarium, biological filter and aeration. Common cultivable fishes of Kerala. Fish diseases, Prawn culture, mussel culture, pearl culture, Fish processing and preservation.

Module II

12 Hrs

Sericulture: Four species of silkworms, life history of silkworm, silk worm rearing techniques, Mounting of silkworm - Chandrika, defective cocoons, harvesting and stifling of cocoons. Silkworm diseases and pest, preventive and control measures.

Module III

6 Hrs

Vermiculture: Species of earthworms, ecological classification of earthworms, life cycle and reproduction of earthworm. Physical & chemical effects of earthworms on soil, Vermicomposting – site selection, preparation of pit, maintenance, monitoring and harvesting of vermicompost.

Module IV

12Hrs

Apiculture: Species of honey bees, organization of honey bee colony. Bee keeping methods and equipments. Apiary management and maintenance. Bee pasturage, byproducts of honey bees and their uses. Diseases, pests of honey bees and control measures.

References:

- Alikunhi, K.. H, Fish Culture in India (ICAR, New Delhi)Andhra Pradesh Agricultural University, Hyderabad)
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- Bhosh, C.C., 1949, Silk Production and Weaving in India (CSIR), New Delhi) Director. Zoological Survey of India, 1994, earthworms Resources and Vermiculture
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- Menon, K.N., 1970 Malsyakrishi (State Institute of language, Trivandrum)
- Mysore Silk Association, 1986, Silkworm rearing and Diseases of Silkworms
- Padmanabha Aiyer, K.S., 1992, Records of the Indian Museum Vol. XXXI, Part I, PP. 13-76 An account of the Oligochacta of the Travancore
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- Shukla G.S., & Updhyay V.B., Economic Zoology (Rastogi Publ. Meerut)
- Singh, S., 1962 Bee keeping in India (ICAR, New Delhi)
- Sinhan, V.R.P. & Ramachandran, V., 1985, Fresh water Fish Culture (ICAR, New Delhi)

Pectoral and pelvic girdles of Frog and Rabbit

Bird - Keel and Synsacrum

Turtle/Tortoise - plastron and carapace

5. Study of sections.

Amphioxus T. S. through pharynx/T.S. through intestine

6. Identification:-

General identification-

Identify, classify and describe the following animals by their generic names and 30 % of them by their scientific names.

Protochordata-1, Pisces-5, Amphibia-5, Reptilia- 5, Aves-2, Mammalia-2.

Taxonomic identification with key:-

- i) Identification of fishes up to the level of order.
- ii) Identification of snakes up to family.

SEMESTER IV. ZY4CRT04

CORE COURSE IV

RESEARCH METHODOLOGY, BIOPHYSICS AND BIostatISTICS

54 Hrs

3 Credits

Objectives

1. To familiarise the learner the basic concept of scientific method in research process.
2. To have a knowledge on various research designs.
3. To develop skill in research communication and scientific documentation.
4. To create awareness about the laws and ethical values in biology.
5. To equip the students with the basic techniques of animal rearing collection and preservation
6. To help the student to apply statistical methods in biological studies.

RESEARCH METHODOLOGY

Module I

13 Hrs

Basic concepts of research: Meaning, Objectives, Approaches, Types of research.

Research Process: Scientific method in research (eight steps).

Importance of literature reviewing in defining a problem,

Identifying gap areas from literature review.

Research Communication and scientific documentation: Project proposal writing,

Research report writing, (Structure of a scientific paper), Thesis, dissertation, research article.

Presentation techniques: Oral presentation, Assignment, Seminar, Debate, Workshop,

Colloquium, Conference

Sources of Information: Primary and secondary sources. Library- Books, Journals,

Periodicals, Reviews, Internet.

Search engines Online libraries, e-Books, e-Encyclopedia, Institutional Websites.

Plagiarism

Module II

12 Hrs

Animal Collection – Tools & techniques

Sampling techniques

 Quadrat

 Line transect

Measurements

 Density

 Abundance

 Frequency

Biodiversity indices – concepts

 Simpson index

Collection methods, techniques and equipments

 Plankton

 Insects

 Fish

Bird

Preservation techniques – Taxidermy

Rearing techniques

Laboratory and field.

Units of measurements- units, SI system, Equivalent weight, normality, molarity

BIOPHYSICS

Module III

14 Hrs

Basic understanding on principle and uses of the following:

Microscopy

(a) Light microscopy, Bright field (Compound Microscope), Phase contrast, Dark field microscopy, Fluorescence, Polarization microscopy, Video microscopy.

(b) Electron - Scanning (SEM), Transmission (TEM) and STEM

Micrometry – Stage and Eyepiece micrometers

Camera Lucida

Instrumentation

pH Meter

Separation Techniques: Centrifuge, Chromatography, Electrophoresis

Analytical techniques: Colorimeter, Spectrophotometer, X-ray crystallography

BIOETHICS

Module IV

5 Hrs

Bioethics : Introduction, Animal rights and animal laws in India, Prevention of cruelty to animals Act 1960, Biodiversity Act 2003.

Concept of 3 R – conservation (Refined- to minimize suffering, Reduced – to minimize animals, Replaced – modern tools and alternate means), Animal use in research and education.

Laboratory animal use, care and welfare, Animal protection initiatives- Animal Welfare Board of India, CPCSEA, ethical commitment. Working with human: Consent, harm, risk and benefits.

Module V

Sample & Sampling techniques: Collection of data, classification of data, frequency distribution tables, graphical representation: - Bar diagrams, Histogram, Pie diagram and Frequency curves - Ogives.

Measures of Central Tendency: Mean, Median, Mode (Problem - Direct method only)

Measures of dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Standard error. (Merits & demerits and problems on SD).

Correlation: Definition, Types of correlation.(mention in brief)

Test of Hypothesis and Test of Significance: Basic concept, Levels of significance, test of significance, Procedure for testing hypothesis, types of hypothesis- Null hypothesis and Alternate hypothesis.

References

1. Gupta K.C, Bhamrah, H.S and G.S.Sandhu (2006) Research Techniques in Biological Sciences. Dominant Publishers and Distributors, New Delhi.
2. Khan and Khanum, (1990) Fundamentals of biostatistics.Press, Chicago,
3. Rastogi, V.B (2009) Fundamentals of Biostatistics, Ane Books Pvt. Ltd. New Delhi.
4. Ackoff, R.L. (1962) Scientific Method, New York : John Wiley Press.
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9. Day, R.A. (1993). How to write and publish a scientific paper. Cambridge University Press.
10. Day, R.A. (2000) Scientific English: A guide for Scientists and other Professionals. Universities Press.
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15. Knudsen J. W (1966) Biological Techniques: Collecting,Preserving, and Illustrating Plants and Animals.
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18. Norman T.J. (2007) Bailey Statistical methods in biology, Cambridge University press.
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20. Ruxton, G.D. and Colegrave, N. (2006), Experinmental design for the life sciences. Oxford University Press.
21. Sateesh, M.K. (2008) Bioethics and Biosafety; I.K. International Publishing House .

7. Graphical representation of data. Construction of bar diagrams, Histograms, Pie diagram and Line graphs.

SEMESTER V. ZY5CRT05

CORE COURSE V

ENVIRONMENTAL BIOLOGY AND HUMAN RIGHTS

54 Hrs

Objectives

To instill the basic concepts of Environmental Sciences, Ecosystems, Natural Resources, Population, Environment and Society

To make the students aware of natural resources, their protection, conservation, the factors polluting the environment, their impacts and control measures.

To teach the basic concepts of toxicology, their impact on human health and remedial measures

To create a consciousness regarding Biodiversity, environmental issues & conservation strategies

To develop the real sense of Human rights – its concepts & manifestations

MODULE 1 ECOSYSTEM

12 Hrs

Basic concepts of ecosystem Components of ecosystem: Abiotic (Sunlight, temperature, soil, water, atmosphere) and Biotic components (Producers, consumers, decomposers), Ecological pyramid- number, biomass, energy, **Functions of ecosystem:** Productivity-Food chain-Food web-Energy flow-Laws of Thermodynamics.Types of Ecosystem: Terrestrial-Forest-Grassland-Desert, Aquatic-Marine-Fresh water, Wetland &Biome **Concept of limiting factors:** Liebig's and Shelford's laws of limiting factors.

Biogeochemical cycles: Concept, gaseous and sedimentary cycles, Carbon cycle, Nitrogen cycle.

Renewable resources (solar, wind, hydroelectric, biomass and geothermal) **and Non renewable resources** (mineral and metal ore, fossil fuels)

MODULE 2 CONCEPTS OF POPULATION AND COMMUNITY 8 Hrs

Concept of population: Population attributes- Population growth forms, Basic concepts of growth rates, density, natality, mortality, growth curves

Animal interactions: Positive- Commensalism- Mutualism-Protocooperation, Negative-Predation-Parasitism-Competition-Antibiosis

Characteristics of a community: Species diversity- richness, evenness, stratification, dominance, ecological indicators, Ecotone and Edge effect, Keystone species, Concepts of Ecological Niche and Guild, Ecological succession, community evolution- climax.

MODULE 3 BIODIVERSITY AND ENVIRONMENTAL ISSUES 16 Hrs

Introduction to Biodiversity: Types of biodiversity- Alpha, Beta and Gamma diversity. **Concept and importance of Biodiversity:** Levels of Biodiversity-Species diversity, Genetic diversity, Microbial, Ecosystem diversity, India as a mega-diversity nation, Biodiversity hotspots

Global Environmental Issues: Ozone depletion, Greenhouse effect, Global warming, Climate change, Carbon trading, carbon credit; Carbon sequestration, Acid rain, Oil spills, Nuclear accidents, IPCC/UNFCCC.

National Environmental issues: Deforestation, forest fire, pollution(air, water, soil, noise thermal, nuclear- brief account only) solid waste management, sewage, drinking water crisis and water logging,

Toxic products and disaster: Types of toxic substances – degradable, non degradable, Impact on human – case studies: Endosulphan tragedy, Bhopal disaster

Flood, drought, cyclone, earthquake and landslide (Management and mitigation)

Local Environmental issues: Landscape alteration, sand mining, quarrying, changing crop pattern, conversion of paddy lands,

Threats to water resources of Kerala: Degrading Mangrove and wetland ecosystems of Kerala,

RAMSAR sites, Marine ecosystem crisis- pollution, overfishing etc. Impact of tourism on Environment.

MODULE 4 CONSERVATION OF BIODIVERSITY

12 Hrs

Protected area concept – Sanctuary, National Park, Biosphere reserve, Core Zone, Buffer Zone, Corridor concept. Conservation reserves

Concept of threatened fauna – IUCN categories - extinct, extinct in the wild, critically endangered, endangered, vulnerable, near threatened, least concern and data deficient. Red and Green Data Books.

Man–animal conflict (Tiger, Elephant, Dog, Monkey) – causes and concern

Water conservation- rainwater harvesting, watershed management

Environment education

Environmental laws (Brief account only): The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981, Indian Forests Act (Revised) 1982. The Environment (Protection) Act, 1986, Hazardous Wastes (Management and Handling) Rules, 1989, The Forest (Conservation) Act, 1980, The Wildlife Protection Act, 1972, Biodiversity Act, 2002.

MODULE 5 HUMAN RIGHTS

6 Hrs

Introduction, main concepts associated with Human Rights, Different types of human rights, Manifestations & phenomena, Role of agencies in promoting human rights, Mechanisms for checking violations of human rights, National human right commission, Constitutional provisions related to Human rights.

References

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7. Paul R.C., 2000.Situations of Human Rights in India. Efficient offset printers. .
8. Arun kumar Palai(1999) National Human Rights Commission of India, Atlantic publishers
9. Sharma P.D. (2005)Environmental biology and Toxicology, Rastogi publication
10. Meera Asthana and Astana D.K.1990 Environmental pollution and Toxicology Alka printers.
11. Odum, E.P. 1971.Fundamentals of Ecology.W.B. Saunders College Publishing,Philadelphia
12. Alan Beeby, 2006 Anne – Maria Brennan First Ecology, Ecological principles and Environmental issues . International students edition Sec. edition Oxford University Press.
13. Robert Ricklefs (2001). The Ecology of Nature. Fifth Edition. W.H. Freeman and Company.
14. Stiling Peter (2002). Ecology: Theories and applications. Prentice Hall of India pvt.Ltd. New Delhi.
15. Landis, Wayne and Hing-hoYu, Baca Raton, 1995. Introduction to Environmental Toxicology: Impacts of chemicals upon Ecological systems: Lewis Publishers.

PRACTICAL
ENVIRONMENTAL BIOLOGY & TOXICOLOGY

36 HRS

CREDIT 1

1. Estimation of dissolved Oxygen
2. Estimation of carbon di oxide
3. Estimation of soil organic carbon (Demonstration only)
4. Identification of marine/ fresh water planktons
5. Counting of plankton using plankton counting chamber
6. Study of equipments - Sechi disc, Plankton net
7. Study of sandy shore fauna, rocky shore fauna.
8. Study of animal Association
9. Visit to any two important areas of bio diversity: 1. Forest, 2.Sea shore, 3. Mangrove, 3.

(use photographs or Xerox copies)

4. Sexing of *Drosophila*.
5. Study of Barr body in human buccal epithelium

SEMESTER V. ZY5CRT07

CORE COURSE - V11: EVOLUTION, ETHOLOGY & ZOOGEOGRAPHY

54 Hrs

Credits 3

Objectives:

- To acquire knowledge about the evolutionary history of earth - living and nonliving
- To acquire basic understanding about evolutionary concepts and theories
- To study the distribution of animals on earth, its pattern, evolution and causative factors
- To impart basic knowledge on animal behavioural patterns and their role

Prerequisite:

- Basic knowledge on principles of inheritance and variation
- Knowledge on molecular basis of inheritance
- Basic understanding on the mechanism and factors affecting evolution
- Knowledge on origin and evolution of man

PART I - EVOLUTION

30 Hrs

Module I - Origin of life

8 Hrs

Theories - Panspermia theory or Cosmozoic theory, Theory of spontaneous generation (Abiogenesis or Autogenesis), Special creation, Biogenesis, Endosymbiosis.

Chemical evolution - Haldane and Oparin theory, Miller-Urey experiment;

Direct evidences of evolution – Recapitulation Theory of Haeckel, Fossilization, Kinds of fossils, fossil dating, Homologous organs and analogous organs.

Module II - Theories of organic evolution

9 Hrs

Lamarckism and its Criticism, Weismann's Germplasm theory, Darwinism and its Criticism, Neo-Darwinism, Theory of De Vries,

Population genetics and evolution: Hardy-Weinberg Equilibrium, gene pool, gene frequency. Factors that upset Hardy-Weinberg Equilibrium, Effects of genetic drift on population: Bottleneck effect and founder effect

Module III – Nature of evolution **13 Hrs**

Species and Speciation: Species concept, subdivisions of species (sub species, sibling species, cline and deme), Speciation: Types of speciation, Phyletic speciation (autogenous and allogenuous transformations), True speciation, Instantaneous and gradual speciation, allopatric and sympatric speciation

Isolation: Types of isolating mechanisms-Geographic isolation (mention examples) and Reproductive isolation. Role of isolating mechanisms in evolution

Microevolution, Macroevolution (Adaptive radiation -Darwin finches) Mega evolution, Punctuated equilibrium, Geological time scale, and Mass extinction (brief account only).

Evolution of Horse

PART II- ETHOLOGY **14 Hrs**

Module IV – Introduction **1 Hr**

Definition, History and scope of ethology

Module V – Learning, imprinting and behaviour **9 Hrs**

Types of learning with examples; patterns of behaviors – types of rhythms, navigation, homing instinct, hibernation, aestivation; pheromones- types and their effect on behavior, hormones and their action on behavior (aggressive and parental behavior)

Module VI – Social organization **4 Hrs**

Social organization in insects (ants) and mammals (monkey), Courtship behaviour and reproductive strategies

PART III- ZOOGEOGRAPHY **10 Hrs**

Module VII – General Topics **4 Hrs**

Continental drift theory, Types and means of animal distribution, Factors affecting animal distribution; insular fauna – oceanic islands and continental islands,

Module VIII - Zoogeographical realms **6 Hrs**

Palearctic region, Nearctic region, Neotropical region, Ethiopian region, Oriental region, Australian region (brief account with physical features and fauna, Wallace's line, Weber's line, Biogeography of India with special reference to Western Ghats

References:

EVOLUTION

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2. Barnes, C.W. (1988). Earth, Time and Life. John Wiley & Sons, New York
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12. Rob Desalle and Ian Tattersall (2008). Human Origins: What Bones and Genomes Tell Us about Ourselves. Texas A&M University Press, USA.
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ETHOLOGY

1. Agarwal. V. K. (2009). Animal Behaviour. S. Chand and Company Pvt. Ltd., New Delhi.
2. Bonner, J.T. (1980). The Evolution of Culture in Animals. Princeton University Press. NJ, USA.
3. David McFarland. (1999). Animal Behaviour. Pearson Education Ltd. Essex, England.
4. Dawkins, M.S. (1995). Unravelling Animal Behaviour. Harlow: Longman.
5. Dunbar, R. (1988). Primate Social Systems. Croom Helm, London.
6. Gundevia J.S. and Singh H.G. (1996), A Text Book of Animal Behaviour. S. Chand and Company Pvt. Ltd., New Delhi.
7. Aubrey M. and Dawkins M.S. (1998). An Introduction to Animal Behaviour. Cambridge University Press, UK.
8. Sherman P.W and Alcock J., (2001) Exploring Animal Behaviour- Readings from

Wet lands, 4. Bird sanctuary, 5. Wild life sanctuary, 6. Sacred groves
Field study (compulsory)

SEMESTER V. ZY5CRT06

CORE COURSE VI CELL BIOLOGY AND GENETICS

**54 Hrs
Credits 3**

Objectives

1. To understand the structure and function of the cell as the fundamentals for understanding the functioning of all living organisms.
2. To make aware of different cell organelles, their structure and role in living organisms.
3. To develop critical thinking, skill and research aptitudes in basic and applied biology
4. To emphasize the central role of genes and their inheritance in the life of all organisms.

CELL BIOLOGY

22 HRS

Module I

6 Hrs

Introduction of cell and Diversity of cells: History, Cell theory, Prokaryotes, Eukaryotes, Mycoplasmas, Virus, Virions and Viroids, Prions.

Cell membrane & Permeability: Molecular models of cell membrane (Sandwich model, Unit membrane model, Fluid mosaic model). Cell properties - permeability, Transport [Diffusion, Osmosis, Passive transport, Active transport, bulk transport], Cell coat and Cell recognition.

Module II

10 Hrs

Cell Organelles :Structure and functions of following cell organelles: Endoplasmic reticulum - Structure and functions. Ribosomes (Prokaryotic and Eukaryotic) Golgi complex - Structure and functions. Lysosomes - Polymorphism - GERL concept, functions.

Mitochondria - Structure and functions. Nucleus: Structure and functions of interphase nucleus, Nuclear membrane, pore complex, structure and functions of nucleolus

Chromosomes – Structure & organization, Heterochromatin, Euchromatin, Nucleosomes, Polytene chromosomes-Balbiani rings, Endomitosis, Lamp brush chromosomes.

Module III

6 Hrs

Cell Communication: Basic principles of cell communications, Cell signaling (in brief), Types of signaling, Mention signaling molecules (neurotransmitters, hormones, Growth Factors, Cytokines Vitamin A and D derivatives),

Cell Division: Cell cycle - G₁, S, G₂ and M phases, Mitosis and Meiosis. The difference between Mitosis and Meiosis.

References

- 1 Zoological Society of Kerala Study material. 2002. *Cell Biology, Genetics and Biotechnology*
2. Karp, G. (2010). *Cell and Molecular Biology: Concepts and Experiments*. VI Edition. John Wiley and Sons. Inc.
3. Koshy Thomas & Joe Prasad Mathew (Editors) (2011) *Cell Biology and Molecular Biology*.
4. Sarada K & Mathew Joseph (Editors) (1999) *Cell Biology, Genetics and Biotechnology*,
5. Thomas A.P (Editor) (2011) *Cell & Molecular Biology The Fundamentals*. Green leaf publications. TIES. Kottaya
6. Rastogi S. C. (1998) *Cell Biology*. Tata Mc.Graw Hill Publishing Co., New Delhi.
7. Powar C.B. (1983) *Cell Biology* (Himalaya Pub. Company)
8. Ali, S (2014) *The Cell: Organization Function and Regulatory Mechanisms*, Pearson
9. Becker, W.M., Kleinsmith, L.J., Hardin. J. and Bertoni, G. P. (2009). *The World of the Cell*. VII Edition. Pearson Benjamin Cummings Publishing, San Francisco. 4

10. Bruce Albert, Bray Dennis, Levis Julian, Raff Martin, Roberts Keith and Watson James (2008). *Molecular Biology of the Cell*, V Edition, Garland publishing Inc., New York and London.
11. Cooper, G.M. and Hausman, R.E. (2009). *The Cell: A Molecular Approach*. V Edition. ASM Press and Sunderland, Washington, D.C.; Sinauer Associates, MA.
12. De Robertis, E.D.P. and De Robertis, E.M.F. (2006). *Cell and Molecular Biology*. VIII Edition. Lippincott Williams and Wilkins, Philadelphia.
13. Gupta, P. K (2002) *Cell and Molecular Biology*, (2ed), , Rastogi Publications., Meerut
14. James Darnell. (1998) *Molecular Biology*. Scientific American Books Inc
15. Ariel G Loewy Philip Sickevitz, John R. Menninger and Jonathan A.N. Gallants (1991) cell structure and function. Saunder's College Publication
16. James Darnell. (1998) *Molecular Biology*. Scientific American Books Inc.

GENETICS **32 Hrs**

Module I **10 Hrs**

Mendelian Genetics: Mendel's experiments- Monohybrid Cross, Dihybrid Cross, Mendel's Laws, Test Cross, Back Cross and Reciprocal Cross. Chromosome Theory of Inheritance

Interaction of genes: Allelic: Incomplete Dominance (Four O Clock Plant). Co- Dominance (Skin colour in Cattle) Lethal Alleles: Dominant lethal gene [Creeper chicken] and recessive lethal gene [cystic fibrosis].

Non Allelic: Complementary (Flower colour in Sweet Pea), Supplementary (Coat colour in mice), Epistasis - dominant (Plumage in poultry) and recessive (Coat colour in mice). Polygenes (Skin colour inheritance in man), Pleiotropism (Vestigial wing gene in *Drosophila*).

Multiple alleles – ABO Blood group system, Rh group and its inheritance. Erythroblastosis foetalis.

Module II **12 Hrs**

Sex determination: Chromosome theory of sex determination (Autosome and Sex chromosomes), male heterogamy and female heterogamy, (xx-xy, xx-xo, ZZ-ZW, ZZ-ZO), Genic Balance theory of Bridges. Barr bodies, Lyon's hypothesis, Gynandromorphism, sex

mosaics, intersex (*Drosophila*), Hormonal [free martin in calf] and Environmental (Bonelia) influence on Sex determination

Recombination and Linkage: Linkage and recombination of genes based on Morgan's work in *Drosophila*, Linked genes, Linkage groups, Chromosome theory of Linkage, Types of linkage- complete and incomplete. Recombination, cross over value, chromosome mapping. [Definition]

Sex Linked inheritance : Characteristics of Sex Linked inheritance, X Linked inheritance of man (Hemophilia), Y linked inheritance [Holandric genes] , Incompletely Sex Linked genes or pseudoautosomal genes (Bobbed bristles in *Drosophila*), Sex limited genes (Beard in man) and Sex influenced genes (inheritance of baldness in man).

Module III

10 Hrs

Mutation: Types of mutations - Somatic, germinal, spontaneous, induced, autosomal and allosomal, chromosomal mutations, structural and numerical changes. Gene mutations. [Addition, Deletion and substitution].

Human Genetics: Karyotyping, Normal Human chromosome Complement, Pedigree analysis, Aneuploidy and Non- disjunction. Autosomal abnormalities (Down syndrome, Cry du chat syndrome) Sex chromosomal abnormalities (Klinefelters syndrome, Turner's syndrome) Single gene disorder (Brief mention) Autosomal single gene disorder [sickle cell anaemia), Inborn errors of metabolism such as phenylketonuria, alkaptonuria, , Albinism. Multifactorial traits – polygenic disorder- cleft lip and cleft palate.

Genetic Counseling, Eugenics and Euthenics -Brief account only

References

1. Gardner, J.E., Simmons, J.M and Snustad D.P..(2007). *Principles of Genetics* (8th edn.). John Wiley and Sons, India.
2. Klug, W.S and Cummings,M.R. (2011). *Concepts of Genetics* (7th edn).Pearson Education Inc.India.
3. Sarada K & Mathew Joseph (Editors) (1999) *Cell Biology, Genetics and Biotechnology*,
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5. Singh,B.D.(2006). *Biotechnology*.Kalyani Publishers, New Delhi.
6. Thomas A. P (Editor), (2012). *Genetics and Biotechnology- The Fundamentals*. Green Leaf Publications, TIES, Kottayam.
7. Vijayakumaran Nair K. (2012). *Genetics and Biotechnology*. Academica, Trivandrum.

10. Pheromone traps
11. Skinner box & T Maze
12. Experiment to demonstrate phototaxis and chemotaxis using Drosophila/House fly
13. Identification of behaviour (Grooming/courtship dance of flamingos/stickle back fish/
Tail wagging dance/ Aggressive behaviour/ Auto/Allo grooming, Flehmen response)
showing pictures (Any five)

SEMESTER V. ZY5CRT08

CORE COURSE VIII

HUMAN PHYSIOLOGY, BIOCHEMISTRY, AND ENDOCRINOLOGY

54 Hrs

Credits 3

Objectives:

1. This course will provide students with a deep knowledge in biochemistry, physiology and endocrinology.
2. Defining and explaining the basic principles of biochemistry useful for biological studies for illustrating different kinds of food, their structure, function and metabolism.
3. Explaining various aspects of physiological activities of animals with special reference to humans.
4. Students will acquire a broad understanding of the hormonal regulation of physiological processes in invertebrates and vertebrates.
5. By the end of the course, students should be familiar with hormonal regulation of physiological systems in several invertebrate and vertebrate systems.
6. This also will provide a basic understanding of the experimental methods and designs that can be used for further study and research.

7. The achievement of above objectives along with periodic class discussions of current events in science, will benefit students in their further studies in the biological/physiological sciences and health-related fields, and will contribute to the critical societal goal of a scientifically literate citizenry.

HUMAN PHYSIOLOGY

31 Hrs

Module I

8 Hrs

Nutrition: Nutritional requirements – carbohydrates, proteins, lipids, minerals (Ca, P, Fe, I), vitamins (sources and deficiency disorders). Importance of dietary fibre and antioxidants. Balanced diet, Recommended Dietary Allowance (RDA). Nutrition during pregnancy and lactation, Infant nutrition, Malnutrition (PEM).

Digestion: Anatomy and histology of digestive glands (liver, pancreas, salivary, gastric and intestinal). Digestion and absorption of carbohydrates, proteins and fats. Nervous and hormonal control of digestion.

Module II

8 Hrs

Respiration: Phases of respiration (external respiration, gas transport and internal respiration). Respiratory pigments: Haemoglobin, Myoglobin (Structure and Function). Transport of respiratory gases - transport of oxygen, oxyhaemoglobin curve, factors affecting oxyhaemoglobin curve, transport of carbon dioxide, (chloride shift). Control of respiration. Respiratory disturbances (Hypoxia, Hypercapnia, Asphyxia). Physiological effect of smoking, carbon monoxide poisoning, Oxygen therapy and artificial respiration.

Circulation: ESR, Haemopoiesis, blood pressure, ECG. Haemostasis (blood coagulation) – clotting factors, intrinsic and extrinsic pathways, anticoagulants and its mechanism of action. Cardiovascular diseases (Jaundice, Atherosclerosis, Myocardial infarction, Thrombus, Stroke). Angiogram and angioplasty.

Module III

5 Hrs

Excretion: Histology of Bowman's capsule and tubular part. Urine formation – glomerular filtration, tubular reabsorption, tubular secretion. Urine concentration – counter current mechanism. Acid – base balance, hormonal regulation of kidney function. Renal disorders (kidney stone, acute and chronic renal failure, and dialysis). Homeostasis: Definition,

concept and importance in biological system. Thermal regulation and thermal adaptation in homeotherms.

Module IV

10 Hrs

Nerve physiology: Ultra structure of neuron. Nerve impulse production (resting membrane potential, action potential), transmission of impulse along the nerve fiber, interneuron (synaptic) transmission, neuromuscular junction and transmission of impulses. Neurotransmitters (acetyl choline, adrenalin, dopamine). EEG. Memory, Neural disorders (brief account on Dyslexia, Parkinson's disease, Alzheimer's disease, Epilepsy).

Muscle physiology: Ultra structure of striated muscle, muscle proteins (myosin, actin, tropomyosin, troponin), Muscle contraction and relaxation-Sliding Filament Theory, cross bridge cycle, biochemical changes and ATP production in muscle, Cori cycle. Kymograph, Simple muscle twitch, muscle fatigue, tetanus, rigor mortis.

BIOCHEMISTRY

15 Hrs

Module V

5 Hrs

Carbohydrates: Basic structure, biological importance and classification of monosaccharides, oligosaccharides, polysaccharides with examples.

Proteins: Basic structure and classification of amino acids; structure, biological importance and classification of proteins with examples.

Lipids: Structure of fatty acid, saturated and unsaturated fatty acid, biological importance and classification of lipids with examples.

Vitamins and minerals: Major fat soluble and water soluble vitamins. Important minerals and trace elements required for living organisms. Biological importance of vitamins and minerals.

Enzymes: Chemical nature of enzymes, enzyme activation, enzyme inhibition, allosteric enzymes, isoenzymes, co-enzymes. Michaelis–Menten enzyme kinetics.

Module VI

10 Hrs

Carbohydrate metabolism: Glycogenesis, Glycogenolysis, Gluconeogenesis, Hexose monophosphate Shunt, Glycolysis, Citric Acid Cycle, Electron Transport Chain and ATP synthesis. Ethanol metabolism.

Protein metabolism: Deamination, Transamination, Transmethylation, Decarboxylation, Ornithine cycle.

Lipid metabolism: Biosynthesis of fatty acids, Beta oxidation, physiologically important compounds synthesized from cholesterol.

ENDOCRINOLOGY

Endocrinology and reproduction **8 Hrs**

Module VII **8 Hrs**

Endocrine physiology: Hormones – classification and mechanism of hormone action. Major endocrine glands(Histology is not included) their hormones, functions and disorders (hypothalamus, pituitary gland, pineal gland, thyroid gland, parathyroid gland, islets of Langerhans, adrenal gland),. Homeostasis and feedback mechanism.

References

Albert L. Lehninger, Michael Cox and David L. Nelson; 2004; Biochemistry Lehninger.

Palgrave – Macmillan.

Arthur C. Guyton and John E. Hall; 2016; Text Book of Medical Physiology: Guyton, 13th edition; Elsevier

Barrington, E. J. W.; 1975; General and Comparative Endocrinology, Oxford, Clarendon Press.

Bhagavan, N.V.. 2007. Medical biochemistry, fourth edition Academic Press,

Awapara J, 1968. Introduction to Biological chemistry. Prentice Hall. New Jersey

Geetha N. 2014. Textbook of Medical Physiology:. Paras Medical Publishers, 3rd edition

Jain, A K.; 2016; Textbook of Physiology., Avichal Publishing Company

Martin, C.R. 1985. Endocrine Physiology: Oxford University Press.

Melmed, Shlomo, Williams, Robert Hardin; 2011; Textbook of Endocrinology: Elsevier,

12th edition

Prosser and Brown,; 1962; Comparative Animal Physiology:, W. B. Saunders Co., West
Washington Square, Philadelphia 5.

Rastogi, S. C.; 2007; Outlines of Biochemistry . CBSPublishers, New Delhi.

Robert K. Murray and Victor W. Rodwell; 2012; Harper's Illustrated Biochemistry, Harper;. 29th edition (Lange basic science.)

Sarada Subramanyam and K. Madhavankutty; 2014; Textbook of human physiology.,
S.Chand & Company Ltd,

Satyanarayana U. and Chakrapani, U.; 2013. Biochemistry Elsevier; 4 edition

PRACTICAL

HUMAN PHYSIOLOGY, BIOCHEMISTRY, AND ENDOCRINOLOGY

36 Hrs

Credit1

HUMAN PHYSIOLOGY

- 1). Determination of haemoglobin content of blood
- 2). Total RBC count using Haemocytometer
- 3). Total WBC count using Haemocytometer
- 4). Estimation of microhaematocrit
- 5). Effect of hypertonic, hypotonic and isotonic solutions on the diameter of RBC.
- 6). Instruments: Kymograph, Sphygmomanometer and Stethoscope (principle and use)
- 7). Measurement of blood pressure using sphygmomanometer (demonstration only)

BIOCHEMISTRY

1. Qualitative analysis of protein, glucose, starch and lipids.
2. Chromatography – Determination of Rf value of amino acids and identification of amino acids (Identify the Amino Acids using different solvent front and solute front)

OPEN COURSE (FOR OTHER STREAMS)

ZY5OPT02

2. PUBLIC HEALTH AND NUTR

72 Hrs

4hrs/Week

Credits 3

Objectives:

- To inculcate a general awareness among the students regarding the real sense of health.
- To understand the role of balanced diet in maintaining health.
- To motivate them to practice yoga and meditation in day-to-day life.

PART I HEALTH, EXERCISE & NUTRITION

Module 1 Definition and Meaning of Health

10 Hrs

Dimensions and Determination of Health

Physical Activity and Health benefits

Effect of exercise on body systems – Circulatory, Respiratory, Endocrine, Skeletal and Muscular

Programmes on Community health promotion (Individual, Family and Society) Dangers of alcoholic and drug abuse, medico-legal implications

Module 2 Nutrition and Health

10 Hrs

Concept of Food and Nutrition, Balanced diet

Vitamins, Malnutrition, Deficiency Disease

Determining Caloric intake and expenditure

Obesity, causes and preventing measures

Role of Diet and Exercise, BMI

Module 3 Safety Education in Health promotion

8 Hrs

Principles of Accident prevention

Health and Safety in daily life.

Health and Safety at work.

First aid and emergency care.

Common injuries and their management.

Modern life style and hypokinetic diseases.

Diabetese, Cardiovascular disorders-Prevention and Management.

Module 4 Life Skill Education 8 Hrs

Life skills, emotional adjustment and well being,. Yoga, Meditation and Relaxation, Psychoneuroimmunology

PART II PUBLIC HEALTH AND SANITATION

Module 5 Public health and water quality. 11 Hrs

Potable water, Health and Water quality

Faecal bacteriae and pathogenic microorganisms transmitted by water. Determination of sanitary quality of drinking water, water purification techniques

Module 6 Public health and diseases 15 Hrs

Water borne dseases-Cholera and Typhoid.Prevention of Water borne diseases.

Food borne diseases and Prevention

Botulinum, Salmenellosis, Hepatitis A

Vector borne diseases & Control measures

Chikungunya , Filariasis and Dengu fever

Zoonotic disease-Leptospirosis & its control

Emerging diseases - Swine flue (H1N1), bird flue (H5N1),

SARS, Anthrax

Re-emerging diseases –TB, Malaria

Health Centre visit & Report Presentation 10 Hrs

References:

1. Gladys Francis & Mini K.D., (Editors) (2012), Microbiology, Zoological Society of Kerala, Kottayam.
2. Greenberg, Jerol S and Dintiman George B (1997) Wellness Creating a life of Health and Fitness , London Allyn and Bacon Inc.
3. K Park, (2008) Park's Text Book of Preventive and Social Mediine 18th Edition. Banarasidass Bhenot Publication
4. Norman Bezzaant HELP First Aid for everyday emergencies. Jaico Publishing House, Bombay, Delhi

5. Tom Sanders and Peter Emery. (2004) Molecular basis of human nutrition: Taylor & Francis Publishers Ane Book
6. Pelczar M.J. Jr. E.C.S. Chane & N.R. Krieg, Microbiology (Concept & Applications). 5th edition. Tata McGraw Publishing Company Ltd.

SEMESTER V.

OPEN COURSE (FOR OTHER STREAMS)

ZY5OPT03

3. MAN, NATURE AND SUSTAINABLE DEVELOPMENT

72 Hrs
4Hrs/Week
Credits 3

Objectives:

1. To understand how Man originated and attained present status
2. To learn the basic concepts of Ecosystems and its functioning
3. To study the use and abuse of nature by Man
4. To learn the different resources available on earth
5. To study global environmental problems and its impact on human well being
6. To appreciate the perspectives of Man on nature and learn the strategies for conservation
7. To familiarize with sustainable development and develop an attitude for sustainability

Module I. Man in Nature

10 Hrs

Introduction

Evolution of Man

Out of Africa and Candelabra Model

The Fossils and the Molecular Evidences

Hunter-Gatherer and the Agriculturist

Speech and Languages

Cultural Evolution

Altruism and Morality

Module II. The Biosphere

10 Hrs

Earth-Continents and Continental drift

ENDOCRINOLOGY

1. Cockroach – Corpora cardiaca & Corpora allata (Demonstration)
2. Effect of adrenalin on heart beat of Cockroach (Demonstration)

SEMESTER VI. ZY6CRT09

CORE COURSE IX DEVELOPMENTAL BIOLOGY

54 Hrs
3 Credits

Objectives:

1. To achieve a basic understanding of the experimental methods and designs that can be used for future studies and research.
2. To provide the students with the periodic class discussions of current events in science which will benefit them in their future studies in the biological/physiological sciences and health-related fields
3. To contribute to critical societal goal of a scientifically literate citizenry.

Module 1

10 Hrs

Introduction: Definition, Scope of developmental biology, sub-divisions (descriptive, comparative, experimental and chemical), historical perspectives, basic concepts and theories.

Reproductive Physiology: Gonads- anatomy of testis and ovary, spermatogenesis, oogenesis, gonadal hormones and their functions. Hormonal control of human reproduction - Female reproductive cycles (Estrous cycle, Menstrual cycle). Structure of mammalian sperm and egg, Pregnancy, parturition and lactation. Reproductive health and importance of sex education.

Egg types: Classification of eggs based on the amount, distribution and position of yolk. Mosaic and regulative, cleidoic and noncleidoic eggs. Polarity and symmetry of egg.

Fertilization: Mechanism of fertilization-(Encounter of spermatozoa and Ova, Approach of the Spermatozoon to the Egg, Acrosome Reaction and Contact of Sperm and Ovum, Activation of Ovum, Migration of Pronuclei and Amphimixis,), Significance of fertilization, Polyspermy, Parthenogenesis- Different types and significance.

Module II

14 Hrs

Cleavage: Types, planes and patterns of cleavage, Cell lineage of Planaria. Influence of yolk on cleavage.

Blastulation: Morula, blastula formation, types of blastula with examples.

Fate maps: Concept of fate maps, construction of fate maps (artificial and natural), structure of a typical chordate fate map. Significance of fate map.

Gastrulation: Major events in gastrulation. Morphogenetic cell movements. Influence of yolk on gastrulation. Exogastrulation. Concept of germ layers and derivatives.

Cell differentiation and gene action: Potency of embryonic cells (Totipotency, Pluripotency, Unipotency of embryonic cells). Determination and differentiation in embryonic development, Gene action during development with reference to Drosophila (maternal effect genes), Zygotic genes.

Module III

20Hrs

Embryology of Frog: Gametes, fertilization, cleavage, blastulation, fatemap, gastrulation, neurulation, notogenesis. Differentiation of Mesoderm and Endoderm, Development of eye. Metamorphosis of frog, Hormonal and environmental control.

Embryology of chick: Structure of egg, fertilization, cleavage, blastulation, fate map, gastrulation. Development and role of Primitive streak, Salient features of 18hour, 24 hour, 33 hour & 48 hour chick embryo. Extra embryonic membranes in chick.

Human development: Fertilisation, cleavage, blastocyst, implantation, placenta. Gestation, parturition and lactation. Human intervention in reproduction, contraception and birth control. Infertility, In vitro fertilization (test tube baby)

Module IV

5Hrs

Experimental embryology: Spemann's constriction experiments, Organizers and embryonic induction. Embryo transfer technology, cloning, stem cell research. Ethical issues.

Teratology / Dysmorphology, Developmental defects: Teratogenesis, important teratogenic agents. (Radiations, chemicals and drugs, infectious diseases) genetic teratogenesis in human beings,

Developmental defects: Prenatal death (miscarriage and still birth). Intrauterine Growth Retardation (IUGR).

Module V

5 Hrs

General topics: Classification and functions of placenta in mammals. Prenatal diagnosis (Amniocentesis, Chorionic villi sampling, Ultra sound scanning, Foetoscopy, Maternal serum alpha-fetoprotein, Maternal serum beta-HCG). Regeneration in animals.

References

Anthony S. Fauci, Eugene Braunwald, Dennis L. Kasper, Stephen L. Hauser, Dan L. Longo, J. Larry Jameson and Joseph Loscalzo; 2008; Harrison's Principles of Internal Medicine;

Church Livingstone 17th Ed.

Balinsky B.I.; 1981 An Introduction to Embryology, W.B. Saunders and Co.

Berril, N.J.; and Kars, G.; 1986. Developmental biology, McGraw-Hill

Dutta 2007 Obstetrics, Church Livingstone 17 Ed

Majumdar N. N -1985 Vertebrate embryology; Tata McGraw-Hill, New Delhi

Melissa A & Gibbs, 2006; A practical Guide to Developmental Biology, Oxford university press (Int. student edition)

Scott F. Gilbert; 2003; Developmental biology; Sinauer Associates Inc., U.S.; 7th Revised edition.

Vijayakumarn Nair, K. & George, P. V. 2002. A manual of developmental biology,

Continental publications, Trivandrum

Taylor D J, Green NPO & G W Stout. (2008) Biological Science third edition. Cambridge

PRACTICAL .

BIOTECHNOLOGY, BIOINFORMATICS & MOLECULAR BIOLOGY

BIOTECHNOLOGY

1. Identify and comment on the item provided: (Western blotting / Southern blotting / Northern blotting / PCR)
2. Write down the procedure involved in DNA isolation

BIOINFORMATICS

1. Download/use print out/pictures of genome sequences of any 2 organisms. Identify and mention the characteristic features of both.
2. Download/ use print out/pictures of a protein sequence , identify it & comment on its amino acid composition
3. Download / use print out/pictures of a macromolecule. Write a brief note on the bioinformatics tool used to visualize its structure.

MOLECULAR BIOLOGY

1. Identify and comment on its molecular composition / structural orientation / functional significance (Any tissue / Cell organelles/ DNA, DNA replication, RNA different types using models or diagrams)

V1 SEMESTER. ZY6CRT12

CORE COURSE XII

OCCUPATIONAL ZOOLOGY .

(APICULTURE, VERMICULTURE, QUAIL FARMING & AQUACULTURE)

54 Hrs

Credits 3

Objectives:

1. To equip the students with self employment capabilities.
2. To provide scientific knowledge of profitable farming.

3. To make the students aware of cottage industries.

Module 1. APICULTURE

18 Hrs

Definition, Different species of honey bees, Organization of honey bee colony, Social life and adaptation of honey bees. Communication among honey bees. Bee keeping methods and equipments, Management and maintenance of an apiary, Growth period, honey flow period and dearth period Division of the colony, uniting two colonies, , replacing old queen with new queen, swarming management, monsoon management. Enemies of bees. Diseases of bees,.Bee pasturage. Uses of honey bees, By-products of honey bees, Honey and wax composition. Testing the quality of honey.Extraction of wax, Uses of honey and wax.Royal jelly, Propolis. Apitherapy, Agencies supporting apiculture.

Activity :Visitto an apiculture unit.

Field visit and report submission - 10 Hrs

Field visit and report submission on any two items are taken for internal evaluation.

MODULE: 2. VERMICULTURE

8 Hrs

Introduction, Ecological classification of earth worms. Species of earth worms used for vermiculture, Reproduction & life cycle, Role of earth worm in solid waste management, in agriculture, in medicine etc. Preparation of vermibed, Maintenance & monitoring, Preparation of vermicompost, Preparation of vermiwash.

Activity : Submission of a report after preparing a vermiculture unit or visiting a vermicomposting unit.

MODULE: 3.QUAIL FARMING (*Coturnix coturnix*)

4 Hrs

Introduction, care of quail chicks, care of adult quails, care of breeding quails, ration for quail, care of hatching eggs, health care, use of quail egg and meat.Sources of quality chicks.

MODULE: 4. AQUACULTURE.

24 Hrs

Advantages and salient features of aquaculture, Types of Aquaculture, Biotic and abiotic features of water, Importance of algae in aquaculture, Common cultivable fishes of Kerala, Fish diseases, Composite fish culture, Integrated fish culture, Carp culture, Prawn culture Mussel culture Pearl culture. Processing & Preservation.

Aquarium management - Setting up of an aquarium, Biological filter & Aeration, Breeding of gold fish, gourami (*Osphronemus*), fighter and Guppy (live bearer). Nutrition and types of feed for aquarium fishes, Establishment of commercial ornamental fish culture unit. Fish Transportation - Live fish packing and transport Common diseases of aquarium fishes and their management. Aquaponics (a brief introduction only).

Activity – Setting up of an Aquarium

Field visit – Visiting an Aquaculture farm

References

- NPCS Board, The complete book on Bee keeping and honey processing, NIIR Project consultancy services, 106E, Kamala nagar, Delhi- 110007.
- Shukla G.S, & Updhyay V.B, Economic zoology ,Rastogi Publ. Meerut.
- Pradip.V.Jabde , Text book of applied zoology, 2005
- Applied Zoology, Study Material Zoological Society of Kerala , CMS college Campus Clive. A Edwards, Norman. Q. & Rhonda. 2011. Vermitechnology: earthworms, organic waste & environmental management.
- Chauhan, H.V.S. Poultry, Disease, diagnosis and treatment, Wiley eastern Ltd Delhi.
- Otieno.F.O 2014. Quail farming: markets & market strategies
- Pillai T.V.R., Aquaculture, principles and practices.
- Ronald j. Roberts (1978) Fish pathology , Cassel Ltd London.
- Cowey C. B. *et. al.* (1985) Nutrition and feeding in fishes, academy press.
- Farm made aquafeeds. FAO fisheries Technical paper, 343.
- Harisankar J. Alappat& A. Bijukumar, Aquarium Fishes. B. R. Publ. Corporation, Delhi.
- MPEDA, A hand Book on Aquafarming Ornamentalfishes, MPEDA, Kochi.
- Amber Richards. 2014. Aquaponics at home.
- Pradip.V.Jabde. 1993. Text book of applied zoology
- Venkitaraman, P.R,1983, Text book of Economic zoology(SudharsanaPuubl. Kochi)
- Addison Webb, Bee Keepingfor profit and pleasure, Agrobios Ltd.
- Edwards.C.A.&Lafty, J.R.1972 Biology of earthworms(Chapman & Hall Led.London)
- Applied Zoology, Study Material Zoological Society of Kerala , CMS college Campus

SEMESTER VI. ZY6CRT11

CORE COURSE XI.

BIOTECHNOLOGY, BIOINFORMATICS AND MOLECULAR BIOLOGY

BIOTECHNOLOGY

20 Hrs

Module I

11Hrs

Introduction: Scope, Brief History, Scope and Importance

Tools and Techniques in Biotechnology: Enzymes (restriction endonucleases, ligases, linkers & adapters), Vectors-[Plasmids, Phage vectors, Cosmids, Artificial Chromosomes] Host cells. Basic steps & techniques in rDNA technology

Gene Libraries, Construction of genomic library and cDNA Library. PCR technique and DNA amplification, Brief description of screening methods – Probes, Nucleic Acid hybridization, In situ Hybridization, Fluorescence in situ Hybridization (FISH), Colony hybridization. Methods of transfer of desired gene into target cell. Blotting Techniques- Southern, Northern, Western blotting. **DNA Finger printing (DNA Profiling) and its application.** Molecular markers - RFLP

Module II

9 Hrs

Animal Cell Culture: Brief account on methods, substrates, media and procedure of animal cell culture, Stem Cells, types and potential use, Organismal Cloning- reproductive & therapeutic- brief account only.

Applications of Biotechnology: Applications in Medicine(insulin, growth hormone, gene therapy), Agriculture(GM plants and biopesticides), Environment(bioremediation), Industry (Single Cell Protein) and applications of Fermentation Technology- lactic acid, vitamins, food and beverages.

Potential Hazards of Biotechnological Inventions: Risks related to genetically modified organisms (GMO) and biologically active products, Biological warfare & Biopiracy. Protection of biotechnological inventions. Intellectual Property Rights, Patenting and patent protection.

References

1. Singh B.D Biotechnology 2002. Kalyan Publishers New Delhi.
2. Brown C.H., Campbell I & Priest F, G. 1987. Introduction of Biotechnology (Blackwell scientific publishers Oxford).
3. Colin Ratledge Bijorn Kristiansesn, 2008. Basic Biotechnology 3 rd ed. Cambridge University.
4. Janarathanan S & Vincent S. 2007. Practical Biotechnology, Method of Protocols. University Press.
5. John E. Smith. Biotechnology Cambridge Low priced ed. (Third Ed) 2005 Madingan, Martinko and Parker 2002, Biology of Microorganisms, Brock Eighth Ed. Prentice Hall.
6. Singh B.D. Biotechnolgy 2002, Kalyan Publishers New Delhi.
7. Sudha Gangal 2007. Biotechnology Principles and & practice of Animal Tissue culture, Universities Press.

BIOINFORMATICS

14 Hrs

Module III

8 Hrs

Introduction: Definition, importance and role of bioinformatics in life sciences. Computational Biology.

Biological databases: Nucleotide sequence databases (NCBI- GENBANK, DDBJ and EMBL). Protein databases - structure and sequence databases (PDB, SWISSPROT and UNIPROT). Introduction to Sequences alignments: Local alignment and Global alignment, Pair wise alignment (BLAST and FASTA] and multiple sequence alignment. Phylogenetic Tree construction and Analysis

Module IV

6 Hrs

Molecular visualization software - RASMOL. Basic concepts of Drug discovery pipe line, computer aided drug discovery and its applications. Human Genome Project.

MOLECULAR BIOLOGY

20 Hrs

Module V

8 Hrs

Nature of Genetic Materials: Discovery of DNA as genetic material – Griffith's transformation experiments. Avery Macarty and Macleod, Hershey Chase Experiment of Bacteriophage infection, Prokaryotic genome; Eukaryotic genome. Structure and types of DNA & RNA. DNA replication. Modern concept of gene (Cistron, muton, recon, viral genes)., Brief account of the following-- Split genes (introns and exons), Junk genes, Pseudogenes, Overlapping genes, Transposons.

Module VI

12 Hrs

Gene Expressions: Central Dogma of molecular biology and central dogma reverse, one gene-one enzyme hypothesis, One gene-one polypeptide hypothesis Characteristics of genetic code, Contributions of Hargobind Khorana.

Protein synthesis [prokaryotic]: Transcription of mRNA, Reverse transcription, post transcriptional modifications, Translation, Post translational modifications.

Gene regulations: Prokaryotic(inducible & repressible systems) Operon concept -Lac operon and Tryptophan operon, Brief account of Eukaryotic gene regulation.

References

1. Bruce Albert, Bray Dennis, Levis Julian, Raff Martin, Roberts Keith and Watson James (2008). Molecular Biology of the Cell, V Edition, Garland publishing Inc., New York and London.
2. De Robertis, E.D.P. and De Robertis, E.M.F. (2006). Cell and Molecular Biology. VIII Edition. Lippincott Williams and Wilkins, Philadelphia.
3. Gupta, P. K (2002) Cell and Molecular Biology, (2ed), , Rastogi Publications., Meerut
4. James Darnell. (1998) Molecular Biology. Scientific American Books Inc
5. Thomas AP(Editor). 2011 Cell &Molecular Biology The Fundamentals. Green leaf publications .TIES Kottayam
6. Zoological Society of Kerala Study material. (2011) Cell and Molecular Biology

PRACTICAL .

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3. Download / use print out/pictures of a macromolecule. Write a brief note on the bioinformatics tool used to visualize its structure.

MOLECULAR BIOLOGY

1. Identify and comment on its molecular composition / structural orientation / functional significance (Any tissue / Cell organelles/ DNA, DNA replication, RNA different types using models or diagrams)

V1 SEMESTER. ZY6CRT12

CORE COURSE XII

OCCUPATIONAL ZOOLOGY .

(APICULTURE, VERMICULTURE, QUAIL FARMING & AQUACULTURE)

54 Hrs

Credits 3

Objectives:

1. To equip the students with self employment capabilities.
2. To provide scientific knowledge of profitable farming.

PRACTICAL
DEVELOPMENTAL BIOLOGY

36 Hrs

Credit 1

Model/Chart/ Slide may be used

1. Embryological studies- Blastula (frog, chick)
2. Embryo transfer, cloning, gastrula (frog, chick)
3. Amniocentesis
4. Embryotransfer technology, cloning
5. Study of placenta- pig and man
6. 18 hour, 24 hour, 33 hour and 48 hour chick embryo.
7. Candling method.
8. Vital staining- demonstration.
9. Male and female reproductive organs in cockroach
10. Calculate the fecundity of fish.
11. Calculate the gonado-somatic index of given fish.

SEMESTER VI. ZY6CRT10

CORE COURSE X. MICROBIOLOGY AND IMMUNOLOGY

54 Hrs

3 Credits

MICROBIOLOGY

Module I

10 Hrs

Introduction: History and scope of microbiology. Outline classification of Microbes.
(bacteria, fungus & virus)

Methods in Microbiology: Sterilization and disinfection - physical and chemical methods.

Culture media – selective media, enrichment media, differential media. Plating techniques and isolation of pure colony. Culture preservation techniques: refrigeration, deep freezing,

freezing under liquid nitrogen, lyophilization.

Module II

15 Hrs

Morphology and fine structure of bacteria: Size, shape, cilia, pili, flagella, capsule, cell wall and its composition. Cytoplasmic membrane, protoplast, spheroplast, intracellular membrane systems, cytoplasm, vacuoles, genetic material, cell inclusions, bacterial spores.

Bacterial growth Curve, Staining techniques – gram staining.

Bacterial Reproduction Sexual – (conjugation, transduction) and Asexual (budding, fragmentation). Virology: Structure of virus; Human, animal, and bacterial virus. Viral replication, cultivation of animal viruses.

Module III

8 Hrs

Infections & Diseases: Types of infections – primary, secondary and nosocomial infections.

(Brief Account only) Contagious diseases – epidemic, endemic and pandemic, mode of

Transmission – food, water, air, vectors and carriers.

Diseases: Epidemiology, symptomology, diagnosis and treatment. Bacterial - Clostridium

tetany (tetanus), Viral – HIV virus (AIDS), fungal – *Candida albicans* (candidiasis).

IMMUNOLOGY

Module IV

9Hrs

Introduction to Immunology: Innate and acquired immunity, passive (natural and artificial) and active immunity (Natural and Artificial). Mechanisms of innate immunity - barriers, inflammation, phagocytosis.

Lymphoid organs: Primary (Thymus, Bone marrow) and secondary lymphoid organs (lymph nodes, spleen).

Lymphocytes: T and B cells, Natural killer cells, memory cells, macrophages.

Module V

9 Hrs

Antigens, Types of antigens, haptens, adjuvants, immunoglobulin structure, classes and functions of immunoglobulins.

Types of Immunity- , humoral & cell mediated immunity Monoclonal & polyclonal antibodies

Antigen – antibody reactions, Precipitation test, Agglutination test, VDRL WIDAL, ELISA. Auto immune diseases: Pernicious Anemia, Rheumatoid Arthritis. Immunodeficiency -

AIDS. Hyper sensitivity- Type I, (E.g. Anaphylaxis) II(Transfusion reaction) , III (Arthus reaction) and IV (Mantoux Test) (in brief).

Vaccines

3 Hrs

Introduction Types of vaccines, Current Vaccines, Recent trends in vaccine preparation

References

1. Ananthanarayan R & Jayaram Paniker C K. (2009) Text Book of Microbiology Orient Longman Private Ltd.
2. Gladys Francis & Mini K.D., (Editors) (2012), Microbiology, Zoological Society of Kerala, Kottayam.
3. Kuby J, Kindt T., Goldsby R. and Osborne B. (2007). Kuby immunology
4. Sharma K. (2005) Manual of Microbiology: Tools and Techniques, Ane books
5. Susan Panicker & George Abraham (Editors) (2008), Micro Biology and Immunology, Zoological Society of Kerala, Kottayam.
6. Coleman: (2002). Fundamentals of Immunology
7. Darla J. Wise & Gordon R. Carter: (2004): Immunology A Comprehensive Review Iowa state University Press. A Blackwell science company,
8. Hans G. Sch, Legal General Microbiology, Seventh Ed. Cambridge Low Price Ed.

9. Helen Hapel, Mased Harney Siraj Misbah and Next Snowden: (2006) Essentials of Clinical Immunology Fifth Ed. Blackwell Publishing Company,
10. Heritage, J, E.G.V. Evans and R.A. Killungten (2007): Introductory Microbiology Cambridge University Press 6. Ivan Roitt I (2002) Essentials of Immunology ELBS.

PRACTICAL

MICROBIOLOGY AND IMMUNOLOGY

72 Hrs

2 Credits

1. Instruments –Autoclave, Hot air oven, Bacteriological incubator – Laminar air flow
2. Preparation of solid and liquid media for microbial cultures.
(Ingredients, pH and method of preparation) (Demonstration)
 - (a) Solid media (1) Nutrient agar (2) Mac Conkey's agar
 - (b) Liquid Media(1) Nutrient broth (2) Peptone water.
3. Culture methods (Demonstration)
 - (a) Streak plate technique and isolation of pure colonies.
 - (b) Lawn culture (c) Pour plate culture (d) Liquid culture
4. Examination of microbes in living condition
Hanging drop method for demonstrating motility of bacteria.
5. Gram staining – preparation, procedure, identification of Gram + ve and Gram –ve bacteria.
6. Antibiotic sensitivity test (demonstration only)
7. Streak plating (individual performance)
8. Preparation of a fungal smear – Lactophenol cotton blue staining and mounting
9. Determination of ABO blood groups and Rh factor (Antigen – antibody Reaction)
10. Study through photographs/ illustration, the primary immune (Bone marrow and thymus) and secondary immune (spleen and lymph nodes) organs in Rat/Man

- Richard T. Wright & Bernard J. Nebel. 2002. *Environmental Science-Toward a Sustainable future*. Pearson Education Inc. NY, USA.
- Rob DeSalle and Ian Tattersal. 2008. *Human Origins: What Bones and Genomes Tell Us about ourselves*. Texas A&M University Press, USA.
- Sapru, K.K. 1987. *Environment Management in India*. Ashish Publishing House, New Delhi.
- Sharma P.D. 1994. *Ecology and Environment*. Rastogi Publications, Meerut-2.
- Shellenberger, Michael and Ted Nordhaus. 2005. *The Death of Environmentalism: Global Warming policies in a Post-environmental World*. Grist Magazine. www.grist.org
- Stiling Peter. 2002. *Ecology: Theories and Applications*. Prentice Hall of India pvt. Ltd. New Delhi
- Strickberger, M.W. 2000. *Evolution*. Jones and Bartlett, Boston.
- Wilber, Ken. 2001. *Theory of Everything*. Shambala.
- Wilson, E.O. 1975. *Sociobiology* Harvard University Press, Cambridge, Mass. USA.
- World Commission on Environment and Development .1987. *Our Common Future*. Oxford University Press.
- Zimmerman, Michael. 2004a. *Integral Ecology: A Perspectival, Developmental, and Coordinating approach to Environmental Problems*. World Futures.

SEMESTER VI.

ZOOLOGY CORE CHOICE BASED COURSES

FOR B.Sc. ZOOLOGY PROGRAMME

ZY6CBT01. ELECTIVE COURSE.

1. ECOTOURISM & SUSTAINABLE DEVELOPMENT

72 Hrs

4hrs/week

Credits 3

Objectives:

1. To introduce the concepts, principles and applications of tourism and its sustainability
2. To critically analyse the cost and benefits of ecotourism, including related laws and policies, community involvement and future trends
3. To develop an appreciation among students with respect to tourism development from the

sustainability perspective

4. To equip the students with basic knowledge for the emerging ecotourism industry

Module I. Fundamentals of Tourism

12 Hrs

Introduction- Tourism, concepts and definitions

History, types, Characteristics

The facilitating sectors

Attractions

Geography, heritage

Wildlife, nature

Quality Control

Module II. Major areas of eco-tourism

10 Hrs

Concepts, practices and case studies for each:

Marine tourism

Wildlife tourism

Adventure tourism

Module III. Emerging trends in eco-tourism

10Hrs

Cultural tourism

Pilgrimage tourism

Farm tourism

Backwater tourism

Health tourism

Module IV. Problems and prospects of eco-tourism

10 Hrs

Economics and benefits of ecotourism

Cultural issues and negative aspects of ecotourism

Environmental Impacts of Tourism

Module V. Sustainable tourism

12 Hrs

Quality, Standards

Systems of sustainable tourism: environmental, sociocultural, Economical

Environment and conservation: basic principles

Current practices of eco-conservation in tourism industry

Sustainable tourism and society

Community based ecotourism

Eco-development committee (EDC) of Periyar Tiger Rerserve

People initiatives

Module VI. Eco-tourism guides

8 Hrs

Ecotourism guiding and case studies

Activity

Field visit to Ecologically relevant places & Report writing

10 Hrs

References

Bruner, E.M. 2005. *Culture on tour: ethnographies of travel*. The University of Chicago Press.

Ghimire, K.B. and M. Pimbert. 1997. *Social change and conservation: environmental politics and impacts of national parks and protected areas*. London: Earthscan Publications.

Karan Singh. 1980. *Indian Tourism: Aspects of great adventure*. Department of tourism. New Delhi.

Ratandeep Sing. 2003. *National Ecotourism and Wildlife tourism: Policies and guidelines*. Kanishka Publishers, New Delhi

Whelan, T. 1991. *Nature tourism: managing for the environment*. Washington, D.C.: Island Press.

Brian Garrod and Julie C. Wilson. 2002. *Marine Ecosystem*. Channel View Publications.

Ghimire, K.B. and M. Pimbert. 1997. *Social change and conservation: environmental politics and impacts of national parks and protected areas*. London: Earthscan Publications.

Ratandeep Sing. 2003. *National Ecotourism and Wildlife tourism: Policies and guidelines*. Kanishka Publishers, New Delhi

ELECTIVE COURSE . ZY6CBT02

2. AGRICULTURAL PEST MANAGEMENT

72 Hrs

4 Hrs/week - 3 Credits

Objectives

1. To acquire basic skills in the observation and study of nature.
2. To impart basic awareness regarding pest problem and crop loss due to their dominance.
3. To inculcate interest in adopting biological control strategies for pest control.
4. To understand various pests affecting our local crops and select the best method for their control

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR UNDER GRADUATE PROGRAMMES IN

MSW

UNDER CHOICE BASED CREDIT SYSTEM (UG CBCS) 2017

2017 ADMISSIONS ONWARDS

1. THE PROGRAM STRUCTURE

Course Code	Title of the Course	Type of the Course	Hours per week	Credits
FIRST SEMESTER				
SW010101	Social Sciences for Social Work	Core	3	3
SW010102	Human Growth and Development	Core	3	3
SW010103	History, Philosophy and Fields of Social Work	Core	3	3
SW010104	Social Work Practice with Individuals	Core	3	3
SW010105	Social Work Practice with Communities	Core	3	3
SW010106	Field Practicum	Core	12	6
	Semester I Total			21
SECOND SEMESTER				
SW010201	Introduction to Abnormal and Social Psychology	Core	3	3
SW010202	Counselling and Psychotherapy	Core	3	3
SW010203	Professional Skills for Social Workers	Core	3	3
SW010204	Social Work practice with Groups	Core	3	3
SW010205	Social Work Research and Statistics	Core	3	3
SW010206	Field Practicum 2	Core	12	6
	Semester II Total			21
THIRD SEMESTER				
SW010301	Planning and Implementation of Development Projects	Core	3	3
SW010302	Administration of Human Service Organizations	Core	3	3
SW010303	Field Practicum 3	Core	12	6
Specialization Courses				
Group 1: Community Development (CD)				
SW800301	Rural & Urban Community	Elective	3	3

	Development			
SW800302	Environment and Disaster Management	Elective	3	3
SW800303	Community Health for Development Practice	Elective	3	3
Group 2: Family and Child Welfare (FCW)				
SW810301	Social Work Practice With Families	Elective	3	3
SW810302	Policies and Programmes for Children and Youth	Elective	3	3
SW810303	Population dynamics and Reproductive and Child Health	Elective	3	3
Group 3: Medical and Psychiatric Social Work (MPSW)				
SW820301	Clinical Assessment and Diagnosis of Psychiatric Disorders	Elective	3	3
SW820302	Social Work in the Field of Health	Elective	3	3
SW820303	Health Care Administration and Community Health	Elective	3	3
	Semester III Total			21
FOURTH SEMESTER				
SW010401	Social Legislation and Human Rights	Core	3	3
SW010402	Gerontological Social Work	Core	3	3
SW010403	Field Practicum 4	Core	12	6
SW010404	Dissertation	Core	3	3
SW010405	Internship (After the completion of fourth semester examination)	Core	10	5
Specialization Courses				
Group 1: Community Development (CD)				
SW800401	Human Resource Management for Development Practice	Elective	3	3
SW800402	Economic Development: Theory and Practice	Elective	3	3
Group 2: Family and Child Welfare (FCW)				
SW810401	Therapeutic Interventions in the field of Family and Child Welfare	Elective	3	3
SW810402	Social Work in Education	Elective	3	3
Group 3: Medical and Psychiatric Social Work (MPSW)				
SW820401	Social Work Interventions in the field of mental health	Elective	3	3

SW820402	School Mental Health and Social Work Practice	Elective	3	3
	Comprehensive Viva Voce			1
				27
	MSW Total			90

SW010101 SOCIAL SCIENCES FOR SOCIAL WORK

Total Credits: 3

Total Hours: 54

Course Outcomes

- Understand basic concepts of sociology and its different dimensions
- Apply the concepts of sociology in Social Work practice.
- Analyze different dimensions of prevailing social issues in India
- Recognize the linkage of social issues and the design of social work interventions.
- Understand basic economic concepts and the economic situation in India
- Appraise the effect of national/global economy on social life in a society

Course Outline

Module 1 Introduction to Sociology and relation of social work

UNIT 1 : Importance of social sciences for social work practice.

UNIT 2: Sociology- Definition and characteristics. Society: Definition, evolution, meaning and characteristics, types of societies and its characteristics

UNIT 3: Culture and Socialization: Definition, characteristics, structure, functions, subculture, contra-culture, cultural change and cultural lag. Structural aspects of culture – Folkways, Norms, Mores and Values.

UNIT 4: Social Change: Meaning, Characteristics, Evolution and Progress, Factors of Social Change, Theories of Social Change.

Module 2 Social Groups and Social Institutions

UNIT 5: Social Groups: Definition, Classification – Characteristics and importance of Primary groups and Secondary Groups, Peer groups and Reference groups.

UNIT 6: Social Interaction & Social Process: Characteristics. Types: Co-operation, Accommodation, Assimilation; Competition, Conflict and isolation.

UNIT 7: Social Stratification: Definition, Characteristics, Caste, Class & Race.

Changes in Caste systems. Social Mobility.

UNIT 8: Social Institutions: Definitions, Types of Social institutions: Family, Marriage, Education, Economy, Polity, Religion. Changes in social Institutions in India.

Module 3 Social Issues and Social Work

Concept, Causes, Effects, Interventions and Prevailing Social Work practices in the following Social Issues:

UNIT 9: Gender Issues - Gender identity, Gender Discrimination, Domestic Violence, Sexual Harassment.

UNIT 10: Child & Adolescent Issues: Child Abuse, Child Labour, Adolescent problems, Social media, Addiction, Cyber crime.

UNIT 11: Ageing, Alcoholism and Drug Addiction, Suicide, HIV/AIDS.

UNIT 12: Religious Intolerance and violence, Terrorism

Module 4 Introduction to basic economic concepts

UNIT 13: Basic Economic concepts (Definitions and meaning): Economic problem, scarcity and choice, demand, supply, national income, standard of living, per capita income, etc.

UNIT 14: Introduction to Economic systems: Capitalism, Socialism, Communism, Mixed economy.

Module 5 Economics Policy, Planning and Development- National and Kerala Scenario

UNIT 15: National Economic Policy

UNIT 16: Economic Concepts – Welfare state, social justice, development, under development.

UNIT 17: Economic Concepts: Agriculture, Natural Resources, Infrastructure, Sustainable Development, Poverty

UNIT 18: Local Self Governments and local development, Strategy for economic development,

UNIT 19: Kerala Model of Development and critiques.

Module 6 **Global Economy and its influence in India**

UNIT 20: Global Institutions- World Bank, International Monetary Fund, World Trade Organization.

UNIT 21: Globalisation and its impact on Indian economy.

UNIT 22: Multi National Corporates and its effects on Indian economy

References

1. Datt, Ruddar & Sundharam, K.P.M.(2008). *Indian economy*. New Delhi: S Chand.
2. Gregory, Antony, (2005). *Taming the global triumvirate: WTO, IMF and World Bank*. Thiruvananthapuram: Sahayi.
3. Jhingan, M. L. (2006). *Economics of Development and Planning*. Delhi: Vrinda Publications (P) Ltd.
4. Francis, Abraham, M. (2006). *Contemporary Sociology*. Oxford Oxfordshire: Oxford University Press.
5. MacIver, R.M., Page, C.H. (2000). *Society an Introductory Analysis*. New Delhi: Macmillan Publishers India.
6. Mallik, R M & Padhi, S. P. (2005). *Development Deprivation and Welfare Policy*. Jaipur: Rawat publications.
7. Misra, S. K & Puri,V. K, (2004). *Indian economy: its development experience*. Mumbai: Himalaya publishing house.
8. Prigoff, Arline. (2000). *Economics for Social Workers: Social outcomes of economic globalization with strategies for community action*. Brooks/Cole.
9. Rawat, H. (2007). *Sociology Basic Concepts*. Jaipur: Rawat Publications.
10. Sachdeva, D.R.and Vidyabhushan. (2014). *An Introduction to Sociology*. Allahabad: Kitab Mahal.
11. Shankar Rao, C. N. (2007). *Sociology: Principles of Sociology with an Introduction to Social Thought*. New Delhi: S Chand & Co. Ltd.

010102 HUMAN GROWTH AND DEVELOPMENT

Total Credits: 3

Total Hours: 54

**Course
Outcomes**

- Demonstrate knowledge of the major influences in human development.
 - Explain the structure and function of the brain.
 - Understand the developmental changes in various developmental stages across the life span.
 - Analyse the importance of developmental psychology in social work practice and be able to link with real life situations
 - Able to identify the use of theoretical concepts in lifespan stages in social work practice
- Understand the theories related to human development

Course Outline

Module 1 Overview of Bio-psychosocial Aspects

UNIT 1: Multidimensional approach to understand human behaviour.
The Bio-psychosocial perspective- Person, Environment

UNIT 2: Brain: structure and function of brain

Sensory Process, Perception, Learning, Memory, Thought,
Emotions and Intelligence

Module 2 Introduction to human development

UNIT 3: Definition, meaning, purpose and importance of Developmental Psychology

UNIT 4: Meaning and principles of growth and development. Heredity, environment and ecological influences – family and community - on human development. Basics of human reproductive system, Process of reproduction.

UNIT 5 : Basic genetic concepts- genetic transmission, importance of

genetic factors - chromosomal abnormalities

Module 3 An Overview of theories

UNIT 6: Psychoanalytic Theory (Sigmund Freud)

UNIT 7: Psychosocial Theory (Erik Erikson)

UNIT 8: Theory of Cognitive Development (Jean Piaget)

Behavioural Theory: Classical Operant conditioning

UNIT 9: Theory of Moral Development (Kohlberg)

Module 4 Stages of Human Development: Prenatal Period, Infancy and Babyhood

UNIT 10: Prenatal development: Prenatal period, characteristics, stages, Prenatal influences on the child, Prenatal healthcare, Social and emotional aspects of pregnancy, Importance of Pre-natal care.

UNIT 11: Birth process, Types of birth, Problems during delivery, Postnatal care.

UNIT 12: Infancy – stages, characteristics of new born – major elements of adjustment, hazards.

UNIT 13: Babyhood - characteristics, developmental tasks and milestones, hazards, psychosocial development-attachment behaviour, role of parents

Module 5 Stages of Human Development: Childhood, Puberty & Adolescence

UNIT 14: Early childhood –Characteristics, developmental tasks, hazards, language acquisition, early childhood education, Play and its importance, psychosocial development, relationship with family and society, parenting styles, socialization, personality development

UNIT 15: Late Childhood – characteristics, developmental tasks, importance of play, influence of school, peer relationships-cognitive and moral development

UNIT 16: Puberty – major physical and emotional changes and its influence on personal and social adjustments, hazards and its effects on the individual's physical and psychological wellbeing.

UNIT 17: Adolescence – Characteristics, Developmental tasks, Cognitive,

emotional and social development, Sexuality

Module 6 Stages of Human Development: Adulthood and later stages of life

UNIT 18: Early Adulthood –characteristics, developmental tasks, personal and social adjustments, vocational and marital adjustments, hazards

UNIT 19: Middle adulthood – characteristics, developmental tasks, personal and social adjustments, vocational and marital adjustments, hazards

UNIT 20: Late adulthood - Old age – characteristics, developmental tasks, aging, ageism, personal and social adjustments, vocational and marital adjustments

UNIT 21: Process of death and dying, bereavement –Stages of Grief by Elizabeth Kubler Ross

UNIT 22: Importance of developmental psychology in social work practice.

References

1. Berk Laura, E. (1998). *Development through the Lifespan*. London: Allyn and Bacon.
2. Carson, R., Butcher, J. & Mineka, S. (2000). *Abnormal Psychology and Modern Life*. Boston: Allyn & Bacon
3. Dhillon, Paramjeet Kaur (1992). *Psychosocial Aspects of Aging in India*. New Delhi: Concept Publishing.
4. Dinkar, Suchitra, S. (2010). *Child Development and Psychology*. New Delhi: Axis Publications
5. Hoffman Lois, Paris Scott. (1994). *Developmental Psychology Today*. NewYork: Mcgraw-Hill Inc.
6. Hurlock, Elizabeth B. (1996). *Developmental Psychology-a life span approach*. Tata New Delhi: Mcgraw-HillPublishing Co.Ltd
7. Hutchison, E. (2007). *Dimensions of Human Behavior: Person and Environment*. Thousand Oaks: Sage Publications, Inc
8. Keniston Allen (ed.). (1998). *Perspectives: Life Span Development*. Madison:

SW010103 HISTORY, PHILOSOPHY AND FIELDS OF SOCIAL WORK

Total Credits: 3

Total Hours: 54

**Course
Outcomes**

- Understand the history of social work approaches with respect to underlying ideologies and philosophies.
- Appreciate social work as a profession and to recognize the need and importance of Social Work Education, Training and Practice.
- Identify the importance of professional values and ethics in social work practice.
- Understand different fields of social work intervention and the issues and concerns of social work practice in India.
- Understand the social movements and role of social reformers in social welfare.
- Understand the present issues faced by social work profession.

Course Outline

Module 1 Social Work and Related Concepts-Definitions

UNIT 1: Social Work, Social service, Social Reform, Social Welfare, Social Policy, Social Action,

UNIT 2: Social Legislation, Social Defence and Social Work Education

UNIT 3: Historical development of social work in England, USA and India

UNIT 4: Social Movements and contribution of Indian Social Reformers to Social Welfare

Module 2 Analysis of various approaches to Social Work through different ages

UNIT 5: A framework to different approaches-Benefactor-beneficiary ideology, Religious charity, state sponsored charity and welfare, organized or scientific charity, Professional social work.

UNIT 6: Systems perspective, Rights based approach, Ecological perspective and strengths perspective in Social work

Module 3 Sources of Social Work Philosophy

UNIT 7: Moral & Religious values in Social work philosophy-Christian, Hindu, Muslim, Buddhist traditions

UNIT 8: Ideologies: Gandhian ideology-Sarvodaya, andyodaya, charka,

UNIT 9: Liberalism, Humanism, Socialism, democracy

Module 4 Social Work profession

UNIT 10: Identification of Social Work as a Profession

UNIT 11: Values & Principles of Social Work,

UNIT 12: Methods and functions of Social work.

UNIT 13: Ethics in Social Work, Code of Ethics

UNIT 14: Role and skills of professional social worker

Module 5 Fields of Social Work

UNIT 15: Family, School, Industry, Development NGOs, Hospital and Health Setting, Correctional settings, Unorganized sector,

UNIT 16: Community-Rural and Urban, Environmental issues

UNIT 17: Social Work with Children, Youth, Women, Elderly, Persons with Disabilities

Module 6 Reflections on Social work Profession

UNIT 18: Indigenization of Social Work Education and Practice, Collaboration and networking,

UNIT 19: Voluntarism Vs professionalism

Professionalization & managerialism,

UNIT 21: Role of Government and voluntary organizations in promoting social welfare and social work profession in India

UNIT 22: Professional Associations for social workers: International, National and Regional.

References

1. Bhanti, Raj.(1996). *Field Work in Social Work Perspective*. New Delhi:

- Himanshu Publications.
2. Choudhary, Paul. (1983). *Introduction to Social work*. New Delhi: Atma Ram & Sons.
 3. Dasguta, S.(1967). *Towards a philosophy of Social Work in India*. New Delhi: Popular Book Services
 4. Dinitto, Diana, M. (2008).*Social Work Issues and Opportunities in a challenging profession (3rd edition)*. Chicago: Lyceum Books
 5. Fink, Arthur, et al. (1985).*The fields of Social Work*. Beverly Hills, Calif: Sage Publications.
 6. Friedlander, Walter, A. (1968). *Introduction to Social Welfare*, Prentice Hall
 7. Gore, M. S. (1965). *Social Work and Social Work Education*. Bombay: Asia Publication House.
 8. Hepworth, Dean, H (2010). *Direct Social Work Practice-Theory and skills* (8th edition). New York: Brooks/Cole.
 9. Konopka, Gisela.(1958). *Social Work Philosophy*. Minneapolis: The University of Minnesota Press.
 10. Mclunis-Dittrich, Kathlee. (1994). *Integrating Social Welfare Policy and Social Work Practice*. New York: Brooks/Cole.
 11. Palackappilly, George & Felix T.D.(1998). *Religion & Economics ,Gandhism, Buddhism*. AIDBES, SPCI House
 12. Wadia, A. R (1961). *History and Philosophy of Social Work in India*.New Delhi: Allied Publishers

SW010105 SOCIAL WORK PRACTICE WITH COMMUNITIES

Total Credits: 3

Total Hours: 54

Course

Outcomes

- Display an depth knowledge about the community organization process.
- Understand the use and practice of community organization in various fields of social work.
- Explain the role of social worker in social action and social reform for social development.
- Able to undertake social audit, social impact assessments
- Able to analyze ongoing community organization programmes.
- Identity the emerging trends and experiments in community organization

Course Outline

Module 1 Community - meaning - types, structure and dynamics

UNIT 1: Community: Meaning, Definition and types. Characteristics, Structure and Functions of Community

UNIT 2: Social Analysis of community: Social System, Economic System, Political System, Cultural System, Legal System, Religious system, Value System, Consciousness, Social Problems, Dominations, Dynamism, Functions of community.

UNIT 3: Deconstructing concept of communities: Dalit, Feminist and Racial connotations of communities, community and identity. The process of community integration and disintegration.

Module 2 Leadership and Community Organization

UNIT 4: Leadership: Concept - types of community leaders and power structure (Catalyst, connectors, civic leaders, elite, officials) of the community, Significance of leadership in the process of community development.

UNIT 5: Theories of leadership.

UNIT 6: Community Organisation as a Para-Political Processes Community organization as a para-political process, Leadership, Concept of power,

sources of power, Understanding community power structure, Powerlessness and empowerment, Cycle of empowerment, Challenges in participation.

Module 3 Community Organization

UNIT 7: Community organization - definition, objectives and a brief historical development of community organization in India, Community Organization as a method of social work.

UNIT 8: Principles of Community Organization

UNIT 9: Phases of Community Organisation: Study, analysis, assessment, discussion, organization, action, Evaluation, modification and continuation.

UNIT 10. Methods of Community Organisation: Methods (Arthur Dunham's classification of CO methods- method of planning and related activities, group decision making and co-operative action, communication, promotion and social action, financing and fund raising, method of administration)

UNIT 11. Characteristics of a Good Community Organiser, Skills needed for community organization, Role of Community organizer

Module 4 Approaches, Models and Strategies of Community Organization

UNIT 12: Approaches - The social work approach, the political activist approach, neighbourhood maintenance approach/community development approach, system change approach, structural change approach.

UNIT 13: Models of Community Organisation – Locality Development Model, Social Planning Model, Social Action Model.

UNIT 14: Strategies and techniques in community organization: formation and capacity building of CBOs, capacity building of community level institutions (PRI, SHG), strategies for capacity building of the marginalized groups, committee formations, Organising conferences, training programmes, consultation, negotiation, leadership and cadre building and networking.

Module 5 Application of Community Organization in the various fields of Social Work

UNIT 15: Social Audit, Social Impact assessment studies, PRA /PLA

techniques

UNIT 16: Ongoing community programmes at the grass root level

Module 6 Social action

UNIT 17: Concept of social action, objectives - principles, methods of social action.

Means of Social Action: Research and Collection of Data – Survey, Analysis and Assessment, Planning Solution, Meeting Key Persons, Groups and Agencies, Public Meetings, Discussions, Create Public Opinion, Awareness, education, Use of Mass Media and Press Meeting for Propaganda, Use of Legislation and Enforcement of Legislation, Representation to the Authorities, Proposal to the Authorities, Coordinating the work of different groups and agencies, Implementing the Action and Reflection, Modification and Continuation.

UNIT 18: Strategies of Social Action: Campaign / Promotional Strategy, Collaborative Strategy, Pressure / Advocacy Strategy, Negotiate Strategy, Legal Suasion / Litigation Strategy, Conscientization Strategy, Human Relation Strategy, Political Organisation Strategy, Economic Organisation Strategy, Conflict Management Strategy, Situation Modification Strategy

UNIT 19: Social Problems and Social Action, Role of Social Worker in Social Action, Social Activists and Social Action Groups in India.

UNIT 20: Social action for social reform and social development - scope of social action in India.

UNIT 21: Social Legislation through social action - Role of social worker
In social action. Social Action Groups.

UNIT 22: Paulo Freire and Saul Alinsky in working with community

Approaches by Paulo Fraire, Saul Alinsky, Mahatma Gandhi, Ambedkar, Medha Patkar and Other National and Regional Social Activists.

References

- 1 Ross Murray, G., (1985). *Community Organization: Theory and Principles*. New York: H&

and Row Pub.

- 2 Siddhiqui, H.Y. (1997). *Working with community*. New Delhi: Hira Publications.
- 3 Cox M. F. & Erlich L, J. (1987). *Strategies of Community Organisation*. Illinois: F.E. Peacock Publishers
- 4 Jack Rothman, etal. (2001). *Strategies of community interventions & Macro practices –* Peacock Publications, 6th Edition
- 5 Banmala, *Community Organisation*. Indian Institute of Youth Welfare, 134, Shivaji Ma
- 6 Freire, Paulo. *Pedagogy of the Oppressed*. Adult Education & Liberation.
- 7 Freire, Paulo, *Education as Practice of Freedom*
- 8 Freire, Paulo, *Cultural Action for Freedom*.
- 9 Gandhi M.K., *Social Service*. Work & Reform (3 vols.)
- 10 Ramachandran P., (1996). *Towards an understanding of People's Movements: History from below*. Institute for Community Organization Research.
- 11 Adams, Robert, Oominelli, Lena & Payne, Malcom (ed.l, *Social Work: Themes, Issues & Critical Debates*. Ch. 17, Radical Social Work.
- 12 D'Abreo, Desmond, A., *From Development Worker to Activist*.
- 13 Haynes, Karen S. & Mickelson, James S., *Affecting Change, Social Movements* Pub. 107 ff.
- 14 Kramer, R.M. & Spechit,H. (1974). *Community Organisation Practice. Strategies*.
- 15 Fink, Arthur,E .(1978). *The fields of Social Work*. New York : Holt Rinchest and Winston
- 16 Anne Hope & Sally Timmet (1985). *A handbook for community workers*. 3 volumes, Gwera Mambo Press

SW010104 SOCIAL WORK PRACTICE WITH INDIVIDUALS

Total Credits: 3

Total Hours: 54

- Course Outcomes**
- Understand Social Case Work as a method of Social Work and apply it as an intervention method.
 - Demonstrate knowledge of the values and Principles of Social Case Work and to develop the capacity to practice them.
 - Acquire the required skills for practicing social case work.
 - Demonstrate ability to adopt a multi- dimensional approach in assessment.
 - Able to document and social case work practice
 - Apply social case work method in various settings.

Course Outline

Module 1 Introduction to Social Case Work

UNIT 1: Definition and objectives of Social Case Work

Historical developments of Case Work in West and India. Trends in Social Case Work Practice, Social Case Work practice in Indian Society.

UNIT 2: Practice Frame Work- Values, Principles. Application of Code of Ethics.

UNIT 3: Components of Social Case Work; the Person, The Place, The problem, problem solving process

Module 2 Overview of the phases of social case work:

UNIT 4: Study, Diagnosis, Treatment, Follow up

- Psycho Social Study- Purpose, nature, Contents,
- Social Diagnosis- Definition, Contents, Types, and Steps.
- Social Treatment- - Phases, and different types of treatment

UNIT 5: Phases of Direct Social Work Practice:

- Exploration, Engagement, Assessment and Planning;
- Implementation and goal attainment;
- Termination and Evaluation

Module 2 Exploration and Engagement Phase

UNIT 6: Exploration Phase: establishing rapport,

Assessment: Definition, Multidimensionality of assessment- various components of assessment

UNIT 7: Client-Worker Relationship: Definition, use and characteristics. Transference and Counter-Transference and their use in diagnosis and treatment.

UNIT 8: Interviewing- concept, techniques for social case work practice
Maintaining psychological contact with the clients: Verbal and nonverbal skills in social case work

UNIT 9: Goal Setting : purpose, types, guidelines for selecting and defining goals

UNIT 10: Formulation of Contract: concept, rationale

Module 4 Social Case Work Intervention

UNIT 11: Social Case Work Models: Problem Solving, psychosocial,

UNIT 12: Task centred, Solution focused, System theory

UNIT 13: Crisis intervention, Cognitive restructuring

UNIT 14: Planning and developing an action plan based on the models of social case work

UNIT 15: Developing and supplementing resources, utilising and enhancing support systems

UNIT 16: Termination: Types, when to terminate, steps
Consolidating gains and planning maintenance strategies, relapse prevention,

UNIT 17: Evaluation: Outcomes, process, satisfaction

Module 5 Recording Social Case Work, Use of Supervision

UNIT 18: Recording: use, structure and content, Methods of recording:
Verbatim, narrative, condensed, analytical and summary records

UNIT 19: Supervision and development of personal and professional self,
Reflective practice in social case work

Module 6 Scope of Social Case Work

UNIT 20: Scope of social case work in different settings - family and child welfare settings, medical & psychiatry settings,

UNIT 21: Correctional settings, industrial settings,

UNIT 22: Community Development settings, school setting,

References

1. Beistek Felix. (1957). *Case Work Relationship*. Chicago: Loyola University Press
2. Grace Mathew. (1992). *Introduction to Social Case Work*. Bombay: Tata Institute of Social Sciences.
3. Hamilton Gordon, (1976). *Principles of social case recording*. New York: Colombia University Press.
4. Hepworth & Larsen. (2010). *Direct Social Work Practice: Theory and Skills (Eighth Edition)*. Belmont, CA: Brooks/Cole/ Thompson.
5. Woods, M. & Hollis, F. (2000). *Case work: A Psycho-Social Therapy*. New York: McGraw I Inc.
6. Perlman, H.H. (1957). *Social Case Work: A Problem Solving Process*. Chicago: University of Chicago Press.
7. Roberts, R.W., Nee R.H.(1970). *Theories of Social Case Work*. Chicago: University of Chicago press.
8. Fischer, J. (1978). *Effective Case Work Practice- An Eclectic Approach*. New York: McGraw Hill Book Co.

SW010202 COUNSELLING AND PSYCHOTHERAPY

Total Credits: 3

Total Hours: 54

Course

Outcomes

- Understand the process, the skills necessary and the principles to be abided by in helping individuals
- Acquire knowledge of the theoretical and therapeutic approaches in counselling and Psychotherapies
- Demonstrate knowledge and skills in the process and techniques of Counselling and Psychotherapies
- Demonstrate skills for ethical practice of counselling with different clients in various settings
- Understand the concepts of Psychotherapy and various psychotherapeutic techniques
- Demonstrate knowledge of skills and techniques of various psychotherapeutic interventions

Course Outline

Module 1 Fundamentals of Counselling

UNIT 1: Counselling: definitions, need, scope and principles

Types and fields of counselling: Individual counselling, Group counselling, career counselling, family counselling, pre-marital counselling, marital counselling, geriatric counselling.

UNIT 2: Concepts, similarities and differences: Guidance, counselling, Social Case Work, Psychotherapy

UNIT 3: Elements in counselling: counselee, counsellor, counselling setting. Important psychological tests and tools and its applications in counselling.

UNIT 4 : Code of ethics and ethical standards in Counselling

Module 2 Process in Counselling

UNIT 5: Counselling process:

Attending, Responding, Personalizing, Initiating, and Evaluating

UNIT 6: Relationship building Phase, Exploration and understanding phase, Problem Solving Phase, Termination and Evaluation Phase

UNIT 7: Components of the counseling relationship- Facilitative dimension and procedural dimension

Module 3 Qualities, Skills and techniques in Counselling

UNIT 8: Qualities of an effective counsellor

UNIT 9: Counselling skills- Questioning, paraphrasing, reflection of feelings, summarization, clarification, open and closed questioning, reinforcement, Extinguishing, leading, informing, contract, silence, referring, interpretation, Physical Attending skills: Non-verbal skills: Posture, Facial Expressions, Voice, Eye Contact

UNIT 10 : Counselling techniques: Listening, Responding, Goal setting, Exploration and Action, Behaviour techniques, Psychodrama, Role play

Module 4 Counselling practice in different settings

UNIT 11: Counselling in special situations: Family counselling- premarital, marital counselling; Industrial counselling; De-addiction Counselling- Motivation Interviewing; Sex Counselling; Career Counselling, Crisis Counselling; Genetic Counselling, Gerontological Counselling, Palliative programmes and counselling

UNIT 12: Specific Techniques in - Stress management, Anger management, Post traumatic Stress Counselling, Grief Counselling

UNIT 13: Counselling in the Context of HIV/ AIDS; Counselling and psychotherapy for Elderly: old age and retirement

UNIT 14: Counselling services for children and adolescents- Mental Health Promotion Programmes, Life skills education, sexuality education, School counselling and mental health programmes, Management of Screen addiction disorders

Module 5 Introduction to Psychotherapies

UNIT 15: Psychotherapy- Nature and scope , Common goals and ingredients of psychotherapy, Types of psychotherapeutic intervention

UNIT 16: Structuring therapeutic relationship: Nature of client-therapist relationship, dimensions and stages of client therapist relationship, building the helping relationship; structuring the therapeutic situation.

Module 6 Psychotherapeutic Interventions

Major principles, therapeutic process, Techniques; Application of

UNIT 17: Psychoanalysis, Client-centered therapy, Gestalt therapy,

UNIT 18: Behaviour Therapy, Cognitive Behaviour Therapy, Rational Emotive behaviour Therapy

UNIT 19: Reality therapy , Mindfulness and Solution Focused Treatment

UNIT 20: Transactional Analysis, Neuro Linguistic Programming

UNIT 21: Person Centred practices for person with disabilities(PWD)

UNIT 22: Eclectic approach in Counselling and Psychotherapeutic Interventions

References

1. Carroll, Michael., (1996). *Workplace Counselling: A systematic Approach to Employee Care*. London : Sage Publications
2. Corey, G. (2013). *Theory and practice of counseling and psychotherapy*. Australia Belmont, CA: Brooks/Cole, Cengage Learning
3. Fuster, J. M., (2002). *Personal Counselling*. Mumbai : Better Yourself Books
4. Gladding, S. (2013). *Counselling: a comprehensive profession*. Boston: Pearson.
5. Kinra, A. (2008). *Guidance and counselling*. Noida: Dorling Kindersley (India).
6. Nelson-Jones, R., (2000). *Practical Counselling and Helping Skills*. Mumbai : Better Yourself Books
7. Patri, V.R., (2005). *Counselling Psychology*. New Delhi : Authors Press
8. Rao, S.N., (2002). *Counselling and Guidance*. New Delhi : Tata Mc Graw Hill Publishing Company Ltd
9. Sharf, R. (2008). *Theories of psychotherapy and counselling: concepts and cases*. Australia United States: Thomson/Brooks/Cole
10. Yeo, Anthony, (1993). *Counselling a Problem Solving Approach*. Boa Vista: APECA publications in India.

SW010201 INTRODUCTION TO ABNORMAL AND SOCIAL PSYCHOLOGY

Total Credits: 3

Total Hours: 54

Course

Outcomes

- Understand the fundamentals of human behaviour
- Demonstrate knowledge of classification and overview of psychological disorders.
- Develop insight about the theories of human personality
- Demonstrate knowledge of concepts theories of social psychology
- Analyse individual behaviour in social context.
- Analyze the group behaviour in social context.

Course Outline

Module 1 Introduction to Abnormal Psychology

UNIT 1: Historical development of abnormal psychology, Concept of Normality and abnormality

UNIT 2: Concept of mental health – Characteristics of Mentally healthy person, positive mental health, promoting mental health

UNIT 3: Classification of psychological disorders– Functional & Organic, Neurotic & Psychotic, Introduction to ICD & DSM (ICD 10 & 11, DSM 5)

Module 2 Psychological Perspectives of Mental Disorders

Etiology and brief Overview of:

UNIT 4: Organic disorders, Mental and behavioral disorders due to psycho active substance use

UNIT 5: Schizophrenia and delusional disorders

UNIT 6: Mood disorders, Personality disorders, Suicide

UNIT 7: Neurotic, stress related and somatoform disorders: Phobia, Anxiety, Obsessive Compulsive Disorders, adjustment disorders, dissociative disorders and somatoform disorders

UNIT 8: Eating disorders, sleep disorders, sexual dysfunction

UNIT 9: Mental retardation , specific learning disability, pervasive developmental disability, hyperkinetic disorders, conduct disorders

Module 3

Theories of Personality

UNIT 10: Definition of Personality, Type & trait Theories, Detailed understanding of Psychoanalytic theory, Psychosocial Theory

UNIT 11: Learning theories: Operant conditioning, Classical conditioning, Social Learning

UNIT 12: Cognitive theory: Social Cognitive theory of Jean Piaget. Hierarchy of Needs Theory - Maslow
Humanistic /Existential theories - Carl Rogers, Eric Fromm

Module 4

Introduction and theoretical foundation of Social Psychology

UNIT 12: Introduction: Meaning, Definition, Historical background, Nature and Scope of Social Psychology

UNIT 13: Overview of the Theoretical foundations of Social Psychology

UNIT 14: Social Psychology as an Applied Science. Social Psychology and other related disciplines.

Module 5

Individual Behavior in social context

UNIT 15: Social Cognition: Meaning & Definition, determinants of cognition, Schemas and Heuristics

UNIT 16: Perception: Two major determinants of perception: Structural and functional factors - organized nature of cognitive field - Functional selectivity of perception - whole - part relationship - perceiving and judging people - Frame of reference - Stereotypes

UNIT 17: Attitude: Definition and Formation of attitudes - change of attitudes.

UNIT 18: Prejudice: Definition and characteristics of prejudices - cases of

prejudices.

Module 6 **Group Behavior in social context**

UNIT 19: Rumour: Definition and meaning of rumour - Circumstances responsible for spread of rumour - causes for spread of rumour - process of rumour - Check on propagation of rumours.

UNIT 20: Propaganda: Definition and meaning of propaganda – Psychological basis of propaganda - Techniques of propaganda - Media of propaganda - counteracting misleading propaganda.

UNIT 21: Crowd: Definition and characteristics of crowd; classification of crowd. Audience: Definition and characteristics of audience; classification of audience. Distinction between crowd and audience

UNIT 22: Group Morale: Meaning of Group Morale - Determinants of group morale -Characteristics of high and low morale, Group Behaviour

References

1. American Psychological Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: APA.
2. Baron Robert A., (1995). *Social Psychology - Understanding Human Interaction*. New Delhi: Prentice, Hall of India Pvt. Ltd
3. Brehm Sharon S., (1999). *Social Psychology*. New York : Houghton Mifflin Co.
4. Calhoun Donald W, (1976). *Persons-In-Groups: A Humanistic Social Psychology*. New York ; Harper Row
5. Carson, R., Butcher, J. & Mineka, S. (2000). *Abnormal Psychology and Modern Life*. Boston: Allyn & Bacon - Chicago: Nelson-Hall.
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SW010203

PROFESSIONAL SKILLS FOR SOCIAL WORKERS

Total Credits: 3

Total Hours: 54

Course Outcomes Upon completion of course students will:

- Demonstrate professionalism in their behaviour
- Demonstrate skills in critical reflection in personal and professional practice contexts
- Display knowledge and competence in life skills
- Demonstrate skills in communication
- Able to document social work practice in respective domain areas
- Display competence in management of teams and leadership in the practice context

Course Outline

Module 1 Professionalism and Professional skills

UNIT 1: Professional Behaviour: Meaning, Competencies and Capabilities of a Professional

Skills: concepts, standards and frameworks

UNIT 2: Overview of model Competency Frameworks: EPAS (CSWE)- Meaning, Components and Significance, Professional Capabilities Framework for Social Work in England

UNIT 3: Professional Grooming and Etiquettes: Personal and professional etiquettes and grooming, Use of professional language in communication, Characteristics of an employable professional

UNIT 4: Presentation skills: Public speaking and oral presentations

Technology-based Communication: Netiquettes: effective e-mail messages,

power point presentation

Module 2

Critical Reflection and Knowing the Self

UNIT 5: Critical Reflection: meaning, critical reflection and reflective practice in social work, Reflection on action, reflection in action and reflection for action

Critical reflection for professional decision making

UNIT 6: Self assessment: Identifying one's strengths and weaknesses, Identity, Body image and values. Tools used: Johari window, Identity circle, Keeping journal, Self performance appraisal, Self-awareness questionnaires- Questionnaires on Learning styles, Interpersonal needs, Assertiveness, Big five personality

UNIT 7: Building self-esteem and confidence, Setting values, Goal setting: Meaning of goal and goal setting, finding choices, Short term and long term, SMART goals

Module 3

Life Skills

UNIT 8: An overview of WHO Core Life Skills:

- Empathy, Self Awareness,
- Critical Thinking, Creative thinking
- Decision Making, Problem Solving
- Interpersonal relationships, Effective Communication
- Coping with stress, coping with emotions

UNIT 9: Application of life skills for personal development and for practice with clients

Module 4

Communication for Social Work Practice

UNIT 10: Development communication-Purpose, Principles, Paradigms
Modernization, Dependency and Participatory

UNIT 11: Application of Communication strategies in Development

projects

UNIT 12: Mass communication and Mass Media concepts; use with different target groups – therapeutic, education, entertainment and organization building

UNIT 13: Mass Media in Social work practice, IEC, BCC- Meaning, Developing IEC and BCC activities-Making Posters, brochures, banners, newsletters, use of puppetry, exhibition, folk art, theatre, rallies etc; Online campaign, use of Social media

Module 5

Documentation in Social Work

UNIT 14: Documentation: Meaning, Purpose and Types- report, video, audio, newspaper report

UNIT 15: Report writing-Basics of report writing, Structure of a report,

Analytical and creative writing skills for social work practice

Use of IT for documentation

UNIT 16: An overview of strategies for dissemination of social work activities – writing an abstract, scientific articles, scientific poster, newspaper reports, blogs, essays etc.

UNIT 17: Concept of plagiarism and measures to limit plagiarism in scientific writing

APA style

Module 6

Group Management and Leadership Skills

UNIT 18: Group formation: Ice breaking: Why and how? Ice breaking games, Group formation: group division games, Group dynamics techniques, trust building

UNIT 19: Decision making and problem solving in group: Three C model,

Rational model; Individual vs Group decision making: Group decision rules

UNIT 20: Conflict management and negotiation skills

UNIT 21: Professional Leadership: Assessment of leadership style, applying leadership style, emotional intelligence and leadership, developing skills for leadership, providing feedback, delegation

UNIT 22: Team Work: people skills and team work, setting goals, monitoring, facilitating and managing meetings

References

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2. CSWE (2015). *Educational Policy and Accreditation Standards Handbook*. Retrieved from <https://www.cswe.org/Accreditation/Standards-and-Policies/EPAS-Handbook>
3. Healy, K. & Mulholland, J. (2007). *Writing skills for social workers*. Los Angeles London: SAGE.
4. Kumar, Keval J., (2002). *Mass communication in India*. Jaico Publishing House
5. Mefalopulos, Paolo. (2008). *Development communication sourcebook: broadening the boundaries of communication*. World Bank.
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10. WHO (1997). *Life Skills Education for Children and Adolescents in Schools*. Geneva: WHO.

SW010204 SOCIAL WORK PRACTICE WITH GROUPS

Total Credits: 3

Total Hours: 54

- Course Outcomes**
- Understand Social Group Work as a method of Social Work and apply it as an intervention method.
 - Demonstrate skills to apply the method for development and therapeutic work
 - Understand the scope of Social Group Work in different settings.
 - Understand group work as an instrument of change/development in individual in groups
 - Develop skills to work with different stages and record the process
 - Display therapeutic skills for Group Work practice

Course Outline

Module 1 Introduction to Group Work and groups

UNIT 1: Definition of Social Group Work- Philosophy, Objectives
Historical development, current trends, its relevance and scope

UNIT 2: Values , Principles of group work

UNIT 3: Group- definition, Characteristics, Types of groups - open and closed groups , Treatment groups (Re-socialization groups, therapeutic groups, T-groups) , Task oriented groups (forum, committees and work team), **Developmental groups (self help groups and support groups**

UNIT 4: Role of groups in development of the individual

Module 2 Group Process

UNIT 5: Stages of Group development

UNIT 6: Group Process: Bond, acceptance, isolation, rejection, conflict and control , Subgroups- meaning and types

UNIT 7: Tools for assessing group interaction- Socio gram and sociometry, functional and non functional role of individuals in group

Module 3 Group Dynamics : Definition

UNIT 8: Group formation, Group norm, Group cohesiveness, Group culture, Group control, Group morale, Communication, Interaction

pattern , Decision making, Goal setting, Conflict resolution

UNIT 9: Group leadership, Concept.

UNIT 10: Theories, Types , Roles and qualities of Leadership,
Participatory leadership training

Module 4 Group Work process and Recording in Social Group Work

UNIT 11: Group Work process- intake, study, objectives and goal setting, interventions, evaluation and follow up

UNIT 12: Programme as a tool- principles of programme planning, programme media, programme development process

UNIT 13: Group Worker – Role and functions, skills, qualities, group work format

UNIT 14: Recording- Definition, Importance, Content, Principles and types.

Module 5 Group Work Models and Therapeutic Group Work

UNIT 15: Group Work Models: Social, Remedial, Reciprocal Models.

UNIT 16: Treatment Groups: Educational, Growth, Remedial and Socialization

UNIT 17: Group Work and Group Therapy

UNIT 18: Concept – Principles of Group Therapy

UNIT 19: Process in Group Therapy

Module 6 Group Work Practice in different settings, Research and evaluation:

UNIT 20: Group Work Practice includes problems to be intervened, group formation, principles applied, role of social work in :

- a) Child care settings,
- b) Family settings ,
- c) Correctional settings ,
- d) Community development settings ,
- e) Educational settings
- f) Health care setting

UNIT 21: Research in group work

UNIT 22: Evaluation-Definition, types -Process evaluation, outcome evaluation to be applied in group work

References

1. Conyne Robert K, (1999). *Failures in Group Work: How we can learn from our*

- mistakes*. Sage Publications.
2. Douglas Tom, (1978). *Basic Group Work*. Tavistock Pub.
 3. Garvin, Charles D. (1997). *Contemporary Group Work*. Prentice Hall.
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 6. Mary Richmond E, *What is Social Work?*
 7. Perlman Helen Harris, (1990). *Social case work*. New York : University of Chicago Press
 8. Schwartz Willam. (1971). *Practice of Group Work*. New York: Columbia University Press
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 13. Wilson, Gertrude, (1949). *Social group work practice: the creative use of the social process*, Houghton Mifflin Company
 14. Wilson, Rayland, (1949). *Social group work method*.

SW010205 SOCIAL WORK RESEARCH AND STATISTICS

Total Credits: 3

Total Hours: 54

Course

Outcomes

- Develop an understanding about the scientific approach to human inquiry
- Understand Social research as a method of social work and to develop the appropriate skills to effectively implement the research methods and techniques in the field.
- Demonstrate skills in literature search
- Able to design research proposals
- Understand the relevance and able to carry out appropriate statistical analysis in social work research.
- Independently evaluate different methodological approaches within qualitative research

Course Outline

Module 1 Introduction to Social Work Research

UNIT 1: Definition and objectives of social research and social work research. Scope and Nature of scientific enquiry

UNIT 2 : Basic elements of scientific method: concepts, conceptual and operational definitions, assumptions, hypothesis, theory, law.

UNIT 3: Variables and levels of measurement, Qualitative and quantitative methods. Types of quantitative researches.

UNIT 4: Design of research: Importance and types, explorative, descriptive, explanatory (diagnostic) and experimental methods (Pre, True and Quasi designs), Evaluative research- types, steps, Participatory research, action research, mixed research methods.

Ethical considerations in research

Module 2 Research Process

UNIT 5: Research proposal: meaning and major steps of a research

proposal.

UNIT 6: Identification and formulation of research problem. Need and importance of theoretical frame work in research, Review of Literature. Formulation of objectives, hypothesis.

UNIT 7: Population and sampling. Sampling definition, sampling theory, purpose and types-probability and non-probability sampling. Sources and types of data: primary and secondary, quantitative and qualitative data.

UNIT 8: Methods & Tools of data collection – observation, questionnaire, interview schedule, interview guide, Steps and guidelines in the construction of research instruments
Reliability, Internal and external validity

Module 3

Quantitative Analysis

UNIT 9: Nature and purpose of statistics – use of statistical methods and limitations of statistics.

UNIT 10: Tabulation of data – purpose and basis of classification, Frequency distribution-construction of frequency tables, graphic presentation of data- Bar chart, pie chart, histogram, frequency curve and ogive

UNIT 11: Selection of appropriate statistical methods –based on levels of measurement, number of variables, nature of research

Module 4

Statistical Procedures

UNIT 12: Interpretation and presentation of the statistical findings

UNIT 13: Descriptive statistics- Measures of central tendency: Mean, median, mode.

Measures of variability - range, Standard Deviation, uses-co-efficient of variation

UNIT 14: Inferential statistics - Correlation: Pearson's Coefficient of correlation, Spearman's Rank correlation.

UNIT 15: Significance tests: Parametric and Nonparametric tests

Pearson's chi square, 't' test, analysis of variance-one-way - Relevance, application and interpretation.

UNIT 16: Use of software packages in data analysis – SPSS. Process and various statistical procedures using SPSS.

Module 5 Qualitative Research methods for Social work

UNIT 17: Advantages and disadvantages of Qualitative research Methods. Possible biases and measures to ensure objectivity, Mixed methods

UNIT 18: Preparation of Qualitative research proposal- Important components, Precautions to ensure reliability and validity.

UNIT 19: Tools of data collection in Qualitative research method- Systematic observation, Focus group discussion, in-depth interview, Case studies, Projective techniques. .

UNIT 20: Critical review of research report

Module 6 Qualitative Data Analysis and Research Report

UNIT 21: Qualitative data analysis and interpretation of the findings, triangulation.

UNIT 22: Major components of a research report, Formats for presenting the report. APA Style in research reporting, bibliography and referencing.

References

1. Cresswell, J.W. (2012). *Educational Research*. New York: Pearson
2. Kothari. C.R, (2004). *Research Methodology*. New Delhi : NAI Publishers
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15. Sarantakos, (2005). *Social research*. New York : Palgrave Macmillan

SW010301 PLANNING AND IMPLEMENTATION OF DEVELOPMENT PROJECTS

Total Credits: 3

Total Hours: 54

- Course Outcomes**
- Understand in detail the nature, approaches and strategies of development projects
 - Analyze systematic approach to programme planning.
 - Develop an understanding of the changing trends in participatory programme planning approach in government and NGOs.
 - Demonstrate skills to handle various phases of Development projects
 - Understand the concepts of financial management of a project
 - Able to write project proposals

Course Outline

Module 1 Development projects

UNIT 1: Concepts of project and project planning, need assessment, programmes, project planning cycle, strategy formulation

UNIT 2: Application of PRA in project formulation, project activities, Characteristic features of a project, Scientific approach to project planning

UNIT 3: Principles in development projects: sustainability, development direction, viability, concern for the marginalized.

Module 2 Project identification

UNIT 4: Stages of project identification, Essentials of a development projects.

UNIT 5: Problem analysis, project designs, Goals and objectives, formulation of objectives, objective analysis, feasibility and viability, cost benefit analysis.

UNIT 6: Budgeting, activity plan, time schedule, Preparing different models of development projects, preparing project proposals.

Module 3 Project Appraisal and implementation

UNIT 7: Appraisal technique, Stake holder analysis, beneficiary analysis,

identification of beneficiaries.

UNIT 8: Implementation plan, Role of Intermediary Organisation in the administration of the project.

UNIT 9: Preparing procedures and rules for the efficient functioning of the organization.

UNIT 10: administering the project, management of the personnel, performance appraisal. Logical Framework Analysis and Result Based Management.

Module 4 Financial Management of the Project

UNIT 11: Preparation of cost plan, financial plan. Fund raising methods for local financial participation in the project. Need for cost-benefit analysis, Accounting and Record keeping in a Project.

UNIT 12: Preparation of accounts for auditing-records needed, Rules regarding foreign contributions-FCRA,

UNIT 13: Fundraising methods for local financial participation in the project.

Module 5 Monitoring and Evaluation of Project

UNIT 14: Monitoring & Evaluation – Concept, purpose, Monitoring cycle, process monitoring, output monitoring, project review.

UNIT 15: variance analysis, performance analysis, different types of M&E. Internal evaluation, External evaluation, Evaluation focus, steps in evaluation.

UNIT 16: Management Information System in Projects.

Project Scheduling –Gantt Charts, Programme Evaluation and Review Technique(PERT) and Critical Path Method(CPM)

UNIT 17: Logical Framework as a tool in Monitoring and Evaluation, Assessment at various stages of the project: Pre-programme Assessment, Feasibility Assessment, Mid-term and Impact Evaluation

UNIT 18: Criteria for evaluation: achievement of physical targets, utilization of benefits, people's participation, educative value, technical

aspects, deviation from the original plan, procedural accuracy, accounting procedures, costs, supervision efficiency, public relations.

Module 6 Project writing and project management skills

UNIT 19: Components of Project Proposal: Project title, Executive Summary.

UNIT 20: Introduction, objectives, project beneficiaries, activities of the project, strategy of implementation, budget/cost Plan, itemized budget

UNIT 21: Monitoring & evaluation plan, outcome/output/impact, sustainability of the project and conclusion.

UNIT 22: Report writing, documenting, Administration of project related staff, team work in the project, management and communication and relation with stakeholders, Public relation.

References

1. Chandra, P.(1995).*Projects: Planning, Analysis, Selection, Implementation, and Review*, Tata McGraw Hill Pub. Co. Ltd.
2. Choudhury,S (1988), *Project management*. New Delhi: Tata McGraw Hill
3. CIDA,SIDA,DANIDA Project databases
4. Fernando, Emmanuel S. Fr. *Projects from Problems*, Jain Book agency, New Delhi.
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10. Roy, Sam, M (2002),*Project Planning and Management, Focussing on Proposal writing*. The Catholic Health Association of India

SW010302 ADMINISTRATION OF HUMAN SERVICE ORGANIZATIONS

Total Credits: 3

Total Hours: 54

Course

Outcomes

- Develop understanding of the evolution of administration as a science and as a method in Social Work Practice.
- Develop understanding and appreciate the utility of the administrative structures, processes and procedures in an organization.
- Acquire knowledge and skills in the use of different management techniques in HSO.
- Develop an understanding of elements of management and
- Understand concepts in organizational management.
- Acquire knowledge of the concept of social marketing and its scope in social work practice.

Course Outline

Module 1 Introduction to Administration

UNIT 1: Evolution of administration as a science. Concepts - Administration, Organization, Management, Business Administration, Public Administration.

UNIT 2: Social Welfare Administration: Meaning, definition, scope, social welfare administration as a method of social work.

UNIT 3: Different social welfare programmes at the Central and State levels: Profile and functions of Central and State Ministries relevant to social welfare: MoWCD, MoSJE, MoUA, MoRD & PRI

Module 2 Introduction to Voluntary Organization

UNIT 4: Voluntary Organization: Organizational Structure, Functions and Principles. Role and type of voluntary organizations.

UNIT 5: Organizational structure, Organization - Types of organizations, characteristics of HSO, Procedures in registering an organization-Societies Registration Act, Trust Act and Companies Act (2013- Section VIII)

UNIT 6: Administrative skills; writing letters, reports and minutes, Fund

raising, conducting meetings, Public Relations and Networking

Module 3 Elements of Administration and Approaches to Organizational Management

UNIT 7: Basic elements in administration: Planning, Organizing, Staffing, Leading (directing, coordinating), Controlling (Reporting & Budgeting)

UNIT 8: **Organizational Management:** Concept, functional areas – Production, Finance, Marketing and Human Resources

UNIT 9: Approaches to Organizational Management - Bureaucratic, Democratic, Human Relations Model,

UNIT 10: System Theory, Theory X , Theory Y and Theory Z.

Module 4 Organisational Behaviour

UNIT 11: Concept of Organizational Behaviour, Organizational Culture, Organization development-process, approaches and strategies

UNIT 12: Evaluation of motivational theories and basic understanding of their application in the work context

UNIT 13: Leadership; meaning, definition and importance of leadership,

Theories of Leadership: Trait theory, Behavioural theories, contingency theories

UNIT 14: Communication in Organization

Module 5 Social Development Administration

UNIT 15: **Voluntary Action for Social Development, Concept and meaning of voluntary action. Voluntary Sector in India: NPOs, CSOs, CBOs.**

UNIT 16: **Social Entrepreneurship: Definition, types of Social Entrepreneurship, History of Social Entrepreneurship, Functions of Social Entrepreneurship, Difference between Social and Business Entrepreneurship.**

UNIT 17: **Corporate Social Responsibility (CSR):** Definition, Meaning and objectives of CSR, Provisions for CSR in Companies Act, models of

projects.

UNIT 18: Staff training and Development-Objectives and Needs - Training Process-Methods of Training-Tools and Aids - Evaluation of training Programs. Organizational Development programmes.

Module 6 Marketing of Social Services

UNIT 19: Social Marketing and marketing mix, Cause Related Marketing (CRM).

UNIT 20: Relevance of social services in developing economy; applications of marketing in social services such as health and family welfare.

UNIT 21: lifelong learning programmes, environment protection, social forestry, organizing for marketing social services.

UNIT 22: beneficiary research and measurement of their perceptions and attitudes; socio-economic-cultural influences on beneficiary system.

References

1. Abha, Vijay and Prakash.(2000). *Voluntary Organizations and Social Welfare*. ABD Publishers
2. Chhabra.T.N.(1999). *Principles and Practice of Management*. New Delhi: Dhanpat Rai & Co
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4. Goel S.L, *Social Welfare Administration VOL. 2: Theory and Practice*, Deep & deep Publication, Goel S.L., Jain R.K., (1988) .*Social Welfare Administration VOI. I: Theory and Practice*, Deep & Deep Publication,
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9. Ralph Brody. (2005).*Effectively Managing Human Service Organizations* (Third Edition). New Delhi: Sage Publications
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11. Sidmore Rex A. (1990). *Social Work Administration: Dynamic Management and*

SW800301 RURAL & URBAN COMMUNITY DEVELOPMENT

Total Credits: 3

Total Hours: 54

- Course Outcomes**
- Understand the concepts of rural and urban community development and the strategies and approaches for Rural & Urban Development.
 - Understand the problems and issues of People in Rural/Urban/Tribal/Coastal settings in India and the various Governmental programmes and interventions in these settings.
 - Study the functioning of rural and urban local self-government (LSG) and cooperative institutions and their contribution towards Rural and Urban Development.
 - Study the role of Civil Society and NGOS in Rural and Urban Development

Module 1 Introduction to Rural and Urban Community Development

UNIT 1: Definitions, concepts and objectives of rural community development.

UNIT 2: History and evolutions of rural community development models in India. Concepts of urban, urbanism, urban community development, urbanization.

UNIT 3: Principles and Theories of urban development: sector theory, concentric zones and multiple nuclei theory.

Module 2 Rural and Urban Problems

UNIT 4: Rural Poverty and unemployment. Water and Sanitation, Problems of Agriculture farmers and workers and food security issues in Rural India.

UNIT 5: Urban social problems: overcrowding, urban disorganization and maladjustments, urban migration. Poverty and unemployment in urban areas. Crime and juvenile delinquency. Urban housing and slums, waste management.

UNIT 6: Tribal community's social and development problems and interventions, Coastal community.

Module 3 Strategies, Approaches and Policies in Rural and Urban Community Development

UNIT 7: Concept of sustainability and sustainable development.

UNIT 8: Various Approaches to rural and urban development in India. A critical review of India's strategies for rural and urban development.

UNIT 9: National and state policies for rural and urban development. Five year plans and urban development welfare programmes for urban poor

UNIT 10: Urban development authorities at national and state levels.

Models of urban development in India. Public private partnership (PPP) for urban development (eg. Ahmedabad urban development Project).

Module 4 Programmes for Rural and Urban Development

UNIT 11: Ongoing programmes of Ministry of Rural Development and Panchyathi Raj of GOI and GOK.

UNIT 12: Analysis of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS).

UNIT 13: Programmes of Ministry of Urban Development at national and state levels. Urban housing schemes in Kerala.

UNIT 14 : Programmes of urban cooperative banks in Kerala

Module 5 Local self government and Cooperatives in Rural and Urban Development

UNIT 15: An Analysis of 73rd and 74th constitution amendment act.

UNIT 16: Concept of decentralized governance in India. Administrative set up for Panchyathi Raj Institution (PRI). Structure and functions of rural and urban local self-government institutions in Kerala.

UNIT 17: Programmes of rural and urban local bodies in Kerala. Role of local self government (LSG) in local development.

UNIT 18: An Analysis of Cooperative Movement and its contribution towards Rural development in India.

Module 6 Civil Society and NGOs in Rural Development

UNIT 19: Theory of Voluntarism and voluntary action for empowerment of rural communities. NGOs intervention in Rural development. Local initiatives and leadership in empowering rural communities.

UNIT 20: Case studies of Corporate Social Responsibility (CSR) and Rural Community Development.

UNIT 21: NGOs intervention in urban problems and urban community development. Role of civil society organizations (Resident associations and citizen clubs) in urban community development.

UNIT 22: Intervention of Corporate in urban problems: Case studies of Corporate Social Responsibilities (CSR) for urban community development.

References:

1. Barik, C.K & Sahoo, U.C. (2008). *Panchayati raj institutions and rural development*. Jaipur: Rawat.
2. Bhowmik, J.S.G.R. (2003). *NGOs and rural development: Theory and practice*. New Delhi: Concept.
3. Johri, P.K. (2005). *Social work for community development*. New Delhi: Anmol.
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14. Thudipara J.Z. (2007). *Urban community development (ed.2)*. New Delhi: Rawat.

SW800301 ENVIRONMENT AND DISASTER MANAGEMENT

Total Credits: 3

Total Hours: 54

- Course Outcomes**
- Develop perspective about the interrelatedness of human life and environment.
 - Develop an understanding of problems arising out of environmental degradation and globalization.
 - Study the role of social work practice in tackling environmental issues and disaster management.

Course Outline

Module 1 Concepts: Environment & Ecology

UNIT 1: People and Environment Interaction: Environment, Components of environment, Factors affecting Environment, Types of environment.

UNIT 2: Hazards-Geographical, Climatic and Atmospheric, The Interrelatedness of living organisms and natural resources

UNIT 3: Political Ecology - a frame work for understanding sources and political ramifications of environmental change

Module 2 Global Environmental Crisis and its linkages to the development process

UNIT 4: Climate change and Global warming-Causes, Problems and interventions

UNIT 5: Environmental politics and resource development regimes

UNIT 6: Sustainable development - Management & Conservation change

UNIT 7: Energy Conservation and Management- Conventional and non-conventional sources of energy

Module 3 State of India's Environment

UNIT 8: Waste Management; Pollution - Air, Water, Soil, Noise, Light, Radioactive.

UNIT 9: Impact of Pollutants on Human Life, Prevention and control of pollutions

UNIT 10: Laws related to environment. National Environment policies, National green tribunal, Environment Issues in India

Module 4 **Social Work and Environment:**

UNIT 11: Green protocol, Green Social Work Initiatives

UNIT 12: Environment Education,

UNIT 13: Environment Ethics,

UNIT 14: Promotion Environment Movements, Environment Management –EIA.

Module 5 **Disaster**

UNIT 15: Definition, Natural and Human made disasters, Stages of Disaster. Multiple causes & effects; Vulnerability, Hazards.

UNIT 16: Major Natural disaster-Cyclone, Earth quake. Land slide, Flood, Forest fire, Tsunami

UNIT 17: Development & Disaster; Preventive Measures

Module 6 **Disaster Management and Social Work Responses**

UNIT 18: Stages –Preparedness, rescue, relief, reconstruction & rehabilitation. Disaster Risk assessment, Risk Reduction in communities, Resilience

UNIT 19: Natural hazards disaster management and Mitigation. Disaster management Cycle- Before disaster, During a disaster ,After disaster

UNIT 20: Psycho social intervention.

UNIT 21: Role of government and voluntary organizations. National and state disaster management authority, Disaster Management Policy

UNIT 22: Social Work responses in disaster management

References

- 1 Aggarwal, Nomita,(2003) *Social Auditing of Environmental Laws in India*,
- 2 Bharucha, Erach, (2005) *Text book of Environmental Studies for Undergraduate Courses*
- 3 Benimadhab Chatterjee, (2003) *Environmental laws: Implementation problems and perspectives*
- 4 Gulia, K S (2004), *Geneses of Disasters: Ramifications and Ameliorations*
- 5 Dasgupta, Rajdeep (2007) *Disaster management and rehabilitation*
- 6 Rajagopalan,R, (2009) *Environmental Studies : From Crisis to Cure*
- 7 Shukla,S K and Srivastava,P R (1992), *Human Environment: An Analysis*,
- 8 Shukla,S K and Srivastava,P R (1992), *Environmental pollution and chronic diseases*
- 9 Goel,P.K, (1996), *Environmental Guidelines and Standards in India*
- 10 Sharma J.P, (2004), *Comprehensive Environmental Studies*
- 11 Rajesh Dhankar (2006), *Environmental Studies*
- 12 Panday, P.N.,(2010), *A Text book of Environmental Pollution*

SW800303 COMMUNITY HEALTH FOR DEVELOPMENT PRACTICE

Total Credits: 3

Total Hours: 54

Course Outcomes

- Understand the concept of health and integrated approach to health in the context of Development.
- Critically analyze plans and policies/services in health and implications for social work practice.
- Demonstrate knowledge on concepts of Community Health, community participation, vital indicators and demographic data of health
- Develop skills for intervention in community health sector

Course Outline

Module 1 Community Health & Epidemiology

UNIT 1: Community Health-Definition and Scope. Concept of Public health- Definition, Objectives and Areas of Public health

UNIT 2: Concept and various dimensions of: International /Global Health, Environmental health, Nutritional Health, Occupational Health, Maternal and child health Community Mental Health.

UNIT 3: Meaning and scope of epidemiology: Models and factors associated with health and diseases, Preventive and promotive health

UNIT 4: Special aspects of community health-Alcoholism and Drug Dependence –Agent factors, prevention, treatment and Rehabilitation- Physical and Psychological aspects of Community Health

Module 2 Health care system and health problems in India

UNIT 5: Definition of health, aspects and indicators of health. Health care systems: Organization of the various health care system- Private Health system, Indigenous system, Voluntary health system, Problems of health care system

UNIT 6: Important health problems in India- Current Major healthcare issues.

UNIT 7: Health Economics - Basics of health economics, Demand/Supply of Medical Care

Module 3 **Health Policies and Programmes**

UNIT 8: Policies -National Health Policy, Population Policy, Health for all, Population Dynamics in India and Kerala, GOI & State Govt. Policy in implementation of Health insurance

UNIT 9: National Health programmes: Family welfare; Maternal & Child Health, ICDS; School Health Programmes, National Health Mission (NHM), UIP NEMP; NLEP; NTP; Diarrhoeal disease control Programme: IDD, AIDS Control programme , National Programme for control of blindness, welfare measures for the physically challenged.

UNIT 10: 13 International Health organizations (WHO, UNCEF, Red Cross)

UNIT 11: State health programmes for weaker sections, physically challenged and developmentally challenged

Module 4 **Health Planning and Management**

UNIT 12: Concept of Health Planning & Planning Cycle,

UNIT 13: Health Planning in India and Five Year plans

UNIT 14: Healthcare planning process: Information Gathering, Analysis of Health Situation, Establishment of Objectives and Goals, Assessment of Resources, Fixing Priorities, Write-up of Formulated Plan, Programming and Implementation, Monitoring, Evaluation

UNIT 15: 18 Management techniques and methods

Module 5 **Health Care Administration**

UNIT 16: Concept of Health Care and levels of Health care

UNIT 17: Health care administration. Principles of health care administration, HealthCare System in India-Central, State and District level National Rural Health Mission

UNIT 18: Primary Health care in India- sub center, primary health center, community health center, Roles and functions of health personnel in these

level including ASHA workers.

Module 6 Social Work Interventions in Community Health

UNIT 19: Need for social work Intervention in Community health practice-

UNIT 20: Skills of a social worker in health care

UNIT 21: Preventive and promotive programmes

UNIT 22: Health education in schools/families/communities. Role of social worker in community health care services

References

- 1 Basavanthappa.B.T. (1998). *Community Health Nursing*, Jaypee Brothers
- 2 Dawra,S.(2002). *Hospital Administration and Management*. New Delhi: Mohit Publications
- 3 Goel, S.L.(2004).*Health Care Management & Administration*. New Delhi: Deep & Deep Publications Pvt. Ltd.
- 4 Goel, S.L.,Kumar,R.(2007). *Hospital Administration and Management- Theory and Practice*. New Delhi: Deep & Deep Publications Pvt. Ltd.
- 5 Hellberg J.H. (1971).*Community health*, Co-ordinating Agency for Health Planning
- 6 Park K, (1997).*Preventive and Social Medicine*,Jabalpur:BanarsidasBhanot Publishers
- 7 Rajneesh, Goel. (2002).*Community health care*, Deep & Deep Publications
- 8 Sundar, Kasturi. (1997). *Introduction to Community Health Nursing: with Special Reference to India*, B.I.Publications
- 9 Tabish, S.A.(2001). *Hospital & Health Services Administration*. New Delhi: Oxford University Press.

SW010401 Social Legislation and Human Rights

Total Credits: 3

Total Hours: 54

Course

Outcomes

- Understand the Indian Legal System and its functioning.
- Understand and appreciate the Indian Constitution with particular emphasis on the Fundamental Rights and Directive Principles.
- Understand the nature of social legislation and the various
- Explain salient features of legislations for family, women, children and other marginalized groups.
- Explain the concept of social policy and demonstrate skills in social policy analysis.
- Demonstrate skills of using legal procedures to defend the human rights of various marginalized groups

Course Outline

Module 1 Legislation in India

UNIT 1: Legislation –concept and definitions; meaning and scope; kinds of law, Indian legal system, legislation as a judicial branch of Government, sources of law, law making body, process of legislation and Judicial review.

UNIT 2: Social Legislation- concept, objectives, Social Legislation and Social policy, Social Change, Social control and social justice.

UNIT 3: Indian constitution and Social Legislation-fundamental rights and duties, writs, DPSP.

UNIT 4: Social legislation and Social work, Role of social worker in legal assistance

Module 2 Legislations related to women, children, family and marginalized groups

UNIT 5: Marriage, Divorce, widow remarriage, introduction to succession and laws of inheritance, women's property rights, maintenance.

Women's commission, Jagratha Samithy, DV Act, Family court-structure and functioning

UNIT 6: Laws relating to Child welfare and protection: JJ Act, POCSO Act, laws relating to child marriage, child labour, trafficking etc, Guardianship, Commission for Child Rights.

Childline; Government and Non-Governmental organizations handle legislations related to children (Children's home, Child line etc.).

UNIT 7: Protection of civil rights, prohibition of atrocities, Immoral traffic prevention, sexual offences, indecent representation of women, trafficking of women, Persons with Disability, protection of Elderly, constitutional provisions to SC/ST.

UNIT 8: Laws relating to Health: Mental Health Act, MTP, Medical Negligence, food adulteration.

Module 3 Tools and systems for social defence

UNIT 9: Social Defence-definitions and objectives, IPC, CrPC, Role of court, Judiciary.

UNIT 10: Police and prisons, Rights related to arrest, detention and imprisonment.

UNIT 11: Probation and parole, need for rehabilitation of ex-convicts.

Module 4 Social Policy

UNIT 12: Social Policy-concept: need and importance.

UNIT 13: The cycle of policy process: 1. identification of underlying problems 2.determine alternative for policy choices, 3.forecasting and evaluating alternatives 4.making a choice 5.policy implementation 6.policy monitoring,7.policy outcome,8.policy evaluation,9.problem restricting.

UNIT 14: Familiarise policies of local, national and global levels in the field of education, health, child welfare and environmental sustainability

Module 5 Social Security

UNIT 15: Meaning of Social Security, need, importance and types- Social Insurance and Social Assistance.

UNIT 16: ESI Act, Workmen's compensation Act, Maternity Benefit Act, Minimum Wages Act – MGNREGA

UNIT 17: Laws relating to consumer protection, environment protection,

land reforms.

UNIT 18: Corruption: RTI as a tool.

Module 6 Legal service authorities and human rights

UNIT 19: Legal aid, Legal Service Authorities

UNIT 20: Lok Adalat, Public Interest Litigation- meaning, conditions, process

UNIT 21: Human Rights, UNDHR, National and State Human Right Commission

UNIT 22: Application of Social Legislation in Social Work, Role of Social Worker in relation to Social Legislation and Human Right issues.

References

1. Ahuja Sangeeta, (1997). *People law and Justice: A Case Book of Public-Interest Litigation*. Orient Longman Vol.1.
2. Barusch, A. (2006). *Foundations of social policy: Social justice in human perspective* (2nded.). Belmont, CA: Thomson Brooks/Cole.
3. Flynn, J. P. (1992) *Social Agency Policy: Analysis and Perspectives for Community Practice*. Chicago : Nelson Hall publishers
4. Jansson, B.S. (2008) *Becoming an Effective Policy Advocate: From Policy Practice to Social Justice* (5th ed.): California : Wadsworth Publishing Company, Belmont
5. Diwan Paras; Peeyushi Diwan (1996). *Family Law (Hindus, Muslims, Christians, Parsis and Jews)*. Allahabad Law Agency
6. Matha P.D., (1986). *Family Courts*, New Delhi: Indian Social Insti.
7. Smith N.J., (1972). *Brief Guide to Social Legislation*, London: Methuen & Co.Ltd.
8. Sugathan N (1983). *Kerala Land Reforms Act*, Cochin: Kerala Law Publi.
9. Tandon Mahesh Prasad; Tandon Rajesh (1973). *Questions and Answers on the Code of Criminal Procedure*, Allahabad Law Agency, Allahabad, Bare Acts of Respective Legislations.
10. The Constitution of India, Ministry of Law and Justice, Government of India.
11. Alcock, P; May, M; Lingson, R.K (eds.)(1998) *The Student's Companion to Social Policy*, MA: Blackwell.
12. Gangrade K.D. (1978). *Social Legislation in India*, Delhi: Concept Pub., Vol. I & II.

SW010402 Gerontological Social Work

Total Credits: 3

Total Hours: 54

Course

Outcomes

- Understand the concept of gerontology and approaches to ageing
- Analyse the process and issues of ageing
- Analyse policies and programmes for elderly in India.
- Demonstrate skills in working with elderly
- Demonstrate knowledge and skills for interventions in Gerontological Social Work
- Explain and analyze institutional and non-institutional services for elderly

Course Outline

Module 1 Gerontology and Theories and Approaches to Ageing

UNIT 1: Definitions- Key concepts- Gerontology, older people, ageism, geriatric care and Gerontological social work.

Healthy aging- concept, components and core principles.

UNIT 2: Myths, assumptions and attitudes about ageing, global perspective and Indian perspective.

Vulnerability in the Older Adult: Marginalization due to class and caste, gender, migration, occupation and disability.

UNIT 3: Theories of Ageing: modernization theory, disengagement theory and activity theory.

Approaches: Psycho-dynamic, ecological and lifespan.

UNIT 4: Population Dynamics and Relevance of social work in the field of Gerontology.

Module 2 Process of Ageing and Emerging Issues

UNIT 5: Process of Ageing: Causes and Consequences

UNIT 6: Nature of Degeneration: Diabetes; Cardiovascular Disease

UNIT 7: Disability-related issues: Ophthalmologic, Hearing Impairment, Dental problems, difficulties in Speech and Orthopaedic problems like

Arthritis and Osteoporosis.

UNIT 8: Terminal Illnesses; Psycho-neurological issues like Depression, Anxiety, Dementia, Parkinson's Disease, Alzheimer's Disease.

UNIT 9: Importance of promoting healthy methods of handling changes in physical and mental abilities in the natural process of Ageing.

Module 3 Policies and Programmes

UNIT 10: International policies and provisions: UN Principles for Older Persons (1991), Proclamation on Ageing and the Global Targets for Ageing (2001) and the Universal Declaration of Human Rights (UDHR, 1948), WHO active aging policy framework.

UNIT 11: Constitutional provisions and policies in India: National Policy on Older Persons (1999). Older Persons (Maintenance, Care & Protection) Bill, 2005; The Maintenance and Welfare of Parents and Senior Citizens Bill, 2007

UNIT 12: Programmes for the Older Adults over the Five Year Plans: Welfare Schemes; Shelter and Housing; Health and Disability; Health Insurance.

Pension and Retirement; Issues in access to these programmes and denial of Rights.

Module 4 Working with the Older People

UNIT 13: Defining role and functions. Social work practice with elderly - care and rehabilitation of elderly in developed countries. Formal and informal care.

UNIT 14: Work on psychological aspects (work-related, self-esteem and mental health), social and cultural aspects (social roles and support, family relationships leisure, handling technology), Assessing mental and physical capacity.

UNIT 15: Work on economic security (dependency, housing, retirement and reduction in income, unorganised sector)

UNIT 16: Work on legal and advocacy issues (legal problems, wills).

Module 5 Interventions in Gerontological social work

UNIT 17: Definition of Gerontological Social Work

UNIT 18: Gerontological Social Work Process: Psychosocial Assessment; Interventions – older adults and their families; Advocacy and Empowerment oriented social work programmes.

UNIT 19: Interdisciplinary team practices in elderly care. Role and skills of social worker in dealing with elderly and their families

UNIT 20: Modes of Practice Intervention with older adults: Cognitive – Behavioural interventions; Psychodynamic Psychotherapy; Reminiscence and Life Review; Strength – Based and Solution - Focused Approaches.

Module 6 Institutional and non- institutional services for older people

UNIT 21: Residential care services by government and non- government organizations

UNIT 22: Non- residential care for the older people, Community based care for the older people

References

1. Akundy Anand (2004): *Anthropology Of Aging : Contexts, Culture And Implications*. New Delhi: Serials Publications.
2. Cowgill, D., and Lowell, D. (1972). *Aging and modernization*. New York: Appleton-Century-Crofts.
3. Cumming, E., and William, H. (1961). *Growing old: The process of disengagement*. NY: Basic Books.
4. Desai, M. & Raju, S. (2000). *Gerontological Social Work in India: Some Issues & Perspectives*. New Delhi: B.R. Pub. Corp. India.
5. Ramamurti P V & Jamuna D (2004). : *Handbook Of Indian Gerontology*.. New Delhi: Serials Publications.
6. Turner, F. (1992). *Mental Health and the Elderly: a Social Work Perspective*. New York Toronto New York: Free Press Maxwell Macmillan Canada Maxwell Macmillan International.
7. World Health Organization. (2002). *Active Ageing: A Policy Framework*. Second United Nations World Assembly on Ageing, Madrid, Spain.

SW800401 Human Resource Management for Development Practice

Total Credits: 3

Total Hours: 54

- Course Outcomes**
- An understanding of the strategic issues and organisational challenges in Human Resource Management
 - Relevant management competencies, leadership skills and analytical capabilities in HR management
 - Insight into the different strategies and approaches commonly adopted in Development Practise
 - An appreciation of the issues of managing changes in Human Resource Management.
 - Access to a strong network and connections within the sector
 - Confidence to pursue a career in the Human Resource Management sector.

Course Outline

Module 1 Over View of Human Resource management

UNIT 1: Background and definition of Human resource management, Human Resource meaning.

UNIT 2: Objectives and Scope of HRM

UNIT 3: Functions of HRM, HRM as a Profession

UNIT 4: Strategic Human Resource management - Role of HR Managers

Module 2 Staffing: Work force planning and Employment

UNIT 5: Recruitment, selection process

UNIT 6: Building employee commitment: Promotion, Induction, job description, job analysis and talent management job specification, role analysis

UNIT 7: Career planning and career development.

Module 3 Orientation & Employee Training

UNIT 8: Significance of Employee training, Assessing Training needs.

UNIT 9: Scope of training, steps in training, Methods of training

UNIT 10: Evaluation of a training program

Module 4 Compensation and Administration

UNIT 11: Types of compensation, Theories of compensation

UNIT 12: Factors determining pay rate, Current trends in compensation

UNIT 13: Job evaluation , Incentives, Concepts of wages, Pay structure.

UNIT 14: Performance appraisal in practice, Managing promotions and transfers

Module 5 Employee and Labour Relations

UNIT 15: Maintaining Positive Employee Relations

UNIT 16: Managing discipline, managing grievance, managing stress, counselling.

UNIT 17: Employee security, managing dismissals and separation.

UNIT 18: Importance & Implications of labour legislations, Occupational health and safety

Module 6 Essential aspects of organizational behaviour :,

UNIT 19: Introduction to organizational behaviour, diversity in organizations/ job attitudes and job satisfaction

UNIT 20: Leadership: contemporary approaches:- trait approach, skills approach, style approach, situational approach, contingency theory, path-goal theory, leader member- exchange theory

UNIT 21: Transformational leadership, servant leadership, Authentic leadership, team leadership, culture and leadership

UNIT 22 Organizational system: organizational structure/ organizational culture/ organizational change

References

1. Gary, D. (2005). *A Frame Work for Human Resource management*. New Delhi: Pearson Education Pvt. Ltd.
2. Northouse P.G (2013). *Leadership- Theory and Practise Sixth Edition*. New Delhi: Sage Publications India Pvt Ltd.
3. Pravin, D. (2010). *Human Resource Management*. Noida: Pearson India Education Services Pvt.Ltd.
4. Ratnam Venkata C S, Srivatava B K. (2011). *Personal Management and Human Resources*. New Delhi: Tata Mc Graw-Hill Education private Limited.
5. Robbins Stephen P., Judge Timothy A., Sanghi Seema. (2010). *Essentials of Organizational Behaviour*. Noida: Dorling Kindersley(India)Pvt.Ltd.

SW800402 Economic Development: Theory and Practice

Total Credits: 3

Total Hours: 54

- Course Outcomes**
- Understand critical perspectives on various dimensions of development
 - Apply appropriate strategies and models in their development practice
 - Demonstrate skills to quantify the development outcomes for strategic development planning
 - Evolve new strategies and models for achieving sustainable development goals

Course Outline

Module 1 Introduction to economic growth and development

UNIT 1: Concepts of economic growth, economic development, new economic view of development: “Sen’s Capabilities”, development and happiness, core values of development, the 2030 Agenda for sustainable development.

UNIT 2: Features, determinants and dimensions of economic growth and development. Diverse structures and common characteristics of developing economies. Obstacles to growth and development and consequences of under development.

UNIT 3: Indices of economic development: GNP/GDP, Per Capita Income, Physical Quality of Life Index, Human Development Index, Human Poverty Index, Multidimensional Poverty Index, Social progress Index, Happiness Index.

Module 2 Theories, models and approaches to development

UNIT 4: Classical theory of economic growth and development (views of Adam Smith, Ricardo, Malthus, and J.S Mill).

Karl Marx’s approach to capitalistic development & social change and Marxian model of development.

UNIT 5: Schumpeter's analysis and capitalist development, W.W. Rostow's stages of economic growth (stage theory of development).

UNIT 6: An over view of structuralist approach, dependency approach (*Neo Colonial dependence model, dualistic development thesis*) and market friendly approaches.

UNIT 7: Low level equilibrium trap, theory of big push, theory of balanced growth vs. unbalanced growth strategy.

Module 3 **Poverty and inequality**

UNIT 8: Concept of poverty, the vicious circle of poverty, causes of poverty, culture of poverty.

UNIT 9: Poverty eradication measures in India and their efficiency.

UNIT 10: Inequality: measurement inequality (Gini coefficient).

Determinants of inequality. Impact of inequality on economic growth and development, strategies to address inequality

Module 4 **Labour and Development**

UNIT 11: Labour migration: trends, characteristics and determinants.

The labour market in developing countries, issues of employment and wages in developing economies.

UNIT 12: Informality as exclusion and choice, characteristics of informality, feminization and informalization of labour.

UNIT 13: Education and human capital, education policies and challenges in skill development.

UNIT 14: Labour market institutions and labour market policies for development.

Module 5 **Gender and development**

UNIT 15: Women in Development (WID), Women and Development (WAD), Gender and Development(GAD), Gender Development Index(GDI), Gender Empowerment Measure(GEM)

UNIT 16: Gender equality and gender mainstreaming; empowerment of women, principles and strategies for gender mainstreaming. Gender analysis: gender analysis frameworks (Harvard analytical framework, gender analysis matrix, capacities and vulnerabilities analysis framework, women's empowerment framework, social relations approach).

UNIT 17: Gender budgeting: definition and purpose, policy framework for budgeting (global, national, state levels), enabling factors for gender budgeting, budgeting approaches, analysis of gender budgeting in central, state and local self-governments'.

UNIT 18: Women in local economic development: potential role of women in the local economic development, analysis of cases studies of *women collectives* in economic development, gender mainstreaming in local economic development strategies, engendering local economic development strategies.

Module 6 Economic planning and development

UNIT 19: Meaning and features of economic planning. Types and objectives of economic planning.

UNIT 20: Need and significance of planning in developing economies.

UNIT 21: Features of planning in India and contemporary challenges.

UNIT 22: Micro planning and local development: approaches and strategies, analysis of people planning programs in Kerala in the context of decentralized governance.

References

Jhingan, M. (2006). *The economics of development and planning*. New Delhi: Nisha enterprises.

Santhakumar, V. (2013). *Economics in action: An easy guide for development practitioners*.

New Delhi: Sage publications India Pvt Ltd.

Todaro & Smith, M. P. (2012). *Economic Development (10th edition)*. New Delhi: Dorling

Kindersley (India) Pvt Ltd.

Thirwall, A. (2011). *Economics of development (9th edition)*. Basingstoke: Palgrave Macmillan

Publishers Ltd.

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR UNDER GRADUATE PROGRAMMES IN

B.A History (Model II)

UNDER CHOICE BASED CREDIT SYSTEM (UG CBCS) 2017

2017 ADMISSIONS ONWARDS

MODEL – II B.A History (Vocational) Communication and Publishing Science

Sem	Title with Course Code	Course Category	Hours per Week	Credit	Marks	
					Int l	Extl
I	Common English - 1	Common Course	5	4	20	80
	Common Second Language - 1	Common Course	5	4	20	80
	Perspectives and Methodologies in Social Sciences – History - HY1CRT01	Core	5	4	20	80
	History of Printing and Publishing in India - HY1VOT01	Vocational core	5	4	20	80
	Economics – 1	Complementary	5	4	20	80
II	Common English – 2	Common Course	5	4	20	80
	Common Second Language – 2	Common Course	5	4	20	80
	Understanding Early India: From Hunting Gatherers to Land Grants - HY2CRT02	Core	5	4	20	80
	History of Publishing in Kerala - HY2VOT02 /	Vocational core	5	4	20	80
	Economics – 2	Complementary	5	4	20	80

III	Common English – 3	Common Course	5	4	20	80
	Polity, Society and Economy in Pre Colonial India - HY3CRT03	Core	5	4	20	80
	Cultural Trends in Pre Colonial Kerala - HY3CRT04	Core	5	4	20	80
	Principles and Methods of Publishing Science - HY3VOT03	Vocational	5	4	20	80
	History of Malayalam Literature – 1	Complementary	5	4	20	80
IV	Common English – 4	Common Course	5	4	20	80
	Making of Modern Kerala - HY4CRT05	Core	5	4	20	80
	Researching the Past - HY4CRT06	Core	5	4	20	80
	Copyright Law - HY4VOT04	Vocational	5	4	20	80
	History of Malayalam Literature – 2	Complementary	5	4	20	80
V	Inheritance and Departures in Historiography - HY5CRT07	Core	5	4	20	80
	India: Nation in the Making - HY5CRT08	Core	5	4	20	80
	Environmental Studies and Human Rights in Historical Outline - HY5CRT10	Core	5	4	20	80
	Publishing Management- HY5VOT05	Vocational	5	4	20	80
	Social Implications of Modern Revolutions -- HY5OCT02	Open Course	4	3	20	80
	Project	Project	1	0		
	Study Tour to Important Historic Sites					

VI	Making of Contemporary India- HY6CRT11	Core	5	4	20	80
	Understanding Modern World - HY6CRT12	Core	5	4	20	80
	Capitalism and Colonialism - HY6CRT13	Core	5	4	20	80
	Book Production and Management - HY6VOT06	Vocational	5	4	20	80
	Introduction to Mass Communication - HY6CBT04	Choice Based Core	5	3	20	80
	Project	Project	0	2		
Total			150	120		

3 weeks on – the job training is to be designed as a part of Vocational content.

Project is a single paper spread over 5th and 6th Semester.

Internal and External evaluation will be done in the 6th semester only.

Core Courses

Semester I

HY1CRT01- Perspectives and Methodologies in Social Sciences – History

Semester II

HY2CRT02- Understanding Early India: From Hunting Gatherers to Land Grants

Semester III

HY3CRT03–Polity, Society and Economy in Pre Colonial Period

HY3CRT04-Cultural Trends in Pre Colonial Kerala

CORE COURSES

SEMESTER - 1

HY1CRT01- PERSPECTIVES AND METHODOLOGIES IN SOCIAL SCIENCES – HISTORY

Module I Introduction to Social Sciences

Social Science -Its historical setting. **Relevance of the Social Sciences to understanding and solving contemporary problems at the regional, national and global levels.** Discussion of basic principles and concepts Basic epistemology of Social Sciences

Core Readings

- Hunt, Elgin F, Social Science and its Methods, *in Social Science an Introduction to Study of Society*, Allyn and Bacon, 2008
- Perry, John, Through the Lens of Science, *in Contemporary Society: An Introduction to Social Science*, Allyn and Bacon, 2009.
- Porta, Donatella Della and Michael Keating, *Approaches and Methodologies in the Social Sciences: A pluralistic Perspective*, Cambridge University Press, Delhi, 2008, pp. 19-38.

Module II Survey of the Social Sciences

Social Sciences: How they are related how they are different Social Science disciplines Relation to other fields of knowledge. **History and its relation with other social sciences- Differing nature of history as a social science-** Multi disciplinary and inter disciplinary methodology- interdisciplinary approaches in history

Core Readings

- Perry, John, Through the Lens of Science, in *Contemporary Society: An Introduction to Social Science*, Allyn and Bacon, 2009.
- Natraj, V.K., et.al, Social Science: *Dialogue for Revival*, *Economic and Political Weekly*, August, 18, 2001, pp. 3128-3133.

Module- III- Nature of Social Sciences

Notions of objectivity and subjectivity in social sciences- objectivity and subjectivity in history-

Use of theories in history.

Core Readings;-

- Weber, Max, *Objectivity in Social Science and Social Policy* in *The Methodology of Social Sciences*, Free Press, Illinois, 1949, pp. 49 – 112.
- Mark J Smith (Ed.) , *Philosophy and Methodology of Social Sciences*, Vol. II, Sage Publications, New Delhi 2005, pp. 3-49.
- Nagel, Ernest, *Problems of Concept and Theory Formation in Social Sciences*, ibid pp.301-390

Module IV- On History

Understanding History- Definitions of history- nature of history- scope of history- epistemologies relevant to history- kinds of history- political-social- economic- intellectual, gender- local- oral histories.

Core Readings

- E H Carr, *What is History*, Penguin, 2008.
- Arthur Marwick, *Nature of History*, Macmillan, 1989
- Arthur Marwick, *New Nature of History*, Palgrave, 2001.
- Marc Bloch, *Historian's Craft*, Manchester University Press, 1992.
- Shashibushan Upadhyaya, *Historiography in the Modern World*, OUP, 2016
- John Tosh, *Pursuit of History*. Rutledge, 2005.

SEMESTER 2

HY2CRT02- Understanding Early India: From Hunting Gatherers to Land Grants

Module 1

Prehistoric Cultures in India-Hunting gathering to settled agriculture-Palaeolithic-Neolithic Revolution-Pre Harappan Cultures and sites-Chalcolithic settlements- Proto History- Harappan Civilization.

Module 2

Age of early literatures-1500-600BCE- Sources-Literature- Pottery- Identity of Aryans- Debate- Early and Later Vedic Age- Social Stratification-Varna to Jati- Tribal Society- State Formation.

Module 3

Second Urbanization- Jana- Mahajanapadhas- Magadha-Heterodox Sects- Jainism-Buddhism-Ajivikas-Charvakas- Early Tamilakam-Literature and Polity.-Rise of Urban centers-Trade.

Module 4

Early State Formation- Mauryas-Sources-The first centralized Empire- Polity-Administration-diplomatic policy of Dhamma- Post Mauryan dynasties- Gupta Age- Age of land grants- Indian Feudalism-Debate-Development in Art and Architecture-Gandhara Mathura and Andhra School of art-Temple Architecture-Nagara-Dravida and Vesara

Essential Readings

- D. D. Kosambi, An Introduction to the Study of Indian History, Sangam Books, 2004.
- D. N. Jha, Economy and Society in Early India: Issues and Paradigms, Munshiram Manoharlal Publishers, 1993.
- D.N Jha, The Feudal Order: State, Society, and Ideology in Early Medieval India, Manohar Publishers & Distributors, 2002
- Gamble Clive, Archaeology: The Basics, Routledge, 2007.

- Gregory L Possehl, *The Indus Civilization, A Contemporary Perspective*, Sage, 2010.
- Irfan Habib, *The Indus Civilization: A People's History Of India 2*, Tulika, 2002.
- Irfan Habib, *The Peoples History of India-1(Pre History)*, Tulika, 2002.
- Irfan Habib-Vivekanad Jha, *A People`s History of India 5 – Mauryan India*, Tulika, 2002.
- Kesavan Veluthat, *The Early Medieval in South India*, OUP, 2009.
- N. Karashima, *State and Society in South india*, OUP, 2001.
- Partha Mitter, *Oxford History of Indian Art*, Oxford, 2001.
- R. Champakalakshmi, *Trade, Ideology and Urbanization : South India 300 BC to AD 1300*, OUP, 1996.
- R. S. Sharma, *Aspects of Political Ideas and Institutions in Ancient India*, Motilal Banarsidas, 2002.
- R.S Sharma, *Indian Feudalism*, MacMillan Publication, 2005.
- R.S Sharma, *India's Ancient Past*, Oxford, 2006.
- Raymond Allchin, *Archaeology of Early Historic South Asia*, Cambridge, 1995
- Romila Thapar, *From Lienage to State*, OUP, 1985.
- Romila Thapar, *Interpreting Early India*, OUP, 1999.
- Romila Thapar, *Cultural Past*, OUP, 2003.
- Romila Thapar, *The Mauryans Revisited*, Centre for Studies in Social Sciences, 1987
- Romila Thapar, *The Penguin History of Early India*, Penguin Books, 2002.
- Shereen Ratnagar, *Understanding Harappa – Civilization in the Greater Indus Valley*, Tulika Books, 2002.
- Thomas R Trautmann, *The Aryan Debate: Debates in Indian History and Society*, OUP, 2007.
- Uma Chakravarthi, *The Soicial Dimensions of Early Buddhism*, Munshiram Manoharlal Publishers, 1996.
- Upinder Singh, *A history of ancient and early medieval India*, Pearson, 2009.

SEMESTER 3

HY3CRT03- Polity, Society and Economy in Pre-Colonial India

Module - 1 Interpreting the Sources

- (a) Survey of Sources and Historiography – Persian *Tarikhand Namat* tradition – Sufi literature Malfuzat, Premakhyans.
- (b) Mughal sources – AbulFazal, Badauni, Bernier

Module – 2 Polity and Institutional Structures in Delhi Sultanate

- (a) Arab Conquest of Sind –Nature of Turkish campaign- Foundation, expansion and consolidation of Sultanate –Slave, Khalji, Thuglaq, Syyid and Lodi –Mangol Menace
- (b) Kingship - Concept of sovereignty –Administration – Revenue system - Nature and composition of ruling class: Nobility and *Ulema-Iqtas* system – Urban and Rural Societies –*Sufi* and Bhakti cults- Art and architecture
- (c) Agricultural - Non-agricultural production –Inter regional and maritime trade

Module – 3 Mughal Empire

- (a) Campaign and Conquest – Babur and Humayun – Sher interregnum and reforms – Administrative system under Akbar: *Zabt, Mansab, Jagir, Suh-i-Kul*–Akbar’s religious policy- Akbar’s Rajput policy - Mughal ruling class –Decline of Mughal empire: *Jagirdari* crisis, Popular revolts
- (b) Agricultural Production- Rural society – Non-agricultural production –Urban centers - Commerce and maritime trade - Science and technology
- (c) Syncretic religious movements – Art, painting and architecture.

Module – 4 Regional Political Formations

Vijayanagara society and power structure – Warlordism: *Nayakas- Bhattani* Sultanate – Emergence of Marathas- *Ashtapradhan*.

Essential Readings

- R. S. Sharma, *Early Medieval Indian Society*, Orient Blackswan, 2014.
- B.Chattopadhyaya, *The Making of Early Medieval India*, OUP, 1998.

- B. Chattopadhyaya, *Representing the Other, Sanskrit Sources and Muslims*, Manohar Publications, 1998
- SAA Rizvi, *Wonder that was India II*, Picador, 2005.
- Irfan Habib, *Medieval India: The Story of a Civilization*, National Book Trust, 2006.
- IrfanHabib (ed.), *Medieval India I*, OUP, New Delhi, 2009
- Mohammad Habib and K A Nizami, *A Comprehensive History of Medieval India, The Delhi Sultanate (AD 1206-1526)*, People's Publishing House, 1992.
- K A Nizami, *State and Culture in Medieval India*, Adam Publishers, 2000.
- Mohammad Habib, *Politics and Society During the Early Medieval Period*, People's Publishing House, 1981.
- John S Deyell, *Living Without Silver; The Monetary History of Early Medieval North India*, OUP, 1990.
- Peter Jackson, *The Delhi Sultanate; Political and Military History*, Cambridge, 1999.
- H Siddiqui, *Perso-Arabic Sources of Information, Life and Conditions in the Sultanate of Delhi*, Munshiram Manoharlal, 1992.
- T. Raychoudhari and IrfanHabib; Ed. *Cambridge Economic History of India* Vol. 1, Orient Blackswan Pvt Ltd, 1984.
- J.L.Mehta, *Advanced Study in the History of Medieval India*, 3 Vols, Sterling Publishers, 2009.
- Satish Chandra, *Medieval India: From Sultanate to the Mughals (1206-1526)*, Har Anand Publications, 2007.
- Satish Chandra, *Medieval India: From Sultanate to the Mughals (1526-1748)*, Har Anand Publications, 2007.
- Satish Chandra, *Essays on Medieval Indian History*, OUP, New Delhi, 2003.
- Satish Chandra, *History of Medieval India*, Orient BlackswanPvt Ltd., 2007.
- Satish Chandra, *Mughal Religious Policies, Rajputs and the Deccan*, Vikas Publishing House, 1993.
- IrfanHabib, *An Atlas of the Mughal Empire*, OUP, 1985.
- Irfan Habib, *Agarian System of Mughal India*, OUP, 1963.
- SherinMoosavi, *People, Taxation and Trade in Mughal India*, OUP, 2009.

SEMESTER 3

HY3CRT04- CULTURAL TRENDS IN PRE-COLONIAL KERALA

Module 1 Geography moulds History

Kerala's physiological features- role of Arabian Sea and Indian Ocean determining Kerala History- Historiography-sources-traditional, primary and secondary- folklore and oral history

Module II

Early Settlements: Expansion of Agriculture and consolidation of Socio-economic structure- Pre-hisotric –Paleolithic-Neolithic Periods-Iron Age Settlements –Megalithic Settlements and Culture - Tinai concept- Exchange patterns- Tamil heroic culture-multiple subsistence forms socio –cultural groups-social divisions-melior and kizhor-Izhichinan-Izhipirappalan-polity- society- Kizhan-velir-mannan- Roman trade-presence of Buddhist-Jain-Sankaracharya- Brahmin migration and settlements-Ur and Kutis-Nadus-consolidation of agrarian hierarchy-Uralar- Karalar, Paniyalar/Atiyalar-tenurial control and subjugation of the Kutis and the primary producers.

Module III Age of Perumals and Swaroopams

Perumals of Makotai-Establishment of temple related society and economy- trade guilds Anchuvannam-Manigramam-Nanadeshikal-Bhakti cult –Alwars and Nayanars- Perumal's decline- Transition to Swaroopams-Kolathiri-Nediyiruppu-Perumpadappu-Venad-polity-adhikari- prakriti— Nizhal- Kutipati-expansion of agriculture-village communities- Sanketam-changatham-society- jati-marumakkathayam- tharavadu- status and role of women-sambadham- Literature-Manipravalam-science-astronomy- mathematics- medicine-philosophy- festival- arts.

Module IV Social control, trade and culture

Social Stratification and caste formation-Hierarchy and Social Segregation-customs and practices-law and justice- trade-internal and external –Arab-Chinese-cultural synthesis- on the eve of European arrival.

Essential Readings

- Raghava Varrier and Rajan Gurukkal (eds.), *Cultural History of Kerala*, Vol.1, Govt of Kerala, 1999.
- M.R Raghava Varier, *Vadakkanpattukaludepaniyala*
- K.K.N Kurup, *The Socio-economic Transformation of South Indian Villages during the*

20th century(a case study based on oral history), Folklore Society of South Indian Languages, 2005.

- Kavalam Narayana Panikkar, *Folklore of Kerala*, National Book Trust, 2015.
- Chummar Choondal, *Christian folklore*, Kerala Folklore Academy, 1988.
- Chummar Choondal, *Kerala Folk Literature*, Kerala Folklore Academy, 1980.
- Chummar Choondal, *Kummatti*, Kerala Folklore Academy, 1971.
- C.Achutha Menon, *Ballads of North Malabar*, Madras, 1935
- M.V Vishnu Namboothiri, *Uttarakeralathile Thottam Pattukal*, Kerala Sahithya Academy, 1982
- Chirakkal Balakrishnan Nair, *Kerala Bhasha Ganangal*, Kerala Sahithya Academy, 1979.
- K.A. Nilakanta Sastri, *A History of South India*, OUP, 2008,
- Sreedhara Meneon, *Survey of Kerala History*, D.C Books, 2nd Ed., 2008.
- K N Ganesh., *Keralathinre Innelakal*, Cultural Department Government of Kerala, 1990.
- Raghava Varier and Rajan Gurukkal, *Kerala Charitram I Vol.* Vallathol Vidyapeetham, 2012
- Rajan Gurukkal, *Classical Indo-European Trade*, OUP, 2016.
- M P Mujeebu Rehman and K S Madhavan [eds], *Explorations in South Indian History*, SPCS ,2014.[Section II]
- Elamkulam Kunjan Pillai, *Studies in Kerala History*, SPCS, 1970
- M G S Narayanan, *Aspects of Aryanisation*, Kerala Historical Society, 1973
- Rajan Gurukkal., *The Kerala Temple and the Early Medieval Agrarian System*, Vallathol Vidyapeethom, 1992.
- MGS Narayanan, *Perumals of Kerala*, Cosmo books, 2013.
- K N Ganesh, *State Formation in Kerala: A Critical Overview*, Indian Council of Historical Research, 2010.
- R Champakalakshmi, Kesavan Veluthat et. al. *State and Society in Pre- Modern Kerala*, Trissur Cosmo Books. [Chapters 2, 5,6,7]
- K P Padmanabha Menon, *History of Kerala Vols.I-IV*, Asian Education Services (New Edition), 2003
- M G S Narayanan., *Cultural Symbiosis*, Kerala Historical Society, 1972.
- P K S Raja, *Medieval Kerala*. Nava Kerala Co-operative Publishing House Ltd., 1966.

- K V Krishna Iyer, *Zamorins of Calicut*, [Reprint] Calicut University, 1999.
- *History and Society*, Karnataka State Open University, 2015.
- SMH Nainar, *Arab Geographer's Knowledge of South India*, University of Madras, 1942.
- PA Sayed Muhammed, *Kerala Muslim Charithram*, Alhuda Bookstall, 1988.
- B Padmakumari Amma, *Jain and Budhist Centers of Kerala*, Dravidian University, 2008.
- M R Raghava Varier, *Jainamatham Keralathil*, SPCS, 2012.
- M.R.Raghava varrier and Kesavan Veluthat, *Tarisappalli Pattayam*, SPCS, 2015.
- Prof.Elamkulam Kunjan Pillai, *Leelathilakam –onumuthal moonnuvare silpangal*, SPCS, 2012.

- Dr.V.V Haridas, *Samoothirikalathe kozhikkode,kathayum charithravum*, SPCS, 2009.
- M.R.Raghava Varrier, *Madhyakalakeralam Swaropaneethiude charithrapathangal*, SPCS, 2014.
- M.R Raghava varrier,*Keralolpathy Grandhavari*, SPCS, 2016

SEMESTER 4

HY4CRT05 MAKING OF MODERN KERALA

Module I Beginning of European Colonization

Arrival of European trading companies-Portuguese,Dutch, English French- relation with Calicut and Cochin- Formation of Modern Travancore- Mysorean Invasion-socio-economic impact- Early resistance against English East India Company- Sakthan Thampuran- Pazhassi Raja- Veluthasmpi-Paliath Achan-Kurichia revolts.

Module II Towards Modernity

- a) The role of Missionaries-Printing, press and education-Herman Gundert- Bailey – Kuriakose Elias Chavara etc.- Indigenous and modern medicine-*Hortus malabaricus*
- b) Socio-religious reform movements - anti-caste and anti-untouchability movements- Nature and scope of the movement-impact on family-system of inheritance-marriage-demand for opportunities-Sree Narayana Guru – Kumaranasan-Chattampiswamikal-Ayyankali – Sahodaran Ayyappan- Pandit Karuppan- K.P Vallon – Vagbhatananda-Poykayil Yohannan - V.T.Bhattathirippad-Vakkom Abdulkhadar Moulavi-Arya Pallom-Parvathy Nenminimangalam-Kallumala Samaram – Emergence of caste and communal organizations.

Module III Early Political and Cultural Movements in Kerala

Movements for political reform and responsible Government-Early leaders of Indian National Congress-Ottappalam, Manjeri, Palakkad, Vadkara Conferences-Khilaphat-Malabar Rebellion-Vaikom Satyagraha-Non-cooperation Movement Civil Disobedience-Salt satyagraha-Guruvayoor Satyagraha- Memorials- Malayali and Ezhava Memorials-Temple Entry Proclamation- Quit India Movement-Aikya Kerala Movement.

Module IV Kerala since independence

General Elections-1952- Formation of Kerala as a linguistic state – First Communist Ministry: Land reforms and policies on education -Commercialisation of agriculture-Migration– Kerala Model of development - Marginalized of Social Groups and alienation of land -Ecology and sustainable development.

Essential Readings

- Sreedhara Menon A, *A Survey of Kerala History*, (2nd Ed.) [Chapters IX, X, XI] D. C Books, 2008
- Sreedhara Menon A, *The Legacy of Kerala*. D.C Books, 2010.
- Sreedhara Menon A, *Cultural Heritage of Kerala*, D.C Books, 2008.
- Narayanan, MGS, *Calicut: The City of Truth Revisited*, University of Calicut, 2006.
- Krishna Iyer, K.V. *Zamorins of Calicut*. University of Calicut, 1999.
- P J Chreian (ed.), *Perspectives in Kerala History*, [Chapter III], Cultural Department, Govt. of Kerala, 1999.
- Padmanabha Menon., *Kochi Rajya Charithram*, Mathrubhumi Publications, 1989.
- P. Sanal Mohan, *Modernity of Slavery: Struggles against Caste Inequality in Colonial Kerala*, OUP, 2015.
- M Kunhaman, *Globalization: A Subaltern Perspective*, Center for Subaltern Studies, 2002.
- T.P. Sankarankutty Nair, *A Tragic Decade in Kerala History*, Kerala Historical Society, 1977.
- T H P Chentarasery, *Ayyankali*, Prabhath Books, 2013.
- C.I Issac, *Evolution of Christian Church in India*, Suryagatha, 2013.
- Janaki Nair, *Women and Law in Colonial India*, Kali for Women (In collaboration with National Law School India University) 1996
- G Arunima, *'There Comes Papa': Colonialism and the Transformation of Matriliney in Kerala, Malabar C. 1850-1940*, Orient Longman, 2003.
- Rekha Raj, *Dalit Women as Political Agents: A Kerala Experience*. [Economic and Political Weekly, Vol - XLVIII No. 18, May 04, 2013.]
- Raghava Warriar, *Village Communities in Pre- Colonial Kerala*, Asian Educational Services, 1994.
- Raghava Warriar, *Ammavazhi Keralam*, Kerala Sahithya Academy, 2006.
- K K Kochu, *Dalit Nerkazhchakal*, Raven Publication, 2013.
- P Bhaskaranunni, *Pathonpathan nuttandile keralam*, Kerala Sahithya Academy, 1988.
- Pradeepan Pampirikunnu, *Dalit Patanam : Svattavam, Samskaram, Sahityam*, State Institute of Languages,
- K Raviraman [ed], *Development, Democracy and the State*, Rutledge, 2010
- K K Abdul Sattar [ed], *Mappila Kizhakla Patanangal*, Vachanam Books, 2014]
- K K S Das, *Dalit Prathyayasasthram: Charithram, Sahityam, Sauntharyasasthram*, State Institute of Languages, 2014.
- K M Bahauddin, *Kerala Muslim History: A Revisit*, Other Books, 2012.
- K N Ganesh, *Keralathinte Samuha Prathisanthy*, Center for Social Studies, 2003.

- C K Janu and M Gethanandan,, *Adivasi Gramapanjayathum Swayambharanavum*, Clan and Culture.
- T P Kunjikannan, *Gadgil Reportum Kerala Vikasanavum*, Mathrubhumi books, 2013
- Pius Malekandathil, *Portuguese Cochin and the Maritime Trade of Cochin*. New Delhi, 2001.
- P.K.KMenon, *The History of Freedom Movement in Kerala*, Government Press, 1972.
- T.I Poonen, *A Survey of the Rise of the Dutch Power*, University of Travancore, 1948.
- K.N Panikkar, *Colonialism, Culture and Resistance*, OUP, 2009.
- M.K Sanu, *Sahodaran K. Ayyappan*, SPCS, 2011.
- P F Gopakumar (Ed.), *Phases of Social Reforms in Kerala*, 2016.

SEMESTER 5

HY5CRT07- Inheritance and Departures in Historiography

The course intends to trace the historiographical trends from the traditional phase to the contemporary scene. The course is designed to orient students in new trends with a view to improving their understanding of historical writings and perspectives and to inspire the students in taking up higher courses in History.

Module-1 Classical Notion of History

History and Historiography-The European versions - Greek Notion of History - Roman Histories - Church Historiography- The Persian version of History –Ancient Indian conceptualization of past- Notions of time in history

Module-2 The Positivist Turn

Positivist Historiography - Facts- Interpretation Shift to Explanation Hegalian Philosophy of History - Marxian Materialism- Spengler – Toynbee

Module-3 The Paradigm Shift

Annales –Lucien Febvre and Marc Bloch- Braudelian approach-Third and Fourth generation Annales- Idea of Total History -History of Mentalities and Emotions- The Post Modern Turn – Post Colonial History.

Module-4 History from the margins

History from below-Subaltern Studies - Local History –Oral History- Women’s History

Reading List:

R.G Collingwood, *The Idea of History*, OUP, New York, 1946.

EH Carr, *What is History?*, Penguin, London, 1961

Arthur Marwick, *Nature of History*, Macmillan, London, 1970

Arthur Marwick, *TheNew Nature of History*. Palgrave, London, 2001.

M.I. Finley, *The Greek Historians*, Viking, New York, 1971.

G.A Cohen, *Karl Marx Theory of History*, OUP, London, 1978.

Tom Bottomore, *Dictionary of Marxist thought*, Blackwell, New York, 1983

T.R Venugopal (ed) *History and Theory*

Marc Bloch, *The Historians Craft*, Vintage, New York, 1953

Fernand Braudel, *On History*, University of Chicago Press, Chicago, 1980.

Peter Burke, *The French Historical Revolution, The Annales School*, Polity Press, 1990.

Robert M Burns, *Historiography : Critical concepts in Historical Studies*, London ,2006.

Harbans Mukhia and Maurice Aymard, *French Studies in History 2 Vols*, Sangam Books, New Delhi 1988.

Ranajit Guha (ed.) *Subaltern Studies: Vol-1*, OUP, New Delhi, 1996.

Sumit Sarkar, *Writing Social History*, OUP, New Delhi, 1998.

Dipesh Chakrabarthy, *Habitations of Modernity*, University of Chicago Press, 2002.

Vinay Lal, *Subaltern Studies and its Critics: Debates over Indian History* in *History and Theory*, Vol.40, No.1 (Feb 2001) pp. 135-148.

Dipesh Chakrabarthy, *Marx after Marxism: A Subaltern Historians Perspective-*. EPW Vol 28. No22 (May 29, 1993) pp. 1094-1096.

Paul Thompson, *Voice of the Past*, OUP, New York, 2000.

Satish K Bajaj, *Recent trends in Historiography*, Anmol publications, New Delhi 1998

J. Donald Hughes, *An Environmental History of the World*, Psychology Press, New York, 2001.

Juliet Gardiner, *What is history today?*, Palgrave, 1988.

K.Offen, *Writing Womens history: International Perspectives*, John Wiley & Sons, London 1991.

Keith Jenkins, *Re thinking History*, Routledge, London, 1995

Keith Jenkins, *From Carr to Elton, Rorty to White*, Routledge, London, 1995

Shashi Bhushan Upadhyaya, *Historiography in the Modern World*, New Delhi, OUP, 2016

SEMESTER 5

HY5CRT08- India: Nation in the Making

Module 1 Impact of British Rule

- a) Three phases of British economic imperialism Mercantilist, Industrialist & Capitalist phases. Deindustrialisation, Commercialisation of agriculture, Impoverishment of Peasantry, Disruption of traditional village economy Rural Indebtedness, Famine and poverty. Economic drain, nationalist critique of colonial economy. Rise of industrial Bourgeoisie & working class.
- b) Revolt of 1857 – Nature & Consequences
- c) Initiatives in social reforms in the 18th & 19th century

Module 2 Phases of National Movement

- a. Early phase of Indian National Movement; Nationalism – Rise of political movements as the expression of Indian nationalism, pre congress political organizations and its campaigns. Formation of INC, safety Valve theory Moderates methods of political work partition of Bengal Swadeshi & Boycott, Muslim League, Minto Morley Reforms First World War and nationalist response, Home Rule movement, Lucknow pact Montagu Chemsford Reforms, Dyarchy.
- b. Gandhiji & Indian National Movement Era of Mass Nationalism. Gandhian perspectives and methods. Rowlatt Act, Jallianwalabagh, Khilafat movement, Non co-operation movement, Swaraj party, Simon Commission, Nehru Report, Civil Disobedience movement, Regional variations, Round Table Conference, Communal Award, Poona pact, Govt. of India Act 1935, congress Rule in provinces,
- c. Revolutionaries, *Anusilan*, *Ghadr*, *HSRA*

Module 3 Towards Freedom & partition;

- a. II World War & Nationalist Response, August offer, Cripps Mission, Quit India Movement, INA, Cabinet Mission, Atlees statement, Mount batten plan, Indian Independence Act. Long term dynamics of national movement.
- b. Integration of states, Constituent Assembly and the making of the Indian constitution, Role of B.R. Ambedkar.

Module 4

Uprisings against the British

- a. Movement from the margins- the subaltern - Tribal uprisings, Caste & class organization, Peasant and workers movements, Caste and Gender Associations
- b. **Theorising Indian National movement-** STS Strategy- dynamics of the movement

Readings:

1. Bipin Chandra, *History of Modern India*, Orient Blackswan, 2012.
- 2., *Rise and growth of Economic Nationalism in India*, Anamika, 2016.
- 3., *India's Struggle for Independence*, OUP, 1989.
- 4., *Nationalism and Colonialism in Modern India*, Orient Blackswan, 1981
- 5., *Communalism in Modern India*, Har Anand, 2008.
- 6., *Indian National Movement: The Long Term Dynamics*, Har Anand, 2008.
7. Tirthankar Roy, *The Economic History of India 1857-1947*, OUP, 2006.
8. Sekhar Bandyopadhyay, *From Plassey to Partition: A History of Modern India*, Orient Blackswan Pvt Ltd
9. G Aloysius, *Nationalism Without a Nation in India*, OUP, 1998.
10. S.N.Sen, *Indian History and Culture*, MacMillan India Ltd, 2007.
11. Judith Brown, *Gandhi's Rise to Power*, Cambridge, 1974.

12. Paul Brass, *The Politics of Indian Since Independence*, Cambridge, 1994.
13. Ranajith Guha(Ed.), *A Subaltan Studies Reader*, OUP, 1997.
14. Peter Hardy, *Muslims of British India*, Cambridge, 1972.
15. Irfan Habib, Dharma Kumar and T Raychoudhari, *Cambridge Economic History of India*, Vol.I& Vol II, Orient Blackswan., 1982 & 1983.
16. Sumit Sarkar, *Writing Social History*, OUP, 1998.
17. *Modern India*, Pearson, 2014.
- 18.A. R. Desai, *Social Background of Indian Nationalism*, Popular Prakashan, 2011.

SEMESTER 5

HY5CRT 10 - Environmental Studies and Human Rights in Historical Outline

Module 1 Environmental Studies: An Introduction

What is Environmental Studies? – Nature of Environmental Studies – Definition, Scope and Importance – Natural Resources: Renewable and Non-renewable – Forest Resources, Water Resources, Mineral Resources, Food Resources, Energy Resources and Land Resources – Concept, Structure and Functions of Ecosystems

Module 2 Bio-Diversity, Social Issues and the Environment

Introduction to Bio-diversity – Value of Bio-diversity – Threats to Bio-diversity: Habitat Loss, Poaching of Wildlife and Man-Wildlife Conflicts – Define Environmental Pollution – Causes, Effects and Control Measures of Air Pollution, Water Pollution, Soil Pollution, Marine Pollution, Noise Pollution, Thermal Pollution and Nuclear Hazards – Solid Waste Management: Causes, Effects and Control Measures of Urban and Industrial Waste

Module 3 Introduction to Environmental History

Unit 1 – Historical Outline – Environmental History and its Relations with Environmental Studies – Scope of Environmental Studies in History- Interdisciplinary Nature.

Unit 2 – Roots of Environmental Crisis – Four Modes of Resource Use: Hunting-Gathering, Nomadic Pastoralism, Settled Agriculture and Industrial Phase

Unit 3 – Forest Resources: Colonial Phase – Use and Over-Exploitation, Forest Laws in British India- Concept of Scientific Forestry- Alienation of Adivasis from Forests – Hunting and Impact on Wildlife.

Module 4 The Post-Colonial Developments on Environment

Unit 1 – Post Colonial Scenario – The Developmental Drive: Industrialization, Dams and Mines – Tribal Struggles.

Unit 2 – The Struggles from the Margins – Land alienation and Tribal Protest Movements- its Strategies and Ideology.

Unit 3 – Environmental Movements: Chipko, Narmada Bachao Andolan, the Silent Valley and Plachimada Issues – Women and Environmental Struggles

Module 5

Unit 1 - Human Rights

An Introduction to Human Rights, Meaning, concept and development –History of Human Rights- Different Generations of Human Rights- Universality of Human Rights- Basic International Human Rights Documents - UDHR, ICCPR, ICESCR.-Value dimensions of Human Rights

Unit 2 - Human Rights and United Nations

Human Rights co-ordination within UN system- Role of UN secretariat- The Economic and Social Council- The Commission Human Rights-The Security Council and Human rights- The Committee on the Elimination of Racial Discrimination- The Committee on the Elimination of Discrimination Against Women- the Committee on Economic, Social and Cultural Rights- The Human Rights Committee- Critical Appraisal of UN Human Rights Regime.

Unit 3- Human Rights National Perspective

Human Rights in Indian Constitution – Fundamental Rights- The Constitutional Context of Human Rights-directive Principles of State Policy and Human Rights- Human Rights of Women-children – minorities- Prisoners- Science Technology and Human Rights- National Human Rights Commission- State Human Rights Commission- Human Rights Awareness in Education.

REFERENCES

1. Bharucha Erach, Text Book of Environmental Studies for undergraduate Courses. University Press, IInd Edition 2013 (TB)
2. Clark.R.S., Marine Pollution, Clanderson Press Oxford (Ref)
3. Cunningham, W.P.Cooper, T.H.Gorhani, E & Hepworth, M.T.2001 Environmental Encyclopedia, Jaico Publ. House. Mumbai. 1196p .(Ref)
4. Dc A.K.Environmental Chemistry, Wiley Eastern Ltd.(Ref)
5. Down to Earth, Centre for Science and Environment (Ref)
6. Heywood, V.H & Watson, R.T. 1995. Global Biodiversity Assessment, Cambridge University Press 1140pb (Ref)
7. Jadhav.H & Bhosale.V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284p (Ref)
8. Mekinney, M.L & Schock.R.M. 1996 Environmental Science Systems & Solutions. Web enhanced edition 639p (Ref)
9. Miller T.G. Jr., Environmental Science, Wadsworth Publishing Co. (TB)
10. Odum.E.P 1971. Fundamentals of Ecology. W.B. Saunders Co. USA 574p (Ref)
11. Rao.M.N & Datta.A.K. 1987 Waste Water treatment Oxford & IBII Publication Co.Pvt.Ltd.345p (Ref)
12. Rajagopalan. R, Environmental Studies from crisis and cure, Oxford University Press, Published: 2016 (TB)
13. Sharma B.K., 2001. Environmental Chemistry. Geol Publ. House, Meerut (Ref)
14. Townsend C., Harper J, and Michael Begon, Essentials of Ecology, Blackwell Science (Ref)
15. Trivedi R.K., Handbook of Environmental Laws, Rules Guidelines, Compliances and Stadards, Vol I and II, Enviro Media (Ref)

16. Trivedi R. K. and P.K. Goel, Introduction to air pollution, Techno-Science Publication (Ref)
17. Wanger K.D., 1998 Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p (Ref)
18. (M) Magazine (R) Reference (TB) Textbook

Modules 3&4

1. Gadgil, M. and R.Guha, 1992, *This Fissured Land: An Ecological History of India*. Delhi: Oxford University Press.
2. Worster, D, ed, 1988, *The Ends of the Earth: Perspectives on Modern Environmental History*. New York: Cambridge University Press.
3. Habib, Irfan, 2010, *Man and Environment: The Ecological History of India*, Aligarh: Tulika
4. Rangarajan, Mahesh and K.Sivaramakrishnan, eds, 2011, *India's Environmental History: Volumes 1 and 2*. Delhi: Permanent Black.
5. Rangarajan, Mahesh, 2001, *India's Wildlife History: An Introduction*. Delhi: Permanent Black.
6. Gadgil, Madhav, 1995, *Ecology and Equity: The Use and Abuse of Nature in Contemporary India*, Delhi.
7. Baviskar, Amita, 1995, *In the Belly of the River: Tribal Conflicts over Development in Narmada Valley*. Delhi: Oxford University Press.
8. Baviskar, Amita, ed. 2008, *Contested Waterscapes: Delhi*, Oxford University Press.
9. Guha, Ramachandra, 1989, *The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya*. Delhi: Oxford University Press.

Human Rights (Module 5)

1. Amartya Sen, *The Idea Justice*, New Delhi: Penguin Books, 2009.
2. Chatrath, K. J.S., (ed.), *Education for Human Rights and Democracy* (Shimla: Indian Institute of Advanced Studies, 1998)
3. *Law Relating to Human Rights*, Asia Law House, 2001.
4. Shireesh Pal Singh, *Human Rights Education in 21st Century*, Discovery Publishing House Pvt.Ltd, New Delhi,
5. S. K .Khanna, *Children And The Human Rights*, Common Wealth Publishers, 1998. 2011.
6. Sudhir Kapoor, *Human Rights in 21st Century*, Mangal Deep Publications, Jaipur, 2001.
7. United Nations Development Programme, *Human Development Report 2004: Cultural Liberty in Today's Diverse World*, New Delhi: Oxford University Press, 2004.

SEMESTER 6

HY6CRT11- MAKING OF CONTEMPORARY INDIA

Module 1

Government of India Act 1935- Popular Movements-Partition- Independence- Famine- Riots- Migration and Rehabilitation-issue of refugees.

Module 2

Integration of Princely States-Drafting of the Constitution-Reorganization of Indian States-Tribal Issues- India's Foreign Policy- Nehruvian Legacy and NAM - JP Movement – Emergency-Land Reforms- Naxal Movement-Separatist Movements (Punjab, Assam & Nagaland)

Module 3

Planning Commission-Five Year Plans-Agricultural & Industrial Policies-Revolutions (Green, White,Blue, Yellow)-Nationalisation of Banks- Human Development Index-Demonetization and Indian Economy.

Module 4

Decentralisation and Panchayati Raj- Consolidation of Caste and Communal forces in Politics –Nature of anti-corruption Movements -Women's Reservation-NEP since 1991-Impact of Globalization

Essential Readings;

1. Granville Austin, *Indian Constitution: Cornerstone of a Nation*, New Edition, OUP, 2011.
2. Francine Frankel, *India's Political Economy, 1947-2004*, New Delhi: Oxford University Press, 2006.
3. Paul Brass, *The Politics of India Since Independence*, Cambridge: Cambridge University Press, 1994.
4. Bipan Chandra, et.al (ed). *India After Independence*, New Delhi: Penguin Books, 2015
5. Ram Chandra Guha, *India After Gandhi: The History of the World's Largest Democracy*, New Delhi: Picador, 2007

6. Rajni Kothari, *Politics in India*, New Delhi: Orient Longman, 1970.
7. Neera Chanhoke & Praveen Priyadarshi (ed), *Contemporary India: Economy, Society, Politics*, New Delhi: Pearson, 2009.
8. Achin Vanaik & Rajeev Bhargava, *Understanding Contemporary India: Critical Perspective*, New Delhi: Archers and Elevers, 2010.
9. Daniel Thorner, *The Shaping of Modern India*, New Delhi: Allied Publishers, 1980.
10. Kuldip Nayar, *India After Nehru*, New Delhi: Vikas Publishing House, 2000.

SEMESTER 6

HY6CRT13- CAPITALISM AND COLONIALISM

The course traces the emergence and development of capitalism in Europe and the related scramble for colonies and imperialist domination around the world. It introduces students to the processes and debates involved in the transition from feudalism to capitalism in Europe, the related expansion of capitalism as a world system in the light of the industrial revolution, and the growing urge for a new wave of imperialist domination in the 19th and 20th Centuries. It further delves on the processes involved in the establishment and making of colonies and colonial relations, and the effects thereof on the nature of economic development in post-colonial times.

Module I

Transition from Feudalism to Capitalism: Debates and Processes; the coming of Industrial Revolution and related social changes in Continental Europe.

Readings

- Leo Huberman, *Man's Worldly Goods*, Monthly Review Press, 1968.
- Maurice Dobb, *Studies in the Development of Capitalism*, Literary Licensing, 2013.
- Rodney Hilton, *Transition from Feudalism to Capitalism*, Aakar Books, 2006.
- T. S. Aston & C. H. E. Philpin ed., *The Brenner Debate*, Cambridge, 1976.
- Alex Anievas & Kerem Nisancioglu, *How the West Came to Rule: The Geopolitical Origins of Capitalism*, Pluto Press, 2015.

Module II

Logic of capitalist commodity production and the scramble for colonies; the emergence of finance capital; theories of imperialism: Marx, Luxemburg, Hobson, Hilferding and Lenin; Dependency and World System theories: Baran, Gunder Frank, Wallerstein and Samir Amin.

Readings

- Anthony Brewer, *Marxist Theories of Imperialism: A Critical Survey*, Routledge, 2002.
- V. Lenin, *Imperialism, the Highest Stage of Capitalism*, People's Publishing House, 2011.

- Paul A. Baran, *Political Economy of Growth*, Monthly Review Press, 1968
- Andre Gunder Frank, *Capitalism and Underdevelopment in Latin America*. Monthly Review Press, 1967.
- Immanuel Wallerstein, *The Modern World System, Vol 1-3*, University of California, 2013.
- Samir Amin, *Unequal Development: An Essay on the Social Formations of Peripheral Capitalism*, Monthly Review Press, 1976.

Module III

Defining the colonies: surveys, census and ethnographies; administering the colonies: bureaucracy and judiciary; disciplining the colonies: army and police; settling the colonies: land, ecology and landscape; civilizing the colonies: missionaries, education and health.

Readings:

- Bernard Cohn, *An Anthropologist Among the Historians and Other Essays*, OUP, 1998.
- Philippa Levine, *The British Empire: Sunrise to Sunset*, Pearson, 2007.
- Frederick Quinn, *The French Overseas Empire*, Praeger, 2001.
- Michael Mann, *South Asia's Modern History: Thematic Perspectives*, Routledge, 2014

Module IV

The making of colonial relations: Fanon, Memmi and Nandy; Limits of decolonization: consolidation of the national bourgeoisie and the character of capitalist development in the erstwhile colonies.

Readings:

- Franz Fanon, *Wretched of the Earth*, Grove Press, 1963.
- Albert Memmi, *The Colonizer and the Colonized*, Beacon, 1965.
- Ashis Nandy, *The Intimate Enemy: The Loss and Recovery of Self Under Colonialism*, OUP, 2009.
- Vivek Chibber, *Locked in Place: State-Building and Late Industrialization in India*, Princeton University Press, 2006.

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR UNDER GRADUATE PROGRAMMES IN

B.Sc Computer Applications (Model III)

UNDER CHOICE BASED CREDIT SYSTEM (UG CBCS) 2017

2017 ADMISSIONS ONWARDS

12(c). Syllabi of Core Courses in Statistics of B.Sc.

Computer Applications (Model III) Programme

The Structure of the 6 Core Courses in Statistics offered for B.Sc.

Computer Applications (Model III) Programme is as given under :

Semester	Course Type	Course Code with Title	Credits	Lecture Hours	
				Per Week	Total
1	CORE (CR)	ST1CRT01 - Descriptive Statistics	3	4	72
2	CORE (CR)	ST2CRT02 - Probability Theory	3	4	72
3	CORE (CR)	ST3CR03 - Probability Distributions	4	5	90
4	CORE (CR)	ST4CRT04 - Statistical Inference	4	5	90
5	CORE (CR)	ST4CRT05 - Sample Survey Designs	4	5	90
6	CORE (CR)	ST5CRT06 - Environmental Studies, Human Right and Design of Experiment	4	5	90

Core Course to B. Sc. Computer Applications Programme

Semester V - Course VI

ST5CRT06–ENVIRONMENTAL STUDIES, HUMAN RIGHTS AND DESIGN OF EXPERIMENTS

Hours per week – 5

Number of credits -4

The importance of environmental science and environmental studies cannot be disputed. The need for sustainable development is a key to the future of mankind. Continuing problems of pollution, solid waste disposal, degradation of environment, issues like economic productivity and national security, Global warming, the depletion of ozone layer and loss of biodiversity have made everyone aware of environmental issues. The United Nations Conference on Environment and Development held in Rio de Janeiro in 1992 and World Summit on Sustainable Development at Johannesburg in 2002 have drawn the attention of people around the globe to the deteriorating condition of our environment. It is clear that no citizen of the earth can afford to be ignorant of environment issues..

India is rich in biodiversity which provides various resources for people. Only about 1.7 million living organisms have been described and named globally. Still many more remain to be identified and described. Attempts are made to conserve them in ex-situ and in-situ situations. Intellectual property rights (IPRs) have become important in a biodiversity-rich country like India to protect microbes, plants and animals that have useful genetic properties. Destruction of habitats, over-use of energy resource and environmental pollution have been found to be responsible for the loss of a large number of life-forms. It is feared that a large proportion of life on earth may get wiped out in the near future.

In spite of the deteriorating status of the environment, study of environment have so far not received adequate attention in our academic programme. Recognizing this, the Hon'ble Supreme Court directed the UGC to introduce a basic course on environment at every level in college education. Accordingly, the matter was considered by UGC and it was decided that a six months compulsory core module course in environmental studies may be prepared and compulsorily implemented in all the University/Colleges of India.

The syllabus of environmental studies includes five modules including human rights. The first two modules are purely environmental studies according to the UGC directions. The second two modules are strictly related with the core subject and fifth module is for human rights.

Objectives

- Environmental Education encourages students to research, investigate how and why things happen, and make their own decisions about complex environmental issues by developing and

enhancing critical and creative thinking skills. It helps to foster a new generation of informed consumers, workers, as well as policy or decision makers.

- Environmental Education helps students to understand how their decisions and actions affect the environment, builds knowledge and skills necessary to address complex environmental issues, as well as ways we can take action to keep our environment healthy and sustainable for the future. It encourages character building, and develop positive attitudes and values.
- To develop the sense of awareness among the students about the environment and its various problems and to help the students in realizing the inter-relationship between man and environment and helps to protect the nature and natural resources.

To help the students in acquiring the basic knowledge about environment and the social norms that provide unity with environmental characteristics and create positive attitude about the environment.

Module I:

Unit 1 :Multidisciplinary nature of environmental studies

Definition, scope and importance (2 L)
Need for public awareness.

Unit 2 : Natural Resources :

Renewable and non-renewable resources : Natural resources and associated problems.

a) **Forest resources** : Use and over-exploitation, deforestation, case studies.

Timber extraction, mining, dams and their effects on forest and tribal people.

b) **Water resources** : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

c) **Mineral resources** : Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

d) **Food resources** : World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

e) **Energy resources**: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources, Case studies.

f) **Land resources**: Land as a resource, land degradation, man induced landslides, soil erosion and desertification

- Role of individual in conservation of natural resources.
- Equitable use of resources for sustainable life styles. (10 L)

Unit 3: Ecosystems

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the given ecosystem:- Forest ecosystem

(6 L)

Module II:

Unit 1: Biodiversity and its conservation

- Introduction
- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values.
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts
- Endangered and endemic species of India

(8 L)

Unit 2: Environmental Pollution

Definition

Causes, effects and control measures of: -

- h. Air pollution
- i. Water pollution
- j. Soil pollution
- k. Marine pollution
- l. Noise pollution
- m. Thermal pollution
- n. Nuclear hazards

- Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution
- Pollution case studies
- Disaster management: floods, earthquake, cyclone and landslides. (8 L)

Unit 3: Social Issues and the Environment

- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people: its problems and concerns, Case studies
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, Case studies
- Consumerism and waste products
- Environment Protection Act
- Air (Prevention and Control of Pollution) Act
- Water (Prevention and control of Pollution) Act
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation
- Public awareness (10 L)

Module III: Principle of Experimentation, Linear Estimation. Estimability of parametric functions, BLUE, Gauss-Markov Theorem (without Proof), Testing of Linear Hypothesis, ANOVA of one-way classified data, ANOVA of two-way classified data with multiple and equal number of observation per cell.

(20L)

Module IV: Layout and Analysis of the basic designs CRD, RBD and LSD. Missing plot Techniques, Relative Efficiency of Designs.

(13L)

Module V:

Unit 1- Human Rights– An Introduction to Human Rights, Meaning, concept and development, Three Generations of Human Rights (Civil and Political Rights; Economic, Social and Cultural Rights).

Unit-2 Human Rights and United Nations – contributions, main human rights related organs- UNESCO, UNICEF, WHO, ILO, Declarations for women and children, Universal Declaration of Human Rights.

Human Rights in India – Fundamental rights and Indian Constitution, Rights for children and women, Scheduled Castes, Scheduled Tribes, Other Backward Castes and Minorities

Unit-3 Environment and Human Rights - Right to Clean Environment and Public Safety: Issues of Industrial Pollution, Prevention, Rehabilitation and Safety Aspect of New Technologies such as Chemical and Nuclear Technologies, Issues of Waste Disposal, Protection of Environment

Conservation of natural resources and human rights: Reports, Case studies and policy formulation. Conservation issues of western ghats- mention Gadgil committee report, Kasthuriengan report. Over exploitation of ground water resources, marine fisheries, sand mining etc.

(8 L)

Internal: Field study

- Visit to a local area to document environmental grassland/ hill /mountain
- Visit a local polluted site – Urban/Rural/Industrial/Agricultural Study of common plants, insects, birds etc
- Study of simple ecosystem-pond, river, hill slopes, etc

(Field work Equal to 5 lecture hours)

Books for study

1. Bharucha, E. (2010). *Text Book for Environmental studies for undergraduate Courses*, University Grants Commission, New Delhi.
2. M.N.Das and N.C.Giri(1986). *Design and Analysis of Experiment*. Wiley Eastern Limited.

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR UNDER GRADUATE PROGRAMMES IN

Malayalam

UNDER CHOICE BASED CREDIT SYSTEM (UG CBCS) 2017

2017 ADMISSIONS ONWARDS

കോഴ്സ് വിവരങ്ങൾ

മോഡൽ 1 ബി.എ.മലയാളം പാഠ്യപദ്ധതി

സെമസ്റ്റർ	കോഴ്സ് കോഡ്	കോഴ്സിന്റെ പേര്	കോഴ്സ് ഇനം	കോഴ്സ് സമയം (ആഴ്ചയിൽ)	ക്രെഡിറ്റ്	മാർക്ക്	
						ഇന്റേണൽ	എക്സ്റ്റേണൽ
I	ML1CCT01	കഥാസാഹിത്യം	കോമൺ	4 മണിക്കൂർ	4	20	80
	ML1CRT01	നവീനകവിത	കോർ	4 മണിക്കൂർ	4	20	80
	ML1CMT01	മലയാളപഠനത്തിന്റെ രീതിശാസ്ത്രം	കോംപ്ലിമെന്ററി	4 മണിക്കൂർ	3	20	80
	ML1CMT02	നാടകവും സിനിമയും	കോംപ്ലിമെന്ററി	4 മണിക്കൂർ	3	20	80
II	ML2CCT02	കവിത	കോമൺ	4 മണിക്കൂർ	4	20	80
	ML2CRT02	മലയാളകവിത എഴുത്തച്ഛൻ മുതൽ കവിത്രയം വരെ	കോർ	4 മണിക്കൂർ	4	20	80
	ML2CMT03	ആധുനിക ലോകകവിത	കോംപ്ലിമെന്ററി	4 മണിക്കൂർ	3	20	80
	ML2CMT04	ഫോക്ലോർ വിജ്ഞാനം	കോംപ്ലിമെന്ററി	4 മണിക്കൂർ	3	20	80
III	ML3CCT03	ദൃശ്യകലാസാഹിത്യം	കോമൺ	5 മണിക്കൂർ	4	20	80
	ML3CRT03	കേരളസംസ്കാരം-പൂർവ്വഘട്ടം	കോർ	5 മണിക്കൂർ	4	20	80
	ML3CMT05	ഒരു എഴുത്തുകാരൻ/ എഴുത്തുകാരി -മാധവിക്കുട്ടി	കോംപ്ലിമെന്ററി	4 മണിക്കൂർ	3	20	80
	SC3CMT01	സംസ്കൃതം- Poetry, Rhetorics & Basics of Grammar	കോംപ്ലിമെന്ററി	6 മണിക്കൂർ	4	20	80

സെമസ്റ്റർ	കോഴ്സ് കോഡ്	കോഴ്സിന്റെ പേര്	കോഴ്സ് ഇനം	കോഴ്സ് സമയം (ആഴ്ചയിൽ)	ക്രെഡിറ്റ്	മാർക്ക്	
						ഇന്റേണൽ	എക്സ്ട്രേണൽ
IV	ML4CCT04	മലയാളഗദ്യരചനകൾ	കോമൺ	5 മണിക്കൂർ	4	20	80
	ML4CRT04	കേരളസംസ്കാരം-ഉത്തര ഘട്ടം	കോർ	5 മണിക്കൂർ	4	20	80
	ML4CMT06	ആധുനിക മലയാളഭാഷ	കോംപ്ലിമെന്ററി	4 മണിക്കൂർ	3	20	80
	SC3CMT02	സംസ്കൃതം -Prose, Vrutha, Alankara, Theories of Poetics & Grammar	കോംപ്ലിമെന്ററി	6 മണിക്കൂർ	4	20	80
V	ML5CRT05	പരിസ്ഥിതിവിജ്ഞാനവും മനുഷ്യാവകാശപഠനവും	കോർ	4 മണിക്കൂർ	4	20	80
	ML5CRT06	സാഹിത്യമീമാംസ	കോർ	6 മണിക്കൂർ	4	20	80
	ML5CRT07	ചെറുകഥ നോവൽ	കോർ	6 മണിക്കൂർ	4	20	80
	ML5CRT08	ഭാഷാശാസ്ത്രം	കോർ	5 മണിക്കൂർ	4	20	80
	ഓപ്പൺ കോഴ്സ്		ഓപ്പൺ	4 മണിക്കൂർ	3	20	80
	ML5OPT01	പത്രപ്രവർത്തനം					
	ML5OPT02	മാധ്യമപഠനം					
ML5OPT03	ചലച്ചിത്രസാമ്രാജ്യവും തിരക്കഥാരചനയും						
VI	ML6CRT09	കേരളീയദൃശ്യകല	കോർ	5 മണിക്കൂർ	4	20	80
	ML6CRT10	പ്രാചീനസാഹിത്യം	കോർ	5 മണിക്കൂർ	4	20	80
	ML6CRT11	ഗദ്യസാഹിത്യം നിരൂപണം	കോർ	5 മണിക്കൂർ	4	20	80
	ML6CRT12	വ്യാകരണം, ഭാഷാചരിത്രം	കോർ	5 മണിക്കൂർ	4	20	80
	കോർ ഇലക്ടീവ്		ഇലക്ടീവ്	5 മണിക്കൂർ	4	20	80
	ML6CBT01	മലയാളത്തിലെ സ്ത്രീരചനകൾ					
	ML6CBT02	മാധ്യമവിജ്ഞാനീയം					
	ML6CBT03	സംസ്കാരപഠനം					
ML6PRT01	പ്രോജക്ട്	പ്രോജക്ട്		1	20	80	

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സെമസ്റ്റർ 1 കോമൺ കോഴ്സ്
കോഴ്സ് കോഡ് : ML1CCT01

കഥാസാഹിത്യം

പഠനലക്ഷ്യങ്ങൾ

1. സാമാന്യമായ സാഹിത്യപരിചയവും വായനാഭിരുചിയും ആസ്വാദനശേഷിയും വളർത്തിയെടുക്കുക
2. മലയാളകഥാസാഹിത്യത്തിൽ സംഭവിക്കുന്ന ഭാവുകത്വപരിണാമങ്ങൾ തിരിച്ചറിയുക
3. കാലഘട്ടത്തിന്റെ പൊതുപ്രവണതകളും ഉദാത്തമായ ജീവിതവീക്ഷണവും എഴുത്തിൽ പ്രകടമാവുന്നത് അനുഭവിച്ചറിയുക

പാഠപുസ്തകം - യൂണിവേഴ്സിറ്റി പ്രസിദ്ധീകരണം.

ഖണ്ഡം ഒന്ന് - ചെറുകഥ

1. പൂവമ്പഴം - കാരൂർ
2. ഭൂമിയുടെ അവകാശികൾ - വൈക്കം മുഹമ്മദ് ബഷീർ
3. കടൽ - ടി. പത്മനാഭൻ
4. പെരുമഴയുടെ പിറ്റേന്ന് - എം.ടി വാസുദേവൻ നായർ
5. മാനാഞ്ചിറ ടെസ്റ്റ് - വി.കെ. എൻ
6. തരിശുനിലം - മാധവിക്കുട്ടി
7. ആർക്കറിയാം - സക്കറിയ
8. ഓരോ എഴുത്തുകാരിയുടെ ഉള്ളിലും - സാരാജോസഫ്
9. തിരുത്ത് - എൻ.എസ് മാധവൻ
10. മോഹമഞ്ഞ - കെ. ആർ മീര
11. അഗ്നി - സിതാര എസ്.
12. ബിരിയാണി - സന്തോഷ് ഏച്ചിക്കാനം
13. മോദസ്ഥിരനായ് അങ്ങ് വസിപ്പൂ മലപോലെ - എസ്. ഹരീഷ്
14. പ്രാണിലോകം - ഉണ്ണി ആർ.
15. ചില സ്വപ്നങ്ങളിൽ..... സീതാലക്ഷ്മിയുടെ കറുത്ത മുടിയിഴ - ഇന്ദുമേനോൻ

ഖണ്ഡം രണ്ട് - നോവൽ

ആടുജീവിതം - ബന്യാമിൻ

സഹായകഗ്രന്ഥങ്ങൾ

1. ചെറുകഥ ഇന്നലെ ഇന്ന് - എം. അച്യുതൻ
2. ചെറുകഥാപ്രസ്ഥാനം - എം. പി. പോൾ
3. ചെറുകഥ വാക്കും വഴിയും - ഡോ. കെ.എസ് രവികുമാർ
4. നോവൽ സാഹിത്യ ചരിത്രം - പ്രൊഫ. കെ.എം തരകൻ

ബി. എ./ബി. എസ്സി.
സെമസ്റ്റർ 2 കോമൺ കോഴ്സ്
കോഴ്സ് കോഡ് : ML2CCT02

കവിത

പഠന ലക്ഷ്യങ്ങൾ

1. സാമാന്യമായ കവിതാസാഹിത്യപരിചയവും വായനാഭിരുചിയും കാവ്യാസ്വാദനശേഷിയും വളർത്തിയെടുക്കുക
2. മലയാള കവിതാസാഹിത്യത്തിൽ സംഭവിക്കുന്ന ഭാവുകത്വപരിണാമങ്ങൾ തിരിച്ചറിയുക
3. കാലഘട്ടത്തിന്റെ പൊതുപ്രവണതകളും ഉദാത്തമായ ജീവിതവീക്ഷണവും എഴുത്തിൽ പ്രകടമാവുന്നത് അനുഭവിച്ചറിയുക

കവിതകൾ

1. മാംസനിബദ്ധമല്ലരാഗം - കുമാരനാശാൻ
(ലീലയിലെ 47 മുതൽ 74 വരെയുള്ള 28 ശ്ലോകങ്ങൾ)
2. സ്നേഹസുന്ദരപാതയിലൂടെ - വൈലോപ്പിള്ളി ശ്രീധരമേനോൻ
'കുടിയൊഴിക്കലി' ലെ അവസാന ഖണ്ഡം
3. ഒറ്റയ്ക്കിരിക്കാൻ പഠിച്ചു കഴിഞ്ഞു ഞാൻ - സുഗതകുമാരി
4. കോഴി -കടമ്മനിട്ട രാമകൃഷ്ണൻ
5. പഴഞ്ചൊല്ലുകൾ - സച്ചിദാനന്ദൻ
6. മുളളൻ പന്നി - കെ.ജി. ശങ്കരപ്പിള്ള
7. തിരുത്ത് - പി.പി. രാമചന്ദ്രൻ
8. പിറക്കാത്ത മകൻ -ബാലചന്ദ്രൻ ചുള്ളിക്കാട്
9. മൃഗശിക്ഷകൻ - വിജയലക്ഷ്മി
10. ആടിയാടി അലഞ്ഞ മരങ്ങളേ.... - അൻവർ അലി
11. കൽവീട് - വി.എം. ഗിരിജ
12. ആഴങ്ങൾ അടച്ചിട്ട പുഴ- എസ്. ജോസഫ്
13. സ്മാരകം - വീരാൻകുട്ടി
14. കുട്ടമ്മാൻ - എം. ആർ. രേണുകുമാർ
15. നാഷണൽ ജ്യോഗ്രഫി -എസ്. കണ്ണൻ
16. വെറ്റിലച്ചെല്ലം - ടി.പി. രാജീവൻ
17. പഴയ ചിലത് - പി. രാമൻ
18. ഗോതമ്പു ശില്പം - കവിത ബാലകൃഷ്ണൻ
19. കുന്നിമണികൾ - കുഞ്ഞുണ്ണിക്കവിതകൾ
(കറന്റ് ബുക്സിന്റെ 2004 ജൂലൈ എഡിഷൻ 'കുഞ്ഞുണ്ണിക്കവിത'കളിൽ നിന്ന് 460, 463, 464, 465, 466, 469, 490, 491 ക്രമനമ്പരയുള്ള കവിതകൾ)

പാഠപുസ്തകം - യൂണിവേഴ്സിറ്റി പ്രസിദ്ധീകരണം

ബി. എ./ബി. എസ്സി.
സെമസ്റ്റർ 3 കോമൺ കോഴ്സ്
കോഴ്സ് കോഡ് : ML3CCT03

ദൃശ്യകലാസാഹിത്യം

പഠനലക്ഷ്യങ്ങൾ

1. കേരളത്തിന്റെ സമ്പന്നമായ ദൃശ്യകലാപാരമ്പര്യത്തെക്കുറിച്ച് കുട്ടികൾക്ക് അറിവ് നൽകുക.
2. സിനിമ പോലെയുള്ള ദൃശ്യകലകളെ പരിചയപ്പെടുത്തുക.

ഖണ്ഡം ഒന്ന് - സംസ്കൃത നാടകം.

മലയാളശാകുന്തളം നാലാമങ്കം-ഏ.ആർ രാജരാജവർമ്മ
ഊരുഭംഗം - ഭാസൻ -കാവലം നാരായണപ്പണിക്കരുടെ തർജമ
(വിഷ്കംഭം കഴിഞ്ഞ് ബലദേവന്റെ സംഭാഷണം മുതൽ അവസാനം വരെ)

ഖണ്ഡം രണ്ട്- ആട്ടക്കഥ

നളചരിതം (ഒന്നാം ദിവസം)- ഉണ്ണായിവാര്യർ (തുടക്കം മുതൽ “എന്നുംചൊല്ലിക്വഗ
പതി പറന്നംബരേ പോയ്മറഞ്ഞാൻ”(നാലാം രംഗത്തിന്റെ അവസാനം) വരെ)

ഖണ്ഡം മൂന്ന് - തുള്ളൽ

കല്യാണസൗഗന്ധികം (ശീതങ്കൻ തുള്ളൽ) - കുഞ്ചൻ നമ്പ്യാർ
(തുടക്കം മുതൽ‘ശ്രീരാമദാസന്റെ വംശേ ജനിക്കയാൽ പാരം നിനക്കുമഹംഭാവ-
മിങ്ങനെ’ വരെയുള്ള ഭാഗങ്ങൾ)

ഖണ്ഡം നാല്- മലയാളനാടകം

‘1128 ൽ ക്രൈം 27’ - സി.ജെ. തോമസ്.

ഖണ്ഡം അഞ്ച് - സിനിമ

സിനിമയുടെ സാംസ്കാരിക പ്രതിനിധാനങ്ങളെ സൂക്ഷ്മതലത്തിൽ വിശകലനം ചെയ്യുന്ന ഡോ. പി.എസ് രാധാകൃഷ്ണന്റെ സിനിമാപഠനങ്ങൾ - 5 ലേഖനങ്ങൾ.

പാഠപുസ്തകം

1. ഖണ്ഡം 1,2, 3 ചേർത്തുകൊണ്ട് യൂണിവേഴ്സിറ്റി പ്രസിദ്ധീകരിക്കുന്ന പുസ്തകം.
2. 1128 -ൽ ക്രൈം 27 - സി.ജെ തോമസ്
3. സിനിമ: ദേശം, സംസ്കാരം, ചരിത്രം- ഡോ. പി.എസ് രാധാകൃഷ്ണൻ

ബി. എ./ബി. എസ്സി.
സെമസ്റ്റർ 4 കോമൺ കോഴ്സ്
കോഴ്സ് കോഡ് : ML4CCT04

മലയാളഗദ്യരചനകൾ

മലയാള ഗദ്യത്തിന്റെ ശക്തിയും സാധ്യതയും മനസ്സിലാക്കാൻ പര്യാപ്തമായ ലേഖനങ്ങളാണ് ഇവിടെ പഠനവിഷയം. ഒപ്പം ഓർമ്മക്കുറിപ്പുകളിലൂടെ എഴുത്തുകാരെയും എഴുത്തുകാരെ രൂപപ്പെടുത്തിയ സമൂഹത്തെയും തിരിച്ചറിയുന്നത് എങ്ങനെയെന്ന് മനസ്സിലാക്കാൻ സാധിക്കുന്നു.

1. ലേഖനങ്ങൾ

പുസ്തകം - യൂണിവേഴ്സിറ്റി പ്രസിദ്ധീകരണം

1. കാളിദാസനും കാലത്തിന്റെ ദാസൻ- ജോസഫ് മുണ്ടശ്ശേരി
2. മാതൃഭാഷയിലേക്കുവീണ്ടും- എൻ.വി.കൃഷ്ണവാരീയർ
3. ഭൂമിയിൽ ഏകാന്തതയ്ക്കുമാത്രമായി ഒരിടമില്ല- സിയാറ്റിൽ മുപ്പൻ
4. വാക്കുകളുടെ വിസ്തൃതി - എം.ടി.വാസുദേവൻ നായർ
5. മാറുന്ന മലയാള സംസാരഭാഷ-ടി.ബി. വേണുഗോപാലപ്പണിക്കർ
6. നമ്മുടെ അടുക്കള തിരിച്ചുപിടിക്കുക- സാനാജോസഫ്
7. മലയാളിയുടെ രാത്രികൾ- കെ.സി. നാരായണൻ
8. ചെന്നൈ വൈദ്യനാഥഭാഗവതർ സംഗീതത്തിലെ സിംഹനാദം -ഇന്ദിരാമേനോൻ
9. ഈശ്വരപിള്ളയെ ആരോർക്കുന്നു- പി.കെ. രാജശേഖരൻ
10. പ്രകാശത്തിന്റെ ആയിരം തടവറകൾ - ജീവൻ ജോബ് തോമസ്
11. പുരികം-ഡെസ് മണ്ട് മോറിസ്
12. രവിവർമ്മ- വിജയകുമാർ മേനോൻ

2. അനുഭവം, ആത്മകഥ

പച്ചവിരൽ -ദയാബായി (ഡി.സി.ബുക്സ്, കോട്ടയം, 2015)

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR UNDER GRADUATE PROGRAMMES IN

HINDI

UNDER CHOICE BASED CREDIT SYSTEM (UG CBCS) 2017

2017 ADMISSIONS ONWARDS

B.Sc Model II

SEMESTER I

Paper- 1- कविता और एकांकी (Poetry & One act Play)

Course Code-HN1CCT01

कविता/ Poetry (Text Book- इन्द्रधनुष)

1. कबीरदास - दोहा (4)
2. रहीम - दोहा (4)
3. हिन्दी के सुमनों के प्रति पत्र - निराला
4. प्रतिबिम्ब - सुमित्रानन्दन पन्त
5. तुम ने कहा था - नागाजुन
6. जो कुरुक्षेत्र पार करता है - एकांत श्रीवास्तव
7. वे हाथ - सर्वेश्वर दयाल सक्सेना
8. बच्चों के लिए एक कथा - भगवत रावत
9. नमन कर छोटी बेटियों को - सविता सिंह
10. खौफनाक समय में बच्चे - कुमार विकल
11. घर की चौखट से बाहर- सुशीला टाकमोरे

एकांकी (One act Play) (Text Book- इन्द्रधनुष)

1. शाहजहाँ के आँसू - देवेन्द्रनाथ शर्मा
2. मकड़ी का जाला - जगदीश चन्द्र माधुर
3. लक्ष्मी का स्वागत - उपेन्द्रनाथ अशक
4. शादी की बात - स्वदेश दीपक

(Module-wise Distribution)

MODULE- I	MODULE- II	MODULE- III	MODULE- IV
कबीरदास	प्रतिबिम्ब	वे हाथ	नमन कर छोटी बेटियों को
रहीम	तुम ने कहा था	बच्चों के लिए एक कथा	खौफनाक समय में बच्चे
हिन्दी के सुमनों के प्रति पत्र	जो कुरुक्षेत्र पार करता है		घर की चौखट से बाहर
शाहजहाँ के आँसू	मकड़ी का जाला	लक्ष्मी का स्वागत	शादी की बात

SEMESTER II

Paper- 2- गद्य और कहानी (Prose & Short stories)

Course Code-HN2CCT02

गद्य/ Prose (Text Book- गद्य सौरभ)

< BA-Hindi-2017 (3)



B.Com Model I

SEMESTER I

Paper- 1- गद्य और संचार मीडिया (Prose & Mass Media)

Course Code-HN1CCT01

गद्य/ Prose (Text Book-साहित्य सागर)

1. नेहरु का रास्ता - माधव हाड़ा
2. जूठन- ओमप्रकाश वाल्मीकी
3. चूहा और मैं- हरिशंकर परसाई
4. अग्नि की उड़ान- ए पी जे अब्दुल कलाम
5. आस्था और रोमांच की यात्रा- पवन चौहान
6. गौरी का गुस्सा-स्वयं प्रकाश

संचार मीडिया (Mass Media) (Text Book-संचार मीडिया एवं व्यावसायिक पत्र लेखन)

1. दर्शकों को अब भी अच्छे सिनेमा की तलाश - ओमपुरी
2. विज्ञापन और स्त्री - कुमुद शर्मा
3. माध्यम की तलाश - राही मासूम रज़ा
4. चक दे इण्डिया - रामशरण जोशी

(Module-wise Distribution)

MODULE- I	MODULE- II	MODULE- III	MODULE- IV
नेहरु का रास्ता	चूहा और मैं	आस्था और रोमांच की यात्रा	गौरी का गुस्सा
जूठन	अग्नि की उड़ान		
दर्शकों को अब भी अच्छे सिनेमा की तलाश	विज्ञापन और स्त्री	माध्यम की तलाश	चक दे इण्डिया

SEMESTER II

Paper- 2- कविता, व्यावसायिक पत्र लेखन और अनुवाद
(Poetry, Commercial Correspondence & Translation)

Course Code-HN2CCT02

कविता/ Poetry (Text Book-साहित्य सागर)

< BA-Hindi-2017 (3)



SEMESTER II

Paper- 2- कहानी और उपन्यास (Short stories & Novel)
Course Code-HN2CCT02

उपन्यास/ Novel

1. अंतिम साक्षय – चंद्रकांता

कहानी/ Short stories (Text Book-कथा संसार)

1. ईदगाह- प्रेमचंद
2. हीलिबोन की बतखें- अज्ञेय
3. अमरूद का पेड़ -ज्ञानरंजन
4. जंगल का दाह- स्वयंप्रकाश
5. छुट्टी का दिन- उषा प्रियंवदा
6. बाज़ार में रामधन- कैलाश बनवासी
7. माँ रसोई में रहती है - कुमार अम्बुज

(Module-wise Distribution)

MODULE- I	MODULE- II	MODULE- III	MODULE- IV
अंतिम साक्षय	अंतिम साक्षय	अंतिम साक्षय	अंतिम साक्षय
ईदगाह	अमरूद का पेड़	छुट्टी का दिन	माँ रसोई में रहती है
हीलिबोन की बतखें	जंगल का दाह	बाज़ार में रामधन	

SEMESTER III

Paper- 3- कविता, व्याकरण, भाषा (Poetry, Grammar & Translation)
कविता/ Poetry (Text Book-काव्य कुसुम)

Course Code-HN3CCT03



< BA-Hindi-2017 (3)



SEMESTER II

Paper- 2-गद्य और कहानी (Prose & Short stories)

Course Code-HN2CCT02

गद्य/ Prose (Text Book- गद्य सौरभ)

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1. प्रणाम रवीन्द्रनाथ ठाकुर -महादेवी वर्मा
2. फिल्म अभ भी संभावना है - उदय प्रकाश
3. मधुर भाषी - नरेन्द्र कोहली
4. मोअनजोदडो- आम धानवी

कहानी /Short stories (Text Book- गद्य सौरभ)

1. बड़े भाई साहब- प्रेमचंद
2. बिसाती - जयशंकर प्रसाद
3. भूख- चित्रा मुद्गल
4. पाल गोमरे का स्कूटर - उदयप्रकाश
5. पावरोटी और कटलेट्स - मंजुल भगत

(Module-wise Distribution)

MODULE- I	MODULE- II	MODULE- III	MODULE- IV
प्रणाम रवीन्द्रनाथ ठाकुर	फिल्म अभ भी संभावना है	मधुर भाषी	मोअनजोदडो
बड़े भाई साहब	भूख	पाल गोमरे का स्कूटर	मृत्यु की ओर
बिसाती			

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SEMESTER II

**Paper- 2- कविता, व्यावसायिक पत्र लेखन और अनुवाद
(Poetry, Commercial Correspondence & Translation)**

Course Code-HN2CCT02

कविता/ Poetry (Text Book-साहित्य सागर)

1. कबीरदास – दोहा (4)
2. तुलसीदास – पद (2)
3. बादल राग -सूर्यकांत त्रिपाठी निराला
4. कुमुद दल से वेदना के दाग को – महादेवी वर्मा
5. आत्म परिचय – हरिवंश राय बच्चन
6. हत्या और अपराध- भगवत रावत
7. अकेला आदमी- कुमार अम्बुज
8. पोलिथीन-ज्ञानेश्वरपति
9. मूल्य- एकांत श्रीवास्तव
10. बेजगह- अनामिका
11. घृणा और प्रेम कहां से शुरू होता है- ओमप्रकाश वात्मीकी
12. डेली पैसेंजर- अरुण कमल

व्यावसायिक पत्र लेखन और अनुवाद (Commercial Correspondence & Translation)

(Text Book-संचार मीडिया एवं व्यावसायिक पत्र लेखन)

(Module-wise Distribution)

MODULE- I	MODULE- II	MODULE- III	MODULE- IV
कबीरदास	कुमुद दल से वेदना के दाग को	अकेला आदमी	बेजगह
तुलसीदास	आत्म परिचय	पोलिथीन	घृणा और प्रेम कहां से शुरू होता है
बादल राग	हत्या और अपराध	मूल्य	डेली पैसेंजर
व्यावसायिक पत्र लेखन	अनुवाद	व्यावसायिक पत्र लेखन	अनुवाद

B.Com Model II

SEMESTER I

**Paper- 1-गद्य, व्यावसायिक पत्र लेखन और अनुवाद
(Paper- Commercial Correspondence & Translation)**

< BA-Hindi-2017 (3)



SEMESTER III

Paper- 3- कविता, व्याकरण और अनुवाद (Poetry, Grammar & Translation)

कविता/ Poetry (Text Book-काव्य कुसुम)

Course Code-HN3CCT03

1. कबीरदास – दोहा (4)
2. तुलसीदास – पद (2)
3. मीराबाई – पद (2)
4. बिहारी – दोहा (3)
5. जागो फिर एक बार - सूर्यकांत त्रिपाठी निराला
6. वे मुस्काते फूल नहीं – महादेवी वर्मा
7. खवली – पूमिल
8. छद्मिने आये हे वे – सर्वेश्वर दयाल सक्सेना
9. आज़ादी उर्फ गुलामी - ज्ञानेन्द्रपति
10. तुम्हें कुछ करना चाहिए – चंद्रकांत देवताले
11. सवत – अरुण कमल
12. दिल्ली दरवाज़ा – कुमार विकल
13. जंगल के उजाड़ में – विनोद कुमार श्रुक्ल
14. बाज़ार – मंगलेश डबराल
15. बीसवीं शती के अंतिम दिनों का एक आश्चर्य – राजेश जोशी
16. दो हाथियों की लड़ाई – उदयप्रकाश
17. टंडे पानी की मशीन - एकांत श्रीवास्तव
18. अच्छे आदमी – कुमार अम्बुज

व्याकरण और अनुवाद (Grammar & Translation)

1. सामान्य हिंदी व्याकरण तथा रचना –श्रीकृष्ण पाण्डेय (Page -19-58 & 111-117)

(Module-wise Distribution)

MODULE- I	MODULE- II	MODULE- III	MODULE- IV
कबीरदास तुलसीदास बिहारी मीराबाई	जागो फिर एक बार वे मुस्काते फूल नहीं खवली छद्मिने आये हे वे आज़ादी उर्फ गुलामी	तुम्हें कुछ करना चाहिए सवत दिल्ली दरवाज़ा जंगल के उजाड़ में बाज़ार	बीसवीं शती के अंतिम दिनों का एक आश्चर्य दो हाथियों की लड़ाई टंडे पानी की मशीन अच्छे आदमी
व्याकरण			व्याकरण
अनुवाद			अनुवाद

SEMESTER IV

Paper- 4- नाटक और लंबी कविता (Drama & Long Poem)

Course Code-HN4CCT04

नाटक/ Drama



SEMESTER IV

Paper- 4- नाटक और लंबी कविता (Drama & Long Poem)
Course Code-HN4CCT04

नाटक/ Drama

1. कोणाक – जगदीश चन्द्र माधुर

लंबी कविता (Long Poem) (Text Book-पांच लंबी कविताएँ)

1. नगई महुरा - त्रिलोचन
2. शहशाह की नींद – उमाशंकर चौधरी
3. दावा – नीलेश रघुवंशी
4. इतनी दूर मत ब्याहना बाबा – निर्मला पुत्तुल
5. जवाहर टनल –अग्निशेखर

(Module-wise Distribution)

MODULE- I	MODULE- II	MODULE- III	MODULE- IV
कोणाक	कोणाक	कोणाक	कोणाक
नगई महुरा	शहशाह की नींद	दावा	जवाहर टनल
		इतनी दूर मत ब्याहना बाबा	

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR UNDER GRADUATE PROGRAMMES IN

B.Sc Psychology

UNDER CHOICE BASED CREDIT SYSTEM (UG CBCS) 2017

2017 ADMISSIONS ONWARDS

B. Sc Psychology Credit-Semester Course Scheme

Semester	Common/Core/Complementary/Elective Courses	Course Code	Credits	Hours
Semester I	Common Course I- Paper I (English)		4	5
	Common Course I- Paper II (English)		3	4
	Common Course II- Paper I (Additional Language)		4	4
	Foundations and Methods of Psychology (Core)	PY1CRT01	4	7
	Body Systems And Behaviour(Complementary 1)	PY1CMT02	2	2
	Basic Statistics- Paper I (Complementary II)	PY1CMT03	2	3
Semester II	Common Course I- Paper III (English)		4	5
	Common Course I- Paper IV (English)		3	4
	Common Course II- Paper II (Additional Language)		4	4
	Basic Cognitive Processes (Core)	PY2CRT04	4	7
	Biological Basis of Behaviour - Paper II (Complementary I)	PY2CMT05	2	2
	Statistical Tools– Paper II (Complementary II)	PY2CMT06	2	3
Semester III	Common Course I- Paper V (English)		4	5
	Common Course II- Paper III (Additional Language)		4	5
	Living in the Social World (Core)	PY3CRT07	4	7
	Neurophysiology of Behaviour I- Paper III (Complementary I)	PY3CMT08	2	3
	Statistical Methods and Elementary Probability- Paper III (Complementary II)	PY3CMT09	2	3
	Psychology Practical	PY3 P01	-	2
Semester IV	Common Course I- Paper VI (English)		4	5
	Common Course II- Paper IV (Additional Language)		4	5
	Social Interactions and Human Behaviour (Core)	PY4CRT10	4	7
	Biophysiology of Behaviour II- Paper IV (Complementary I)	PY4CMT11	2	3
	Statistical Inference- Paper IV (Complementary II)	PY4CMT12	2	3
	Psychology Practical	PY4 P02	1	2
Semester V	Abnormal Psychology (Core)	PY5CRT13	4	4
	Foundations of Organizational Behavior (Core)	PY5CRT14	3	3
	Environmental Psychology and Human Rights	PY5CRT15	4	4
	Open Course (Any one)			
	1. Basics of Counselling Psychology 2. Life Skills Development	PY5OP1 PY5OP2	3	4

	Practical Experimental Psychology	PY5 P03	8	8
	Project 1	PY5 Pr01	2	2
Semester	Common/Core/Complementary/Elective Courses	Course Code	Credits	Hours
Semester VI	Psychology of Maladaptive Behaviour (Core)	PY6CRT16	4	4
	Child Development (Core)	PY6CRT17	4	4
	Managing Behavior in Organizations (Core)	PY6CRT18	4	4
	Choice-based Core course (Any one)			
	1.Theory and Practice of Counselling	PY6 CB1	3	3
	2 School Psychology	PY6 CB2		
	3. Human Resource Development	PY6 CB3		
	4. Health Psychology	PY6CB4		
	Practical Psychological Assessment	PY6 P02	8	8
	Project 2	PY6 Pr02	2	2
	TOTAL		120	150

**Complementary course in Psychology for other Core programmes
(For B. A. English and B.A. Economics)**

PYICMT01 Understanding Psychology

PYICMT02 Psychology Of Individual Differences

Expansion of the codes given to courses

PY	Psychology
1,2,3,4,5,6	Semester numbers
CM	Complementary courses
CR	Core courses
OP	Open courses
CB	Choice Based Core Courses
T	Theory
P	Practical
Pr	Project

PY3CRT07 LIVING IN THE SOCIAL WORLD

Credit:4

Teaching Hours: 7/week

Objectives:

- To understand the psychological processes behind human behaviour in a social setting
- Explain the psychological aspects of various social phenomena (Understand the psychological aspects of various social issues in the society and the nation)
- Implication of social psychology in everyday living

Module I: Introduction to Social Psychology

Social Psychology (Definition). Focus of social psychology.

Research methods in Social Psychology (very briefly) – Systematic observation, Survey, Correlation, Experimental method, Field experiment, Sociometry.

Socialization (Definition).

References

Baron, R. A., Branscombe, N. R., Byrne, D., & Bhardwaj, G. (2010). *Social Psychology*. Delhi: Pearson. pp. 5-14,23-27.

Baron, R.A. & Branscombe, N.R. (2015). *Social Psychology*. Delhi: Pearson. pp.2-11,18-24.

Singh, A. K. (2015). *Social Psychology*. Delhi: PHI learning Pvt. Ltd. pp. 169-170.

Module II: Social Cognition

Social Cognition (Definition). Schemas: Types. Priming. Self- fulfilling prophecy.

Heuristics - Types. Automatic processing.

Potential sources of error in social cognition (Briefly): Negativity bias, Optimistic bias, Overconfidence barrier, Planning fallacy, Counterfactual thinking, Thought suppression, Magical thinking, Terror management.

Affect and Cognition: How feelings shape thoughts and thought shapes feelings.

References

Baron, R. A., Branscombe, N. R., Byrne, D., & Bhardwaj, G. (2010). *Social Psychology*. Delhi: Pearson. pp. 39-69.

Baron, R.A. & Branscombe, N.R. (2015). *Social Psychology*. Delhi: Pearson. pp. 34-64.

Singh, A. K. (2015). *Social Psychology*. Delhi: PHI learning Pvt. Ltd. pp. 109-125.

Module III: Social Perception

Social perception: Nonverbal communication- Facial expressions, Gazes, Stares, Body language, Touching. Deception and Microexpressions.

Attribution: Theories of Attribution – Heider, Jones and Davis, Kelly, Shaver, Weiner. Basic sources of attribution errors. Applications of Attribution theory in understanding depression.

Impression formation (Definition). Impression management- tactics.

References

- Baron, R. A., Branscombe, N. R., Byrne, D., & Bhardwaj, G. (2010). *Social Psychology*. Delhi: Pearson. pp. 75 - 105.
- Baron, R.A. & Branscombe, N.R. (2015). *Social Psychology*. Delhi: Pearson. pp. 68-97.
- Singh, A. K. (2015). *Social Psychology*. Delhi: PHI Learning Private Ltd. pp. 126-165

Module IV: Attitudes and Social dissonance

Attitudes- Definition and Types. Attitude formation: How attitudes develop?
 Persuasion: How attitudes are changed? Resistance to persuasion (briefly).
 Cognitive dissonance. Hypocrisy.

References

- Baron, R. A., Branscombe, N. R., Byrne, D., & Bhardwaj, G. (2010). *Social Psychology*. Delhi: Pearson. pp. 148-180.
- Baron, R.A. & Branscombe, N.R. (2015). *Social Psychology*. Delhi: Pearson. pp. 138-170.

Module V: Stereotyping, Prejudice and Discrimination

Prejudice, Stereotype, Discrimination-(Definition).
 Stereotype- Nature and Origins of stereotyping (Briefly).
 Prejudice- Origins of prejudice (Briefly), Techniques to reduce prejudice.
 Discrimination: Prejudice in action (Briefly).
 Consequences of discrimination based on religion, caste and gender in India.

References

- Baron, R. A., Branscombe, N. R., Byrne, D., & Bhardwaj, G. (2010). *Social Psychology*. Delhi: Pearson. pp. 188-221.
- Baron, R.A. & Branscombe, N.R. (2015). *Social Psychology*. Delhi: Pearson. pp. 174-207.

Module VI: Interpersonal Attraction and Relationship

Interpersonal attraction (Definition). Determinants of interpersonal attraction- Internal: Need to affiliate and the role of affect, External: Proximity and others' observable characteristics, and Interactive: Similarity of attitudes, values and personal characteristics, Mutual evaluations.
 Romantic relationships: Forms of love- Passionate and Compassionate love, Sternberg's triangular theory of love.

References

- Baron, R. A., Branscombe, N. R., Byrne, D., & Bhardwaj, G. (2010). *Social Psychology*. Delhi: Pearson. pp. 226-257
- Baron, R.A. & Branscombe, N.R. (2015). *Social Psychology*. Delhi: Pearson. pp. 211-241
- Singh, A. K. (2015). *Social Psychology*, Delhi: PHI Learning Pvt. Ltd. pp. 387- 408

Activity based assignments

Submit reports of monitored field visits to Family Courts/ NGO s dealing with women and children issues/ Adivasi settlements/ Old age homes/ Orphanages.

Observe the social behavior in various settings viz. Public places/ Social gatherings/ Institutions and submit a report.

Discuss various social phenomena of the psychological nature in the classroom, with special relevance to the contemporary Kerala society.

Analyze contemporary articles and newspapers of relevance.

Additional References:

Baron, R. A., & Branscombe, N. R. (2016). *Social Psychology* (14th ed.). Boston, MA: Pearson/Allyn and Bacon.

Baron, R. A. & Byrne, D. (2003). *Social Psychology* (10th ed). New Delhi: Pearson Education.

Myers, D. G. (2012). *Social Psychology* (11th ed.). New York: McGraw-Hill.

PY4CRT10 SOCIAL INTERACTIONS AND HUMAN BEHAVIOUR

Credit: 4

Teaching Hours: 7/week

Objectives:

- To understand the psychological processes behind human behaviour in a social setting
- Explain the psychological aspects of various social phenomena (Understand the psychological aspect of various social issues in the society and the nation)
- Implication of social psychology in everyday living
- To help the students to get an understanding on measuring human behaviour

Module 1: Social Influence

Social influence, Social norms-Definition.

Conformity: Asch's research, Factors affecting conformity, Social roots of conformity, Resisting pressures to conform.

Compliance: Underlying principles and tactics.

Obedience: Milgram's experiment, Destructive obedience- Why it occurs and Resisting its effects.

Intense indoctrination (briefly).

References

Baron, R. A., Branscombe, N. R., Byrne, D., & Bhardwaj, G. (2010). *Social Psychology*. Delhi: Pearson. pp. 271-299.

Baron, R.A. & Branscombe, N.R. (2015). *Social Psychology*. Delhi: Pearson. pp. 246-75.

Baron, R. A. & Byrne, D. (2003). *Social Psychology* (10th ed). New Delhi: Pearson Education. pp. 380- 382.

Module 2: Prosocial Behaviour

Prosocial Behaviour – Definition

Motives for Prosocial Behaviour: Theories- Empathy-Altruism, Negative-state relief, Empathic joy, Competitive altruism, Kin selection theory.

Responding to an emergency- Five crucial steps determine helping versus not helping

Determinants of prosocial behaviour- External and Internal influences on helping behavior:

Situational factors, Emotions and Prosocial behavior, Empathy, Social Exclusion, Altruistic Personality.

References

Baron, R. A., Branscombe, N. R., Byrne, D., & Bhardwaj, G. (2010). *Social Psychology*. Delhi: Pearson. pp. 304-325.

Baron, R.A. & Branscombe, N.R. (2015). *Social Psychology*. Delhi: Pearson. pp. 281- 302

Module 3: Aggression

Aggression: Theoretical perspectives on Aggression

Determinants and Causes of aggression: Social, Cultural, Personal and Situational

Prevention and control of aggression

Media violence
Child abuse - Types, causes

References

- Baron, R. A., Branscombe, N. R., Byrne, D., & Bhardwaj, G. (2010). *Social Psychology*. Delhi: Pearson. pp. 336-366.
 Baron, R.A. & Branscombe, N.R. (2015). *Social Psychology*. Delhi: Pearson. pp.310-343.
 Baron, R. A. & Byrne, D. (2001). *Social Psychology* (8th ed). New Delhi: Prentice Hall of India Pvt Ltd. pp. 416-419

Module 4: Groups and Individuals

Groups, Common-bond groups, Common-identity groups, Entitativity- Definition.
 Key components/Features of groups: Status, Roles, Norms and Cohesiveness.
 Why do people join a group?: Benefits and costs of joining.
 Effects of the presence of others: Social facilitation, Social Loafing, Effects of being in a crowd: Deindividuation.
 Decision making by groups- Decision making process, Downside of group decision making.

References

- Baron, R. A., Branscombe, N. R., Byrne, D., & Bhardwaj, G. (2010). *Social Psychology*. Delhi: Pearson. pp. 378-409.
 Baron, R.A. & Branscombe, N.R. (2015). *Social Psychology*. Delhi: Pearson. pp.348-377.

Module 5: Social Psychology and Legal system

Social influence and the Legal system.

Social cognition and the Legal system: Eyewitness testimony.
 Influence of Prejudice and Stereotypes on the Legal system.

References

- Baron, R. A., Branscombe, N. R., Byrne, D., & Bhardwaj, G. (2010). *Social Psychology*. Delhi: Pearson. pp. 418-429.
 Baron, R.A. & Branscombe, N.R. (2015). *Social Psychology*. Delhi: Pearson. pp. 402-405.

Module 6: Measuring Human Behaviour

Psychological test (Definition). Characteristics of a good psychological test.
 Difference between Testing and Assessment.
 Classification of test (Briefly): Norm referenced and criterion- referenced. Speed test and power test, Individual and group tests, Verbal, nonverbal and performance tests, Intelligence, Personality, Aptitude, Attitude, Achievement.
 Uses and limitations of psychological test. Ethical issues in psychological testing. Report writing (very briefly).

References

- Hussain, A. (2012). *Psychological Testing*. New Delhi: Pearson Edition. Ch. 1, 7, 8 & 9.
 Singh, A. K. (2010). *Tests, measurements and Research Methods in Behavioral Sciences*. New Delhi: Bharathi Bhawan. Ch.1, 2 & 23.

Activity based assignments:

Analysis of media reports on current issues.

Make a report of social loafing/social facilitation by observing group activities in campus.

Studytours to places where significant social interactions have taken place(conflicts/cooperation).Interviews with local people,qualitative analysis of documents(such as the media report/police report), discussions with experts (such as local MLA/Panchayat members/ Police officers) and/or personal impressions of students may be submitted.

Analyze popular films and TV programmes to find out the representation of women, children, disadvantaged groups etc. Discuss the cultural psychological meaning of these representations. Discuss how media reflect and influence social norms.

Discuss various social phenomena of the psychological nature in the classroom, with special relevance to the contemporary Kerala society. Analyze contemporary articles and newspapers of relevance.

Additional References:

- American Psychological Association. (2010). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: Author.
- Baron, R. A., & Branscombe, N. R. (2016). *Social Psychology* (14th ed.). Boston, MA: Pearson/Allyn and Bacon.
- Baron, R. A. & Byrne, D. (2003). *Social Psychology* (10th ed). New Delhi:Pearson Education.
- Flick, U. (2011). *Introducing Research Methodology*. New Delhi: Sage Publications.
- Jones, S & Forshaw, M. (2014). *Psychology Express: Research Methods in Psychology*. New Delhi: Pearson.
- Myers, D. G. (2012). *Social Psychology* (11th ed.). New York: McGraw-Hill.

PY5CRT 15 ENVIRONMENTAL PSYCHOLOGY AND HUMAN RIGHTS

Credit:4

Teaching Hours:3/week

Objectives

- To encourage students to do research, investigate how and why things happen, and make their own decisions about complex environmental issues by developing and enhancing critical and creative thinking skills. It helps to foster a new generation of informed consumers, workers, as well as policy or decision makers.
- To help students understand how their decisions and actions affect the environment, build knowledge and skills necessary to address complex environmental issues, as well as ways to take action that can keep our environment healthy and sustainable for the future. It encourages character building, and develop positive attitudes and values.
- To develop a sense of awareness among the students about the environment and its various problems and to help the students in realizing the interrelationship between man and the environment and helps to protect the nature and natural resources.
- To help the students to acquire the basic knowledge about the environment and the social norms that provide unity with environmental characteristics and create a positive attitude about the environment.
- To acquaint students with the nature and basic concepts of environmental psychology
- To synthesize diverse information relevant to human-environment relationships in the context of environmental psychology.

Module I

Unit 1 :Multidisciplinary nature of environmental studies

Definition, scope and importance

(2 hrs)

Need for public awareness.

Unit 2 : Natural Resources :

Renewable and non-renewable resources : Natural resources and associated problems.

- a) **Forest resources** : Use and over-exploitation, deforestation, case studies.
Timber extraction, mining, dams and their effects on forest and tribal people.
 - b) **Water resources** : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
 - c) **Mineral resources** : Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
 - d) **Food resources** : World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
 - e) **Energy resources**: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources, Case studies.
 - f) **Land resources**: Land as a resource, land degradation, man induced landslides, soil erosion and desertification
- Role of individual in conservation of natural resources.
 - Equitable use of resources for sustainable life styles. (10 hrs)

Unit 3: Ecosystems

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the given ecosystem:- Forest ecosystem **(6 hrs)**

Module II**Unit 1: Biodiversity and its conservation**

- Introduction
- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values.
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts
- Endangered and endemic species of India**(8 hrs)**

Unit 2: Environmental Pollution

- Definition
Causes, effects and control measures of: -
- a. Air pollution
 - b. Water pollution
 - c. Soil pollution
 - d. Marine pollution
 - e. Noise pollution
 - f. Thermal pollution
 - g. Nuclear hazards
- Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
 - Role of an individual in prevention of pollution
 - Pollution case studies
 - Disaster management: floods, earthquake, cyclone and landslides. **(8 hrs)**

Unit 3: Social Issues and the Environment

- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people: its problems and concerns, Case studies
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, Case studies
- Consumerism and waste products
- Environment Protection Act

- Air (Prevention and Control of Pollution) Act
- Water (Prevention and control of Pollution) Act
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation
- Public awareness

(10 hrs)**Module III****Unit 1. Environmental psychology**

- What is Environmental Psychology
- Nature and Characteristics of Environmental Psychology

Unit 2. Introduction to concepts in environmental psychology**Definition of:**

- Environmental perception
- Environmental cognition
- Environmental attitudes, beliefs, values & dispositions

(8 hrs)**Module IV****Unit1. Environment and Human Behaviour**

- Nature and Human Nature (Briefly)
- Theories of Environment-Behaviour Relationships(Briefly)-Arousal, Environmental Load, Adaptation Level and Ecological Approach.
- Personal space
- Territoriality
- Crowding

Unit 2. Practice in environmental psychology

- Changing Behavior to Save the Environment
- Environmental Impact Assessment(Briefly)

(12 hrs)**Module – V****Unit 1- Human Rights**

An Introduction to Human Rights, Meaning, concept and development, Three Generations of Human Rights (Civil and Political Rights; Economic, Social and Cultural Rights).

Unit-2 Human Rights and United Nations

Contributions, main human rights related organs - UNESCO, UNICEF, WHO, ILO, Declarations for women and children, Universal Declaration of Human Rights.

Human Rights in India – Fundamental rights and Indian Constitution, Rights for children and women, Scheduled Castes, Scheduled Tribes, Other Backward Castes and Minorities

Unit-3 Environment and Human Rights

Right to Clean Environment and Public Safety: Issues of Industrial Pollution, Prevention, Rehabilitation and Safety Aspect of New Technologies such as Chemical and Nuclear Technologies, Issues of Waste Disposal, Protection of Environment

Conservation of natural resources and human rights: Reports, Case studies and policy formulation. Conservation issues of western ghats- mention Gadgil committee report, Kasthurirengan report. Over exploitation of ground water resources, marine fisheries, sand mining etc. **(8 Hrs)**

REFERENCES

Environmental Studies

1. Bharucha Erach, Text Book of Environmental Studies for undergraduate Courses. University Press, IInd Edition 2013 (TB)
2. Clark.R.S., Marine Pollution, Clanderson Press Oxford (Ref)
3. Cunningham, W.P.Cooper, T.H.Gorhani, E & Hepworth, M.T.2001 Environmental Encyclopedia, Jaico Publ. House. Mumbai. 1196p .(Ref)
4. Dc A.K.Environmental Chemistry, Wiley Eastern Ltd.(Ref)
5. Down to Earth, Centre for Science and Environment (Ref)
6. Heywood, V.H & Watson, R.T. 1995. Global Biodiversity Assessment, Cambridge University Press 1140pb (Ref)
7. Jadhav.H & Bhosale.V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284p (Ref)
8. Mekinney, M.L & Schock.R.M. 1996 Environmental Science Systems & Solutions. Web enhanced edition 639p (Ref)
9. Miller T.G. Jr., Environmental Science, Wadsworth Publishing Co. (TB)
10. Odum.E.P 1971. Fundamentals of Ecology. W.B. Saunders Co. USA 574p (Ref)
11. Rao.M.N & Datta.A.K. 1987 Waste Water treatment Oxford & IBII Publication Co.Pvt.Ltd.345p (Ref)

PY5OP1 - BASICS OF COUNSELING PSYCHOLOGY (OPEN COURSE)

Credit :3

Teaching Hours:4/week

Objectives:

To facilitate Students with nature and process of counselling and its meaning

To expose the Students to different factors and applications of counselling

To enable the Students to acquire sufficient knowledge in the area of counselling in order to apply in various walks of life.

Module 1: Introduction

What is Psychology, Working Definition of Psychology, Pseudo Psychology, Brief History of Modern Scientific Psychology, Branches of Psychology.

Reference: Baron,R.A&Misra, G.E. (2014). Psychology,5th Ed.New Delhi: Pearson education
Ciccarelli, S.K.,&Meyer,G.E.(2008). Psychology, South Asia Ed.New Delhi: Pearson

Module 2: Basic cognitive processes

- Attention (features of attention), learning (principles)
- learning enhancementmethod): Classical and Operant Conditioning), Observational learning,
- Memory (sensory, short term, long term) Forgetting, Memory Improvement Techniques

Reference: Baron, R.A.,&Misra ,G.(2014). Psychology 5th Ed.New Delhi: Pearson Education
Ciccarelli, S.K., Meyer,G.E(2008). Psychology, South Asia Ed.New Delhi: Pearson

Module 3: Motivation& Emotion

Motivation (Maslow, Goal expectancy, Yerkes Dodson), Classification of Motives (Primary and Secondary Motives)

Emotions (James Lange, Cannon Bard, Schatter Singer, facial feedback)

Reference: Ciccarelli, S.K Meyer,G.E.(2008). Psychology, south Asian Ed.New Delhi: Pearson

Weiten, W.(2002). Psychology: Themes and variations,5thed. New York:Brooks/Cole publishing Co

Module 4: Counseling

Definition of Counseling, Skills, Phases of counseling (in stages explain interview, observation), Types (Directive, Non-Directive), Core Conditions of Counseling: Congruence, Unconditional Positive Regard, Empathy, Concept of Mental Health, Scope of Counseling, Difference between Psychotherapy and Counseling.

Reference: Rai,N&Sahajpal,P.(2013). Counseling & Guidance .3rd Ed.Tata MC Graw - Hill,New Delhi

Jones,R.N.(2012). Theory and Practice of Counseling and Therapy.5th Ed. New Delhi:Sage publications.

Module 5: Approaches to counseling:

Psychoanalytic (Freud) Cognitive Approach, Behavioral Approach. Person Centered Counseling

Module 6: Counseling Techniques

Psychoanalytic techniques: Dream analysis, hypnosis, and free association (in brief), Behavioral Modification Techniques: Systematic Desensitization, Flooding, and Contingency management. REBT, Reality

References: Jones,N.R.(2012). Theory and Practice of Counselling and Therapy.5th Ed.New Delhi: Sage Publications

Cuppuzzi, D and Stauffer,M.D.(2016). Counseling and Psychotherapy - Theories and Interventions.6th ed. American Counseling Association.

Cooper, J., Heron,The.E.&Heward,WL.(2007). Applied BehaviorAnalysis. New Jersey: Pearson Education

Note- Activity based Assignments and seminars

Assignments and seminars only on related topics so as to enable students to apply principles and theories studied to analyze phenomena to day to day aspect of behavior.

References

Baron,R.A.&Misra,G.(2014). Psychology,5th Ed.New Delhi: Pearson Education.

Ciccarelli, S.K., Meyer,G.E. (2008).Psychology, South Asian Ed.New Delhi: Pearson.

Coon,D.(1998). Introduction to psychology: exploration and application
USA:Brooks/Cole publishing Co

Weiten, W.(2002). Psychology: Themes and Variations,5th Ed.New York: Brooks/Cole Publishing Co

CHOICE BASED CORE COURSES**Credit :4****Teaching Hours:3/week****PY6CB01 THEORY AND PRACTICE OF COUNSELLING****Objectives:**

To understand the process and technique of counselling

To differentiate the various approaches to counselling

To be aware of the assumptions and issues of counselling applications

Module 1: Introduction to Counselling

Definition of counselling, Counselling, Psychotherapy and Guidance as related fields. Counselling as a helping relationship. Scope of counselling, Goals of counselling, Counselling ethics.

Ref: Rao, N. & Sahajpal, P. Pp.26 -65

Module 2: Counselling Process

Stages of counselling process, Variables affecting counselling process: Counsellor Characteristics and skills; counselee characteristics. Core conditions of helping relationship; empathy, unconditional positive regard and congruence.

Ref: Rao, N & Sahajpal, P. Pp. 84-113, Jones, R.N. Pp. 32 – 35

Module 3: Approaches and techniques of Counselling

Briefly explain the view of human nature, Role of counsellors, Goals and strengths and limitations of: Freud, Person centred counselling, Existential counselling and Gestalt counselling, -Techniques: Psychoanalysis(brief), client entered therapy, existential therapy, T.A.

Ref: Gladding, S. T. Pp. 186- 218

Rao, N. & Sahajpal, P. Pp.218-223.

Module 4: Cognitive Behavioural approaches and techniques

Briefly explain the view of human nature, Role of counsellors, Goals and strengths and limitations of: behavioural approach, cognitive approach, techniques: behavioural modification, systematic desensitization, social skill training, and cognitive therapy: REBT, Reality, CBT

REF:Ref: Gladding, S. T. Pp. 186- 218

Module 5: Indian approaches in Counselling

Indian approach of Yoga and meditation in counselling, type of yogic practices, stages of raja yoga, Indian model of healthy personality, Relaxation techniques: JPMR, hypnosis

Rao, n. & Sahajpal, p.

Module 6: Special areas in Counselling

Counselling and rehabilitation of differently abled persons; categories under differently abled, counseling weaker section and minorities; psychological barriers, diagnosis and intervention. counselling for alcohol and substance abusers; role of counselors, rehabilitation and counseling legal offenders and victims of abuse and crisis intervention counseling.

Ref: Rao, N. & Sahajpal, P. pp. 317-327, 334-335, 339-350

Note-Activity based assignments and seminars

Assignments and seminars only on related topics so as to enable students to apply principles and theories studied to analyze phenomena relating to day to day aspect of behavior

References

Gladding, S.T. (2009). *Counselling: A comprehensive profession*(6th ed.). New Delhi: Pearson India.

Jones, R.N. (2012). *Basic counseling skills –A Helper’s Manual*; 3rd ed. Sage south Asia ed.

Rao, N. &Sahajpal, P. Pp. 317-327, 334-335, 339-350

Rao,S.N. &Sahajpal P.(2013).*Counselling and Guidance*

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR POST GRADUATE PROGRAMMES IN

M.Sc PSYCHOLOGY

UNDER CREDIT AND SEMESTER SYSTEM (PG CSS) 2019

2019 ADMISSIONS ONWARDS

PROGRAM STRUCTURE & SYLLABUS

10. THE PROGRAM STRUCTURE

Course Code	Title of the Course	Type of the Course	Hours per week	Credits
FIRST SEMESTER				
PY010101	Cognitive Psychology	Core	4	4
PY010102	Personality and Personal Development	Core	4	4
PY010103	Psychopathology	Core	4	4
PY010104	Psychometry	Core	3	4
PY010105	Psychological Assessment (Practical)	Core	10	3
	<i>Total for Semester</i>		25	19
SECOND SEMESTER				
PY010201	Psychology of Intelligence, Learning and Motivation	Core	4	4
PY010202	Health Psychology	Core	4	4
PY010203	Research Methodology	Core	3	4
PY010204	Positive Psychology	Core	4	4
PY010205	Field work (Practical)	Core	10	2
	Activity Based Assignments			2
	<i>Total for Semester</i>		25	20
THIRD SEMESTER				
PY010301	Neuropsychology	Core	4	4
PY010302	Counselling	Core	4	4
PY010303	Cognitive and Behaviourally Oriented Therapies	Core	4	4
PY800301		Elective	3	4
PY801301		Elective		
PY802301		Elective		
PY010304	Neuropsychological Assessment (Practical)	Core	10	3
	<i>Total for Semester</i>		25	19
FOURTH SEMESTER				
PY010401	Contemporary Social Issues and Role of Psychology In Social Engineering	Core	5	4
PY010402	Training Program for Mental Health Promotion	Core	5	4
PY800402		Electives	5	3
PY800403		Electives		3
PY810402		Electives		
PY810403		Electives		
PY820402		Electives		
PY820403		Electives		
	Practical – Case study based on internship		10	4
	Project/ Dissertation			2

	Viva voce			2
	Total for Semester		25	22
TOTAL CREDIT				80

SEMESTER	ELECTIVE I CLINICAL PSYCHOLOGY	ELECTIVE II EDUCATIONAL PSYCHOLOGY	ELECTIVE III ORGANIZATIONAL BEHAVIOUR
III	PY800301 Clinical Psychology and Assessment	PY801301 Psychology in Classroom	PY802301 Advanced Organizational Behaviour
IV	PY800402 Psychotherapy	PY810402 Psychology of Differently Abled	PY820402 Human Resource Development
IV	PY800403 Specializations in Clinical Psychology	PY810403 Counselling in School Setting	PY820403 Consumer Behaviour and Advertisement Psychology

SEMESTER IV
PY010401 CONTEMPORARY SOCIAL ISSUES AND ROLE OF PSYCHOLOGY
IN SOCIAL ENGINEERING

OBJECTIVES:

To be understand and analyze social origin of personal problems.

To develop critical thinking and perspective taking skills to understand and explain human rights violations.

Apply psychological and principles methods to facilitate social change.

LEARNING OUTCOMES:

Student would be able to apply psychological principles and methods to understand social issues and initiate techniques to change behaviour. Student will be able to put social issues into a psychological perspective, communicate it in simple manner to others and suggest solutions for it.

Module 1: Environmental issues & hazards

Unit 1: Pollution related physical and mental health hazards.

Unit 2: Importance of protecting bio- diversity. Realistic risk perception in dealing with environmental issues.

Unit 3: Solutions to environmental issues from various fields.

Unit 4: Application of psychological principles to influence public opinion to adopt responsible environment-related behavior. behavioural economics.

Unit 5: Discussions based on media reports of local environmental issues, role of social activism.

***Module 2: Issues of migration, globalization and technology**

Unit 1: Cross cultural Psychology: Dynamics of cultural contact (brief), acculturation.

Unit 2: Relevance of cultural identity to self concept.

Unit 3: Migration: causes and consequences (Indian/Kerala context). Discuss NRI/ NRKs and migrant unskilled laborers in Kerala.

Unit 4: Communication devices: The use and abuse of social networking/ technology. Its role in social life & politics: special reference to communal issues.

Unit 5: Content analysis of social media comments/ abuse/ misinformation/propaganda.

Module 3: Issues related to economic development

Unit 1: Social mobility, economic development and social tensions.

Unit 2: Endogenous/sustainable development solutions in the fields of agriculture, energy & tourism.

Unit 3: Role of local leadership and community (panchayat, kudumbasree) in social mobilization and implementation of Government policies

Unit 4: Application of psychological methods to social auditing and economic issues.

Unit 5: Discuss appropriate case studies, developing power / lobbying groups.

Module 4: Gender issues

Unit 1: Gender self concept. Gender equity and equality, Gender based violence (psycho dynamic explanations of violence).

Unit 2: Role of women and Gender minorities in dealing with environmental, economical, social issues.

Unit 3: Gender minorities. Ethical considerations in dealing with gender minorities.

Unit 4: Socialization process of girls in different social classes.

Unit 5: Discuss: possibility of social change in gender issues through behaviour modification.

Module 5: Psychology of deprivation

Unit 1: Poverty and deprivation concepts- realistic and perceived, levels and kinds of deprivation, factors affecting deprivation in India.

Unit 2: Psychological consequences and management of resource deprivation and poverty.

Unit 3: Inequality of inclusion in economic 'development': gender, class, caste.

Unit 4: Consumerism and materialism: psychological significance of possessions.

Unit 5: Reading and discussion of dalit, women and minorities literature / perspective of poverty and deprivation. Solutions: lobbying, power brokering.

Module 6: Human rights violations

Unit 1: Marginalization, de- individualization - causes, consequences, solutions.

Unit 2: Management of issues of the aged Institutionalization of aged.

Unit 3: Issues of urban slums – (social and psychological issues; cognitive. crowding, dehumanizing, criminality, prostitution, human trafficking.

Unit 4: Orphans and abused children.

Unit 5: Conduct an interview / discuss case studies of *survivors* among above mentioned groups.

Activity based assignment:

Write to newspapers/ magazines/ electronic media or submit reports on activities/ discussions conducted.

Recommended references:

- Baron, A. S., Schmader, T., Cvencek, D. &Melzoff, A.N. (2014). The gendered self concept: How implicit gender stereotypes and attitudes shape self definition. In Leman, P.J. &Tenenbaum (Eds.). *Gender and development*. pp. 109-132.
- Bell, P. A., Fisher, J. D., Baum, A. S. &Greene.T. C. (2005). *Environmental psychology 5Th edition*. Psychology Press Holt, Rinehart& Winston Inc.
- Keith, K. D. (2011) (Eds.) *Cross cultural Psychology: contemporary themes and perspectives*. Wiley-Blackwell.
- Menon, L. (1997). *Gender issues and social dynamics*. Kanishka Publishers, New Delhi.
- Misra, G.(1990). *Applied social Psychology*, Sage Publications, New Delhi.
- Naovi, K.A. (1982). *Problems, strategies and conditions of Asian countries and in particular in India*. UNSCO,SS-82/WS/74.
- Richins, M. L. &Rudmin, F.W. (1994). Materialism and economic Psychology. *Journal of Economic Psychology*. Vol.15 pp.217-231.
- Rudmin, F.W. (1991). To have possessions: a handbook of property and ownership. *Journal of social behavior and personality*. Vol 6 No. 6 pp.85-104
- Semin, G.R.& Fiedler, K.(1996). *Applied social Psychology*, Sage Publications. New Delhi.

MAHATMA GANDHI UNIVERSITY, KOTTAYAM



CURRICULUM FOR COURSE WORK

Ph.D

Course (1) - Research Methodology

Unit 1 – Foundations of Research:

A brief history of Social Research – logical positivism, Axiology, Ontology, Positive Epistemology – Logical Preliminaries – Indian and Western Constructivist Paradigm – Transformative Paradigm – Pragmatic paradigm- Merging Paradigms - Phenomenology

Unit 2 - Introduction to Research Methodology

- Meaning and importance of Research – Types of Research – Selection and formulation of Research Problem – Research Design – Ethical issues in Research
- Critical Analysis of Literature Review – Hypothesis : Different Types of Hypothesis
- Research Methods; Historical, Institutional, Legal, Philosophical, Comparative, Ethical, Survey, Case study, Content Analysis, experimental Method, Triangulation, Mixed Method Research.

Unit 3 - Data Collection

- Source of Data – Primary, Secondary and Tertiary Data
- Methods of Collecting Data : Observation, Questionnaire, Interview, Attitude Scales, Interest Inventories – Construction and Standardisation.
- Scaling Techniques – Different Types of Scales
- Sampling – Different Types – Sampling Errors – Type I and Type II errors.
- Different Types of Variables.

Unit 4 – Data Analysis & Interpretation

- Classification and Tabulation of Data – Graphical Representation
- Descriptive Analysis: Central Tendency and Dispersion, Coefficient of variation, correlation and Regression Analysis.
- Inferential Analysis: Parametric and Non-parametric tests, T-test, F-test, ANOVA, ANCOVA, Chi-square.

Unit 5 – Report Writing/Project proposal

- Organisation of Research Report – Types, Structure and Components – Contents, Bibliography, Appendices
- Style Manuals – APA style, MLA style, ASA style, The Chicago Manual of style etc.
- Evaluation of Research Report
- Preparing Research papers for journals, seminars and conferences.
- Preparation of project proposal – Title, Abstract, Introduction: Rationale, objectives, methodology – Time frame and work plan – Budget and justification – References

Unit 6 – Application of Results and Ethics

Environmental Impacts – Ethical issues – Ethical Committees – Commercialization – copy right, intellectual property rights – Reproduction of published material – accountability.

Unit 7 – Application of Computer in Research

- MS office and its application in Research – MS Word, MS Powerpoint and MS Excel
- Basic principles of Statistical Computation using SPSS
- Uses of Internet in Research – Websites, search Engines, E-journal and E-Library – INFLIBNET.

Suggested Readings:

1. Gaqrg, B.L., Karadia, R., Agarwal, F. and Agarwal, U.K. 2002. An introduction to Research Methodology, RBSA Publishers.
2. Kothari, C.R.(2008). Research Methodology: Methods and Techniques. Second Edition. New Age International Publishers, New Delhi.
3. Sinha, S.C. and Dhiman, A.K., 2002. Research Methodology, Ess Ess Publicawtions. 2 volumes.
4. Bagchi, Kanak Kanti (2007) Research Methodology in Social sciences: A practical Guide, delhi, Abijeet Publications.
5. Wilcox.R.Rand, 2010, Fundamentals of modern statistical methods.
6. Gupta S.C (2009), Fundamentals of Statistics, Himalaya Publication House, Bombay
7. Henry C.Lucas, Jr.(2000) Information Technology for Management, Tata McGraw-Hill Publishing Company Ltd., 7b West Patel Nagar, New Delhi-110008
8. Sinha P.K.(1992), Computer Fundamentals, BPB Publications, New Delhi.
9. SPSS-Operating manual and handbook – latest version.

10. Chandera A. and Sexena T.P. (2000) Style Manual, New Delhi, Metropolitan Book Comp.Ltd.
11. Brymann, Alan and Carmer, D.(1995) Qualitative data analysis for Social Scientist, New York, Routledge publication.
12. Radhakrishnan S. and Charles Moore.A. (Ed.) (1989) A Source Book in Indian Philosophy.Princeton. Princeton University Press.
13. Tomberlin. James (ed.) Philosophical Perspectives 13. Epistemology, Black well Publishing. 1999.
14. Gopal, M.H (1970) An Introduction to Research procedures in Social Sciences, Bombay, Asia Publishing House.
15. Peter Winch (2007) Idea of a social science and its relation to philosophy. Routledge.London.

Course Structure

- The course comprises of six modules listed in table below. Each module has 4-5 units.

Modules	Unit Title	Teaching Hours
Theory		
RPE 01	Philosophy and Ethics	4
RPE 02	Scientific Conduct	4
RPE 03	Publication Ethics	7
Practice		
RPE 04	Open Access Publishing	4
RPE 05	Publication Misconduct	4
RPE 06	Database and Research Metrics	7
	Total	30

SYLLABUS IN DETAIL

Theory

- RPE 01: PHILOSOPHY AND ETHICS (3hrs)**

- Introduction to Philosophy: definition, nature and scope, concept, branches
- Ethics: Definition, moral philosophy, nature of moral judgements and reactions.

- RPE 02: SCIENTIFIC CONDUCT (5hrs.)**

- Ethics with respect to science and research
- Intellectual honesty and research integrity
- Scientific misconducts: Falsification, Fabrication and Plagiarism (FFP)
- Redundant publications: duplicate and overlapping publications, salami slicing
- Selective reporting and misrepresentation of data

- RPE 03: PUBLICATION ETHICS (7 hrs.)**

- Publication ethics: definition, introduction and importance
- Best practices/standards setting initiatives and guidelines: COPE, WAME etc.
- Conflicts of interest
- Publication misconduct: Definition, concept, problems that lead to unethical behavior and vice versa, types
- Violation of publication ethics, authorship and contributorship
- Identification of publication misconduct, complaints and appeals
- Predatory publishers and journals

Practice

- **RPE 04: OPEN ACCESS PUBLISHING (4hrs.)**

1. Open access publications and initiatives
2. SHERPA/RoMEO online resource to check publisher copyright & self-archiving policies
3. Software tool to identify predatory publications developed by SPPU
4. Journal finder/journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc.

- **RPE05: PUBLICATION MISCONDUCT (4 hrs.)**

A. Group Discussions (2 hrs.)

1. Subject specific ethical issues, FFP, authorship
2. Conflicts of interest
3. Complaints and appeals: examples and fraud from India and abroad

B. Software tools (2 hrs.)

1. Use of plagiarism software like Turnitin, Urkund and other open source software tools

- **RPE 06: DATABASES AND RESEARCH METRICS (7 hrs.)**

A. Databases (4hrs.)

1. Indexing databases
2. Citation databases: Web of Science, Scopus etc.

B. Research Metrics (3hrs.)

1. Impact factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score
2. Metrics: h-index, g index, i10 index, altmetrics

The above said recommendations of the University Research Committee, vide the minutes read as (2) above, have been approved by the Vice-Chancellor, by exercising powers of the Academic Council, under Section 3.10(17) of Mahatma Gandhi University Act 1985.