



# Sadakathullah Appa College

\*An Autonomous Institution, Re-Accredited by NAAC at an 'A' Grade, \*ISO 9001 : 2015 Certified\*

## AQAR

(2022 – 2023)

### CRITERION I

#### CURRICULAR ASPECTS

**1.3.1: Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum**

*Submitted to*

THE NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL (NAAC)



## SEMESTER – V

<b>Course Title</b>	<b>WOMEN'S WRITINGS IN ENGLISH</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>04</b>
<b>Course Code</b>	<b>21UEEN51A</b>
<b>Course Type</b>	<b>DSE 1 (A)</b>
<b>Credits</b>	<b>04</b>
<b>Marks</b>	<b>100</b>

### General Objective:

To introduce students to different dimension of women writers' writings and thoughts down the ages from varied nationalities.

### Course Objectives:

<b>CO</b>	<b>The learners will be able to:</b>
CO-1	Associate themselves with the origin, growth and the relevance of women's writings in the modern context
CO-2	Differentiate and categorize the area of study for marginalized women oppressed by the patriarchy.
CO-3	Apply various theories of Feminism on the available literary texts.
CO-4	Establish that women writers are equal on par with male writers in dealing with various human intricacies.
CO-5	Analyse literary texts produced by women and men in regard to the perspectives dealt with in the texts.

### UNIT-I PROSE

1. "In Search of Our Mothers' Gardens" (Page no. 207 -218) Alice Walker  
(Taken from the book *In Search of Our Mothers' Gardens: Womanist Prose*)
2. "The Algebra of Infinite Justice" (Page no. 217 -238) Arundhati Roy  
(Taken from the book *The Algebra of Infinite Justice*)

## UNIT-II POETRY

1. The Soul's Prayer
2. Passing away, Saith the World
3. Lady Lazarus
4. Umbilical Cord
5. Revolt against the Sun

Sarojini Naidu  
Christina Rossetti  
Sylvia Plath  
Rachelle Prevost  
Nazikal al-Mala'ika

## UNIT -III SHORT STORIES

8. The Remains of the Feast
9. The Yellow Wallpaper
10. You're Ugly Too

Githa Hariharan  
Charlotte Perkins Gilman  
Lorrie Moore

## UNIT- IV DRAMA

1. *A Number*

Caryl Churchill

## UNIT-V FICTION

1. *The Grip of Change: And, Author's Notes* P. Sivakami

### Textbooks:

1. Padmanabhan, Manjula. *Harvest*. Kali for Women, New Delhi. 1998.
2. Roy, Arundhati. *The Algebra of Infinite Justice*. pp. 217-238. Penguin, 2013.
3. Sivakami, P. *The Grip of Change: And Author's Notes*. Orient Black Swan Pvt. Ltd., 2006.
4. Walker, Alice. *In Search of Our Mothers' Gardens: Womanist Prose*. pp. 207-218. Open Road Integrated Media, 2011.

### Reference Books:

- Barry, Peter. *Beginning Theory*. Viva Books, 2010.
- Hoffman, Michael J. and Patrick D. Murphy. *Essentials of the Theory of Fiction*. Duke UP, 1988.
- Churchill, Caryl, and Heidi Zerning. *Top Girls*. Bremen, 1980.

## Semester – IV

<b>Course Title</b>	<b>WOMEN IN LITERATURE</b>
<b>Total Hrs</b>	90
<b>Hrs/Week</b>	6
<b>Sub. Code</b>	<b>21PCEN42</b>
<b>Course Type</b>	<b>DSC-XIV</b>
<b>Credits</b>	5
<b>Marks</b>	100

**General Objective:** To introduce the students to the tradition of Women's writing and understand and appreciate Women in Literature.

### Course Objectives:

<b>CO No.</b>	<b>The learners will be able to</b>
CO-1	Identify the different feministic writings in literature across the globe.
CO-2	Develop literature from a woman's perspective.
CO-3	Analyze and appreciate writings with a critical perspective.
CO-4	Distinguish and assess students about gender, feminism both in India and the West.
CO-5	Encourage and enable students to write creatively from a woman's point of view.

### UNIT I POETRY

Adrienne Rich

Snapshots of a Daughter- in-Law

Margaret Atwood

Siren Song

Maya Angelou

Phenomenal Woman

Taslima Nasrin

Things Cheaply Had

### UNIT II PROSE

Sharon Spencer

Feminist Criticism and Literature

Elaine Showalter

Towards a Feminist Poetics



## SEMESTER - V

<b>Course Title</b>	<b>WOMEN STUDIES</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>04</b>
<b>Course Code</b>	<b>21UEHS51A</b>
<b>Course Type</b>	<b>DSE - 1A</b>
<b>Credits</b>	<b>04</b>
<b>Marks</b>	<b>100</b>

### General Objective:

To enable the students to critically examine various discourses from a women-centric perspective.

### Course Objectives:

<b>CO</b>	<b>The learner will be able to:</b>
CO-1	Understand the Ideas of women studies as a discipline.
CO-2	Examine various Ideas and concepts on gender.
CO-3	Analyse the traditional notions and practices on women in India.
CO-4	Evaluate the role and status of women in Modern India.
CO-5	Estimate various laws for the protection of the rights of women in Modern India.

### UNIT I Introduction to women's studies

Definition of Gender - Sexuality- Patriarchy - Matriarchy - Patriliney - Matriliney- Relationship between Gender - Caste - Class and Religion.

### UNIT II Women in Pre-modern India

Pre-Modern India: Brahmanical Patriarchy - Widowhood - Wifehood - Sthree Dharma and Pativrata concepts - Sati - Jauhar - Purdah - Razia Sultana - Mira Bai - Rani Mangammal - Noor Jahan - Gulbadan Begum.

### UNIT III Women Reformers

Role in Social reform movement - Savithri Bhai Phule and Fathima Sheikh - Panditha Rama Bhai - Muthulakshmi Reddy - Moovallur Ramamritham.

#### **UNIT IV Women in India's Freedom Struggle**

Women in the Revolt of 1857- Santhal, Bhil and Munda Revolts – Annie Besant- Sarojini Naidu- Kamaladevi Chattopadhyaya- Bi Amman – Women in Revolutionary Movement and INA.

#### **UNIT V Women and Law**

Constitutional rights of women in India – Abolition of Sati – Widow Re-marriage Act – Sarada Act – Equal remuneration Act – Anti-Dowry Act – Family Court Act – Eve teasing and Sexual Harassment (Prevention) of Women Act, 2004 - Domestic Violence Act , 2005.

#### **Textbooks:**

1. Bhasin, Kamla. *Understanding Gender*. New Delhi: Women Unlimited, 2009.
2. Verma, Anjali. *Women and Society in Early Medieval India: Re Interpreting Epigraphs*. New Delhi: Routledge India, 2020.
3. Roy, Kumkum. *Women in Early Indian Societies*. New Delhi: Manohar, 2011.
4. Sarkar, Sumit, and Tanika Sarkar. *Women and Social Reform in Modern India: A Reader*. Bloomington: Indiana University Press, 2008.
5. Forbes, Geraldine. *Women in Modern India*. Cambridge: Cambridge University Press, 1996.

#### **Reference Books:**

1. Bhasin, Kamla. *What Is Patriarchy?*. New Delhi: Women Unlimited, 2004.
2. Chakravarti, Uma. *Rewriting History: The Life and Times of Pandita Ramabai*. New Delhi: Zubaan, 2014.
3. Reeta, Vinith Raj. *First Indian Women Teacher: Savitribai Phule*. New Delhi: Edu creation Publishing, 2018.
4. Kaushik, Sushila. *Panchayati Raj in Action: Challenges to Women's Role*. New Delhi: Friedrich-Ebert-Stiftung, 1996.
5. Smith, Bonnie G. *Women Studies: The Basics*. London: Routledge, 2013.
6. Menon, Nivedita. *Gender & Politics in India*. New Delhi: OUP, 1999.

<b>SEMESTER - II</b>	
<b>Course Title</b>	<b>ENVIRONMENTAL SCIENCE</b>
<b>Total Hrs.</b>	<b>30</b>
<b>Hrs./Week</b>	<b>2</b>
<b>Course Code</b>	<b>21UEVS21</b>
<b>Course Type</b>	<b>AECC-II</b>
<b>Credits</b>	<b>2</b>
<b>Marks</b>	<b>100</b>

### **UNIT - I: Nature of Environmental Studies**

Goals, Objectives and guiding principles of environmental studies. Towards sustainable development - Environmental segments- Atmosphere, Hydrosphere, Lithosphere, Biosphere - definition. Pollution episodes -- Hiroshima - Nagasaki, - Bhopal gas Tragedy, Fukushima. Stone leprosy in Taj Mahal, Minamata disease.

### **UNIT - II: Natural Resources**

Renewable and Non-Renewable resources - classification.

- Forest resources: Use and over - exploitation, Afforestation and deforestation.
- Water resources: Use and over - utilization and conservation of surface and ground water - Rain harvesting.
- Marine Resources: Fisheries and Coral reefs.
- Mineral resources: Use and exploitation - environmental impacts of extracting and using mineral resources.
- Food resources: Effects of modern agriculture fertilizers - pesticide problem.
- Energy resources: Growing energy needs - use of alternate energy source - Solar cells & wind mills.
- Land resources: Land degradation



### **UNIT - III: Ecosystem**

- Concept of Eco-systems - Tropic level, food chains, food web and Ecological pyramids, Living conditions on other planets (Brief account). Types, structure & Functions, prevention and control of pollution of the following:

- a) Aquatic ecosystem
- b) Terrestrial ecosystem – Grassland, Forest and Desert ecosystem

### **UNIT - IV: Biodiversity & Its Conservation**

Introduction - Definition: ecosystem diversity, species diversity and Genetic diversity. Hot spots of biodiversity - Western Ghats, Eastern Himalayas and Gulf of Mannar. Threats to biodiversity - Habitat Loss, Poaching of wildlife and Man - wildlife conflicts. Nature reserves. Conservation of biodiversity: In-situ and Ex-situ, Environmental movements – Green peace and Chipco movement. Biodiversity law.

### **UNIT - V: Environmental protection, Policies and practices**

Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture.

Prevention, Control of Pollution and Environmental Laws:

- Water, Air and Noise (prevention & Control of Pollution) Act.
- Environmental Protection Act.
- Wildlife protection Act, Forest Conservation Act, International agreements, Montreal and Kyoto protocols and conservation on biological Diversity. The Chemical Weapons Convention (CWC)
- Role of Central & State Pollution Control Boards.

Field work : 5 marks

Visit to an area to document environmental assets: river/ forest / fauna.

or

Visit to a local polluted site-urban/rural/Industrial / Agricultural

or

Study of common plants, insects, birds and basic principles of identification

## SEMESTER – I

<b>Course Title</b>	<b>VALUE EDUCATION-1</b>
<b>Total Hrs.</b>	<b>30</b>
<b>Hrs./Week</b>	<b>2</b>
<b>Course Code</b>	<b>21USVE1A</b>
<b>Course Type</b>	<b>AECC-I</b>
<b>Credits</b>	<b>2</b>
<b>Marks</b>	<b>100</b>

**General Objective:** To make students inculcate moral values, leading to faith and righteous action in their life.

**Unit – I:** Islam – Meaning – Importance – A complete Religion – The religion accepted by God – Five Pillars of Islam – Kalima – Prayers – Fasting – Zakat – Haj.

Iman – Monotheism – Angels – Books – Prophets – Dooms Day – Life after death – Heaven and Hell.

**Unit – II:** Quran – The Book of Allah – Wahi – Revelation to Prophet Muhammad(sal) – Compilation – Preservance – Structure – Content – Purpose – Source of Islamic Law – Surafathiha, Kafirun, Iqlas, Falakh and Nas.

**Unit – III:** Hadith – Siha Sitha – Buhari – Muslim – Tirmithi – Abu Dawood – Nasai – Ibn Maja – Collection of Hadith – Meaning of 40 Hadith.

**Unit – IV:** Life History of Prophet Muhammad (sal) – AiamulJahiliya – Prophet’s Childhood and Marriage – Prophethood – Life at Mecca – Life at Medinah – Farewell Address – Seal of Prophethood.

Unit – V: Good character – Etiquettes – Halal and Haram – Duties towards Allah

towards fellow beings – Masnoon Duas.

**Textbooks:**

**Publication of Sadakathullah Appa College**

**Reference Books:**

1. V.A. Moahmed Ashrof – Islamic Dimensions – Reflection and Review on Quranic Themes
2. The Presidency of Islamic Researchers – Revised & Edited – The Holy Quran.
3. M. Manzoor Nomani – Islamic Faith & Practice.
4. Ali Nadawi, Abul Hasan – Muhammad Rasulullah., Muassasathus Sahafawa Nashr publication Lucknow, India, 1999.
5. K. Ali – A Study of Islamic History.
6. Abdul Rahuman Abdulla  
h – Islamic Dress code for Women.
7. Dr. Munir Ahamed Mughal – Code For Believers.
8. Abdul Malik Mujahid – Gems and Jewels.

## SEMESTER – I

Course Title	VALUE EDUCATION II
Total Hrs.	30
Hrs./Week	2
Course Code	21USVE1B
Course Type	AECC I
Credits	2
Marks	100

### UNIT I

Individual Morality – Objective of Moral life – Living in accordance with the code of Morality – the goodness of Morality – Morality and *Thirukural*- The need for faith.

### UNIT II

Adherence to higher code of Morality – Fear of God – Good Moral Values – Duty to Parents – Teacher, respecting elders – Moral Etiquettes – Right-minded Principle – High Principles for Proper conduct.

### UNIT III

Inculcating good attitudes – Open mindedness – Morale – analysing the pros and cons of good and bad – Service to others – Mind Power, tolerance, respecting others, showing love to others, patience – tranquility – Modesty, kindness and forgiveness.

### UNIT IV

Quotations and moral Stories expressing Good characters of Great personalities – Life History of Great people: Mahatma Gandhi, Abraham Lincoln, Dr. A.P.J. Abdul Kalam.

### UNIT V

Truth, the importance of uprightness, integrity, friendship – Health awareness on Alcohol and drug abuse – inculcating reading habit – reading good books – Hygiene – Dowry – Corruption.

### TEXTBOOKS:

Publication of Sadakathullah Appa College.

**SEMESTER – VI**

<b>Course Title</b>	<b>ECO LITERATURE</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>4</b>
<b>Course Code</b>	<b>21UCEN65</b>
<b>Course Type</b>	<b>DSC-XVI</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

**General Objective:**

To help students get acquainted with writings based on nature thereby examine human perception of wilderness and how it has changed throughout history.

**Course Objectives:**

<b>CO</b>	<b>The learners will be able to:</b>
<b>CO1</b>	Understand the influence of Nature in Literature, its impact on the writers and appreciate the works on ecological perspective.
<b>CO2</b>	Relate how individuals in society behave and react in relation to nature and ecological aspects.
<b>CO3</b>	Correlate the relation between humans and natural world in literature.
<b>CO4</b>	Identify the realistic portrayal of environment and nature through various genres in literature for collaboration between natural scientists, writers, literary critics anthropologists and historians.
<b>CO5</b>	Explain the conditions needed to preserve nature and analyse the impact of Science and Technology to life, nature and literature in the present context.

**Unit I – Poetry**

1. Little Sparrow – SubramaniaBharathiar
2. *Ode to The Autumn* – John Keats
3. The Road not Taken – Robert Frost
4. *Caged Bird* – Maya Angelou
5. *On Killing a Tree* – Gieve Patel

**Unit II - Prose**

1. Walden – Henry David Thoreau  
Chapter 2 - Where I lived and What I Lived for  
Chapter 8 - Village

2. Letter to President Pierce, 1855 – Chief Seattle
3. A Fable for Tomorrow – Rachel Carson
4. A Flowering Tree – A.K. Ramanujan

### Unit III – Short Stories

1. Old Man at the Bridge – Earnest Hemmingway
2. The Cherry Tree – Ruskin Bond
3. Death by Landscape – Margret Atwood

### Unit IV – Fiction

*Animal's People* – Indra Sinha (374 pages)

### Unit V – Drama

*Oil on Water*- Helon Habila

### Textbooks:

1. Garrard, Greg, *Ecocriticism*(Routledge, 2004)
2. NirmalSelvamony -*Tinai in Primal and Stratified Societies*
3. Ramanujan, A.K .*Selected Tale from Flowering Tree*
4. Sinha, Indra. *Animal's People* ,Paperback, 1st edition  
Publisher: Simon & Schuster
5. Habila, Helon.Oil on Water: A Novel, Hamish Hamilton.  
ISBN978-0-241-14486-2 (2010)
6. <https://lmexpressions.com/2017/02/21/bharathiyar-pocms-little-sparrow/#more-2642>

### Course Outcome

CO	Upon completion of this course, students would have learned to:	PSOs Addressed	Cognitive Level
CO-1	Associate themselves with the environmental issues through the light of Eco literary narratives.	1	Understanding
CO-2	Compare how natural systems and human designed systems work together as well as in conflict with each other.	2	Understanding
CO-3	Interpret literature from an ecological perspective and understand the crisis through the intersection of literature, culture, and the physical environment.	4	Applying
CO-4	Analyse the hurdles between nature and human world in forming harmony by means of the texts prescribed.	2,5	Analysing
CO-5	Assess, through literary texts, the role of human beings in promoting environmental conservation besides promoting research in the specified area.	5	Evaluating

## Semester - II

<b>Course Title</b>	<b>GREEN LITERATURE</b>
<b>Total Hrs</b>	60
<b>Hrs/Week</b>	4
<b>Sub. Code</b>	<b>21PEEN21A</b>
<b>Course Type</b>	DSE-IIA
<b>Credits</b>	3
<b>Marks</b>	100

**General Objective:** To interpret and contribute to the emerging Green literature.

### Course Objectives :

<b>CO No.</b>	<b>The learners will be able to</b>
CO-1	Classify Green literature from that of other literature.
CO-2	Interpret and understand literature from an ecological perspective.
CO-3	Prioritize to know and understand the importance of ecology concerns by means of the literary texts prescribed.
CO-4	Support the world usefully as responsible citizens with the concerns reflected in the prescribed literary texts.
CO-5	Recommend the trends and style of Green literature.

### Unit I Poetry

William Wordsworth	Daffodils
John Keats	To Autumn
Gieve Patel	Squirrels in Washington
Joy Harjo	Remember
Allison Hawthorne Deming	Human Habitat

## Unit II Poetry

Dylan Thomas  
Rudyard Kipling  
Emily Dickinson  
Dilip Chitre  
K N Daruwalla

Fern Hill  
The Way through the Woods  
There is Another Sky  
The Felling of the Banyan Tree  
Boat Ride along the Ganga

## Unit III Prose

Arundhati Roy

'End of Imagination'  
(18 pages. From the book End of  
Imagination)  
Where I lived, and What I Lived

Henry David Thoreau

For

## Unit IV Short Stories

Ruskin Bond  
Salman Rushdie

My Father's Trees in Dehra  
Good Advice is Rarer than Rubies

## Unit V Fiction

Emmi Itaranta

Memory of Water

## TEXTBOOKS:

1. Bond, Ruskin. *My Tall Green Friends*, Rupa Publications, New Delhi, (Second Impression) 2020.
2. Emmi Itaranta, *Memory of Water*, Harper Collins, 2014.
3. Roy, Arundhati. *End of Imagination*. Haymarket Books. 2016.
4. Rushdie, Salman. *East, West*. Vintage Publication. 1996.

## REFERENCE BOOKS:

Eco-Aesthetics: Art, Literature and Architecture in a Period of Climate Change (Radical Aesthetics-Radical Art) - by Malcolm Miles.



**SEMESTER - II**

Course Title	DEVELOPEMENTAL BIOLOGY
Total Hrs.	60
Hrs./Week	4
Course Code	21UCZO21
Course Type	DSC-III
Credits	4
Marks	100

**General Objective:**

To study the principles of developmental Biology and understand various steps that lead to the formation of a new progeny.

**Course Objectives:**

CO No.	The learners will be able to:
CO-1	Understand the principles of developmental biology and the progression of gametogenesis.
CO-2	Execute the Spemann's experiment in lower organisms.
CO-3	Distinguish the types and physiology of placenta
CO-4	Justify the method of in vitro fertilization
CO-5	Construct a model of teratogenic embryo.

**UNIT I - Gametogenesis and Fertilization**

Spermatogenesis - Oogenesis. Structure of sperm and egg of Chick and Human. Sperm and egg interaction - pre and post fertilization, theories and biochemical events-Parthenogenesis.

**UNIT II - Cleavage and Gastrulation**

Cleavage in Chick and Human. Fate map of Chick and Human. Gastrulation in Chick and Human. Development of Brain and Heart in Chick.

**UNIT III - Extra Embryonic Membranes and Placentation**

Extra embryonic membranes in Chick - development, types and physiology. Placentation in mammals - types and physiology. Organizer - Primary and secondary organizers - Spemann's experiment.

**UNIT IV - Human Reproduction and Birth Control**

Reproduction in Human - Infertility (male and female), Artificial insemination - Assisted reproductive Technology, (ART) In vitro fertilization and embryo transfer - Test tube babies - Amniocentesis.

Contraceptive devices - Surgical method - Hormonal method - Intra Uterine Contraceptive Devices (IUCD).

**UNIT V - Nuclear transplantation and Regeneration**

Nuclear transplantation in *Acetabularia*. Regeneration- definition and types, Regeneration in *Planaria* and Amphibians. Teratogenesis, Embryonic stem cells and significance. Morphogenetic field and gradient hypothesis.

**TEXT BOOKS :**

Verma . P. S. and V. K. Agarwal. 2006, Chordate Embryology, S. Chand & Company Ltd.

### REFERENCE BOOKS :

1. Arora, M.P., 2018 Embryology, Himalaya Publishing House,.
2. Berril, N. J., 1986 Developmental Biology, TataMc.Graw - Hill Publishing Company.
3. Balinsky, B.I. Fabian, B.C. 2012. An Introduction to Embryology, Thomson Press India Ltd. 5<sup>th</sup> edition.

### Course Outcomes

CO No.	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Describe the development of spermatogenesis and oogenesis.	1,2,4	Understanding
CO-2	Chart the growth of brain and heart in chick.	1,2,3	Applying
CO-3	Correlate the varied type of placenta.	1,3,4,5	Analysing
CO-4	Predict the factors involved in infertility.	1,4,5	Evaluating
CO-5	Generate a model of various stages of human embryo.	1,3,4,5	Creating

### Relationship Matrix

Semester	Course Code	Title of the Course					Hours	Credits				
II	21UCZO21	DEVELOPMENTAL BIOLOGY					60	4				
Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)						
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5		
CO-1	✓	✓		✓		✓	✓		✓			
CO-2	✓	✓		✓		✓	✓	✓				
CO-3	✓	✓	✓		✓	✓		✓	✓	✓		
CO-4	✓	✓	✓	✓		✓			✓	✓		
CO-5		✓	✓	✓	✓	✓		✓	✓	✓		
Number of matches (✓) = ...35.... Relationship = High												

Prepared by  
Dr.M.Sithi Jameela  
Signature

Checked by  
Head of the Department

## SEMESTER - II

<b>Course Title</b>	<b>ECOLOGY</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>4</b>
<b>Course Code</b>	<b>21UCZO22</b>
<b>Course Type</b>	<b>DSC-IV</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

### General Objective:

To create an awareness on the mechanism of eco system and protection of natural resources and biodiversity.

### Course Objectives:

CO No.	The learners will be able to:
CO-1	Understand the concepts and scope of various branches of Ecology.
CO-2	Sketch the varied types of Food chain and Food web.
CO-3	Analyse the different types of animal relationship.
CO-4	Evaluate the faunal adaptations of different habitats.
CO-5	Construct innovative methods to conserve rare, endangered and critically endangered species.

### UNIT - I Ecology factors

Ecology and Environmental Science - Definition - Scope - Branches - Abiotic factors - Water, Temperature and Light. Biotic factors - Animal relationship - Symbiosis - Commensalism - Mutualism - Antagonism - Antibiosis - Parasitism and its types and adaptations - Predation - Competition.

### UNIT - II Ecosystem

Ecosystem - Definition Structure - Pond ecosystem - Primary production - Secondary production - Food chain - Food web - Trophic levels - Energy flow - Pyramid of biomass - Pyramid of energy. Biogeochemical cycles - carbon and nitrogen

### UNIT - III Community & Population Ecology

Community Ecology: Introduction - diversity - structure - community dominance - community stratification - periodicity - community interdependence - Ecotone - Edge effect - ecological niche - concepts of community - Ecological succession

Population Ecology - Definition - Density - Estimation - Natality - Mortality - Age distribution - Age pyramids - Population growth and Population equilibrium.

### UNIT - IV Habitat Ecology

Characteristic features of different habitats and faunal adaptations of fresh water (Lentic and Lotic), marine, estuarine, mangrove, cave, forest and desert.

## UNIT - V Biodiversity the Conservation

Biodiversity – definition, loss and cause. IUCN, CITES and brief outlines of Indian laws of conservation. Biodiversity hotspots in India, Indian endangered species and conservation, community reserves, sanctuaries, national parks and tiger reserves in TamilNadu. Afforestation and deforestation. Human animal conflicts

### TEXT BOOKS:

1. P.S.Verma, V.K.Agarwal (2010) Environmental biology, S.Chand & Co. New Delhi.
2. Text book of Ecology & Animal Distribution by P.S.Verma V.K.Agarwal S.Chand & Co. New Delhi.

### REFERENCE BOOKS:

1. Odum, E.P., 1971 – Fundamentals of Ecology., W.B. Saunders Company.
2. Verma, P.S. and V.K.Agarwal 2013. Cell Biology, Genetics, Molecular Biology, Evolution & Ecology. S.Chand & Company.
3. Arumugam.N and V.Kumaresan 2014. Environmental Studies, Saras Publication.
4. S.V.S. Rao (2013), Ecology and Environmental science, PHI Publishers.
5. P.D. Sharma (2011 )Ecology and Environment, Rastogi publishers
6. Pranav Kumar (2017) Fundamentals of Ecology and Pathfinder Publication, Second edition.

### Course Outcomes

CO No.	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Understand the relationship between the biotic and abiotic factors.	1,2,3,5	Understanding
CO-2	Integrate the features of ecosystems and their diversity.	1,2,5	Applying
CO-3	Distinguish the features between Population and community.	1,2,4,5	Analysing
CO-4	Comment on the characteristics of different habitats and faunal adaptations.	1,2,4	Evaluating
CO-5	Devising the Strategies to improve the protection of Rare, endemic, threatened and endangered species.	1,2,3,4,5	Creating

## SEMESTER – I

Course Title	ANIMAL DIVERSITY - I
Total Hrs.	60
Hrs./Week	4
Course Code	21UCZO11
Course Type	DSC-I
Credits	4
Marks	100

### General Objective:

To understand Morphology, Taxonomy and general characters of Invertebrates

### Course Objectives:

CO No.	The learners will be able to:
CO-1	List the characters and classification of Phylum Protozoa
CO-2	Describe the life history of Porifera and Coelenterata
CO-3	Interpret the pathogenesis of Platyhelminthes and Aschelminthes
CO-4	Distinguish the characters of Annelids and Arthropods
CO-5	Justify the economic importance of Mollusca

### UNIT I

Introduction to Principles of Taxonomy (Binomial nomenclature), Types of classification-Natural, Artificial, Practical.

**Protozoa:** General characters and classification upto classes with examples.

**Type study:** Paramecium - Morphology – Nutrition – Locomotion – Reproduction - (Binary fission & Conjugation).

**General topic:** General structure, life cycle, pathogenicity and control measures of *Entamoeba histolytica*, *Plasmodium malariae*.

### UNIT II

**Porifera:** General characters and classification upto classes with examples

**Type study:** Scypha (Sycon) - External characters and life history.

**General topic:** Canal system in sponges.

**Coelenterata:** General characters and classification upto classes with examples.

**Type study:** *Obelia geniculata*- External characters and life history.

**General topic:** Coral formation and types of coral reefs.

### UNIT III

**Platyhelminthes:** General characters and classification upto classes with example.

**General topic :** *Taenia solium* –External morphology, life cycle, pathogenicity and control measures.

**Aschelminthes:** General characters and classification upto classes with example

**General topic:** External morphology, life cycle, pathogenicity and control measures of *Ascaris lumbricoides*.

#### UNIT IV

**Annelida:** General characters and classification upto classes with examples.

**Type study:** Earthworm – external morphology and reproduction.

**General topic:** Metamerism in Annelids,

**Arthropoda:** General characters and classification upto classes with an example.

**Type study:** Cockroach- Morphology and nervous system.

**General topic:** 1. Economic Importance of Honey Bee. 2. Peripatus and its affinities

#### UNIT V

**Mollusca:** General characters and classification upto classes with examples.

**Type study:** *Pila globosa* - External characters and life history.

**General topic:** Economic importance of Molluscs. (Oyster and Mussels)

**Echinodermata:** General characters and classification upto classes with examples.

**Type study:** Star fish - External characters and water vascular system only.

**General topic:** Larval forms of Echinodermata.

#### TEXT BOOKS :

1. Jordon. E.L. and Verma. P. S. 1963 Invertebrate Zoology - S.Chand Publishers.
2. Kotpal. R. L. 2019. Modern Text Book of Zoology – Invertebrates, Rastogi Publications.

#### REFERENCE BOOKS - INVERTEBRATA

1. Arora. M. P. 2006. Non – chordates, Himalaya Publishing House.
2. Bhamrah, H.S. *et al.*, 2002- A text Book of Invertebrates – Anmol Publications.
3. Ekambaranatha Iyer .M.A. 1992. Manual of Zoology – Part I - Invertebrata - S.Viswanathan Printers and Publishers.
4. Nair N.C, Murugan. T, Arumugam .2010 -A Text Book of Invertebrates- Saras publications.

## SEMESTER - V

<b>Course Title</b>	<b>AQUACULTURE</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>4</b>
<b>Course Code</b>	<b>21UCZO53</b>
<b>Course Type</b>	<b>DSC-IX</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

### General Objective:

To familiarize students with different practices of aquaculture and develop entrepreneur skills in the respective field.

### Course Objectives:

<b>CO No.</b>	<b>The learners will be able to:</b>
CO-1	Understand the varied practices in Aquaculture.
CO-2	Apply Cryopreservation techniques in aquaculture.
CO-3	Distinguish between the different types of integrated fish farming.
CO-4	Predict the different types of fish diseases.
CO-5	Propose innovative methods of fish Harvesting .

### UNIT I - Introduction

Scope of Aquaculture - Aquaculture in India - Freshwater, Coastal and Marine aquaculture -Site selection- Pond construction - Maintenance of pond - Types of fish ponds- Nursery pond, Rearing pond and culture pond.

### UNIT - II - Culture Practices

Biology of Indian major carps -Fin fish culture: collection of seeds and transportation of seeds - natural breeding, induced breeding, Marine prawn culture -*Penaeus monodon* - Transgenic fish production - Ploidy and Induction - Cryopreservation. Culture practices in Edible oyster: collection of seeds - induced breeding.

### UNIT - III - Types of Culture

Types of culture: extensive - semi-intensive and intensive culture - monoculture - monosex culture - polyculture - cage culture - pen culture - seaweed culture - integrated fish farming - paddy cum fish culture - poultry cum fish culture - pig cum fish culture - sewage fed fish culture.

### UNIT- IV - Fish Feed and Diseases

Fish feed: artificial feed - feed formulation - need - ingredients ratio - square method- pellets. Live feeds and their culture: *Artemia* and Rotifer - Seaweed culture. Fish Diseases: bacterial, viral, fungal, ecto and endo-parasitic diseases and nutritional deficiency diseases.

## UNIT - V - Harvesting and Post-harvest Technology

Methods of fish harvesting - craft (Kattumaram and Trawlers) and gears (Gill net and trap net) used for inland and marine fisheries - Fish preservation - fishery by-products. Role of government organizations - CMFRI - CIFRI - FFDA - CIFT - CIFE - MPEDA - CIBA etc.

### TEXT BOOKS :

1. Sandhu, G.S. 2010. A text book of fish and Fisheries of India. Wisdom Press, New Delhi.
2. N.Arumugam, Saras Publications, 114/35G, A.R.P. Camp Road, Periyavilai, Kottar Po, Nagercoil - 629002.

### REFERENCE BOOKS :

1. Jhingran, V.G.(1997) Fish and fisheries of India. Hindustan Publishing Corporation (India), Delhi
2. Santhanam, R., N. Sukumaran and P. Natarajan.,(1990) A manual of freshwater aquaculture.Oxford & IBH Publishing Co. Pvt. Ltd., 66 Janpath, New Delhi - 110 001.
3. Sundararaj, V. and B. Srikrishnadhas,(2000) Cultivable aquatic organisms, Narendra Publishing House, 1417, Krishnan Dutt Street, Maliwara, Delhi - 110 006.
4. Pillai, T.V.R., Aquaculture and the environment. 1<sup>st</sup> edition, Fishing news Books, England, 1992.
5. Pandian, T.J., Sustainable indian fisheries, 2001
6. Samuel Paulraj., Shrimp farming techniques, problems and solutions- 1995
7. Kurian, C.V and V.O. Sebastian. Prawns and prawn fisheries of India IV edition 1993
8. Victor, A.C., A. Chellam, S. Dharmaraj and T.S. Velayudhan, Manual on pearl oyster seed production, farming and pearl culture, CMFRI Special publication-1995
9. Vijayan, K.K. et al., 2007. Indian Fisheries: A progressive outlook. CMFRI Publications, Kochi.

### Course Outcomes

CO No.	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Describe the complete protocol of pond construction and management in freshwater Aquaculture.	1,2,4,5	Understanding
CO-2	Execute induced culture of breeding in Prawns.	1,2,3,4,5	Applying
CO-3	Identify the diverse culture systems of inland fisheries.	1,2,4,5	Analysing
CO-4	Assess the steps involved in artificial Fish Feed formulation.	1,2,4	Evaluating
CO-5	Devise suitable mechanism to use in fish harvesting.	1,2,4	Creating



## SEMESTER - V

Course Title	WILDLIFE CONSERVATION AND MANAGEMENT
Total Hrs.	60
Hrs./Week	4
Course Code	21UEZO51B
Course Type	DSE-I-B
Credits	4
Marks	100

### General Objective:

To equip students with adequate knowledge of various biodiversity monitoring methodologies and conservation and management of Wildlife.

### Course Objectives:

CO No.	The learners will be able to:
CO-1	Define the conservation of wild life
CO-2	Discuss the impact of habitat destruction.
CO-3	Determine the Damage caused by wildlife in India and its mitigation.
CO-4	Evaluate the exponential and logistic growth rates of wildlife.
CO-5	Investigate the population vulnerability.

### Unit-I-Introduction to WildLife

Value of wildlife and its need for conservation. Definition and importance of wildlife, Causes of depletion of wildlife. Factors responsible for the extinction of animals; Types of protected areas. Wildlife Sanctuaries and National Parks in India-general strategies and issues.

### Unit-II- Importance of WildLife conservation

Wildlife conservation, ethics and importance of conservation, Impact of habitat destruction and fragmentation on wildlife, Biological parameters

such as food, cover, forage and their impact on wild life. Identification and estimation of wild animals by faecal sample analysis and census methods..

### **Unit-III-Wildlife conservation**

Objectives- strategies and issues; Captive breeding techniques and translocation and reintroduction- Inviolable area and critical habitats and their impact on wildlife; Different terrestrial habitats of wildlife in India- Restoration of degraded habitat- Damage caused by wildlife in India and its mitigation.

### **Unit-IV- Rehabilitation and management**

Type of wildlife management-manipulative and custodial- Management of over abundant wild animal populations causing damages to nearby inhabitants and their crops and animals, Tools and techniques to control the menace of wild animals; man wildlife conflict resolution and mitigation. Habitat manipulation- control and regulation of grazing. Weed eradication- Major diseases of domestic and wild animals and their control and impact of wild life tourism.

### **Unit-V - Population Attributes**

Theories of population dispersal, Population vulnerability analysis and its components Animal movement, concept of home range and territory; Tracking movement by remote sensing. Predator-prey models and impact of predation. Population attributes; concepts of exponential and logistic growth rates of wildlife, Density dependent and independent population regulation.

### **Reference books:**

1. Caughley, G., and Sinclair, A.R.E. (1994) Wildlife Ecology and Management. Blackwell Science.
2. Woodroffe, R., Thirgood, S. and Rabinowitz, A. (2005) People and Wildlife, Conflict or Co-existence? Cambridge University.
3. Bookhout, T.A. (1996) Research and Management Techniques for Wildlife and Habitats (5th edition) The Wildlife Society, Allen Press.
4. Sutherland, W.J. (2000) The Conservation Handbook: Research, Management and Policy. Blackwell Sciences 95
5. Hunter M.L., Gibbs, J.B. and Sterling, E.J. (2008) Problem solving in Conservation Biology and Wildlife Management: Exercises for Class, Field, and Laboratory. Blackwell Publishing. P

## SEMESTER - V

<b>Course Title</b>	<b>ENVIRONMENTAL TOXICOLOGY</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>4</b>
<b>Course Code</b>	<b>21UEZO52B</b>
<b>Course Type</b>	<b>DSE-II-B</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

### General Objectives:

- To equip students with the skills to critically evaluate and understanding of the effects of chemicals on human health and environment.

### Course Objectives:

<b>CO</b>	<b>The learners will be able to:</b>
CO-1	Define the basic concept of toxicology
CO-2	Discuss the process of eco-toxicology.
CO-3	Interpret the acute and chronic toxicity
CO-4	Distinguish the impact of various toxic chemicals in the Environment
CO-5	Evaluate the toxic effect on human and environment

### Unit 1. Toxicology

Introduction- History of toxicants - Principles of toxicology – toxicants and toxicity, factors affecting toxic substances- their types – degradable and non-degradable toxicants.

### Unit 2. Eco-toxicology

Introduction to eco-toxicology- the route and transport of toxicants by air, water and food- chain- biotransformation, bioconcentration and biomagnification; Influence of ecological factors on the effects of toxicology. Global dispersion of toxic substances – dispersion and circulating mechanisms of pollutants.

### Unit 3. Acute and chronic toxicity

Lethal and sub-lethal doses; Analysis of NOEL, LD50 and MLD; Dose-response relationship; Detoxification process –mechanisms – organs of detoxification. Carcinogens, mutagens and teratogens; Toxicity testing procedures.

#### **Unit 4. Chemical toxicology :**

Toxic chemicals in the Environment; Impact of Toxic chemicals on enzymes and biochemical effect of arsenic, cadmium, lead, mercury, carbon monoxide, nitrogen oxides, sulphur dioxide and cyanide.

#### **Unit 5. Man and Environmental Toxins**

Routes of toxicants to human body – inhalation, skin absorption, oral, injection; ADME – adsorption, distribution, metabolism and excretion; Response to toxin exposures – dose-response relationship, frequency and cumulative response. Environmental diseases: Asbestosis, silicosis, synopsis, asthma, fluorosis and allergis and epidemiological issues – Malaria, Kala azar, water borne diseases

#### **References Books :**

1. Calow.P. 1994. Handbook of Ecotoxicology. Blackwell Scientific Publications, London
2. Chatterji,M., M.Munasinghe and R.Ganguly. 1998. Environment and Health in Developing Countries. A.P.H.Publishing House, New Delhi.
3. Forbes,V.E. and T.L.Forbes. 1994. Ecotoxicology in Theory and Practice. Chapman & Hall, London.
4. Hayes, W.A. 2001. Principles and Methods of Toxicology, CRC, USA.
5. Jacobson-Kram,D. 2006. Toxicological testing handbook: Principles, Applications and Data Interpretation, Taylor and Francis, New York.
6. Klaassen,C.D. and Watkins,J.B. 2003. Essentials of Toxicology, McGrawHill Professional, New Delhi.
7. Levin,S.A. and M.A.Harwell, J.R.Kelley and K.D.Kemball. 1989. Ecotoxicology: Problems and Approaches. Springer-Verlag, New York.
8. Manahan,S.E. 2000. Environmental Chemistry, Lewis Publishers, New York.
9. Pery,G. 1980. Introduction to Environmental Toxicology, Elsevier, Amsterdam.
10. Walker,C.H., R.M.Sibly, S.P.Hopkin and D.B.Peakall. 2012. Principles of Ecotoxicology, CRC Press, New York.
11. Wright,D.A. and Welbourn,P. 2002. Environmental Toxicology, Cambridge University Press, London.

<b>Course Title</b>	<b>POLYMER CHEMISTRY</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>4</b>
<b>Course Code</b>	<b>21UECH51A</b>
<b>Course Type</b>	<b>DSE-I-A</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

**General Objectives:**

This course describes the Polymers, its types, techniques involved in polymerization, synthesis, physical properties, biomedical applications, degradation and processing of polymers

**Course Objectives:**

<b>CO</b>	<b>The learners will be able to :</b>
CO-1	Distinguish a polymer on the basis of the structure and properties
CO-2	Elaborate the wide range of reagents applied in polymerization reactions
CO-3	Obtain knowledge of the different types of polymers and their applications.
CO-4	Point out the wide applications of polymers in bio-medicine.
CO-5	Determine the different mechanical and crystalline properties of polymers and processing of polymers based on their properties.

**UNIT I - Polymer and its types**

Polymer- Classification based on Structure, Application and Tacticity- Types- Homo and Copolymer – Distinction among plastics, elastomers and fibers. – Functionality, Degree of polymerization - Types of polymerization - addition, condensation and chain polymerization (Mechanism not required).

**UNIT II – Polymerization Techniques and Rubbers**

Bulk, Suspension, Emulsion and Solution polymerization Poly condensation techniques- melt polycondensation, solution polycondensation and interfacial condensation.

Bulk and Emulsion polymerization: polymerization of Styrene.

Precipitation polymerization: Polymerization of acrylonitrile.

Suspension polymerization: Polymerisation of methyl methacrylate.

Melt polycondensation: Preparation of Kevlar.

Solution polycondensation: Preparation of Polyacrylonitrile (PAN).

Interfacial polycondensation: Reaction of terephthaloyl chloride and ethylene diamine – Isolation and purification of polymers

Vulcanization of rubber, preparation and uses of synthetic rubbers: BUNA-S, BUNA-N and neoprene rubber.

### **UNIT III - Synthetic Polymers**

Synthesis, properties and uses of - Polyethylene - HDPE, LDPE, LLDPE - Polypropylene - Polyvinyl chloride - Teflon - Polyvinyl acetate - Poly vinyl fluoride, Polyamides: Nylon 6, Nylon 6,6 and Nylon 11 - Polyester resins, Alkyd resins.

Resins: Preparation, properties and uses of Melamine formaldehyde and urea formaldehyde resins and Epoxy resins.

Cellulose esters: Preparation, properties and uses of Cellulose acetate and Cellulose nitrate.

### **UNIT IV - Physical States and Biomedical Applications**

Molecular mass - number average, weight average, viscosity average molecular mass - Determination of molecular mass by viscosity and light scattering method - practical significance of molecular mass distribution - size of polymers. Kinetics of free radical polymerization - Carothers's equation - Bio - medical applications of polymers.

### **UNIT V - Physical Properties, Degradation and Processing**

Glassy state - glass transition temperature, factors affecting glassy state - crystallinity in polymers.

Viscosity, Solubility, Optical, Electrical, Thermal and Mechanical properties of polymers.

Degradation of polymers by thermal, oxidative, mechanical and chemical methods.

Polymer processing:

Compression moulding-Torlon [Polyamide-imides]

Injection moulding - Polyethylene and Polystyrene

Transfer moulding - Polyurethanes or Epoxy resins

Extrusion moulding - Polypropylene

Blow moulding - Polyethylene Terephthalate (PET)  
and dye casting.

### **REFERENCE BOOKS:**

1. Alka Gupta L., *Polymer Chemistry*, Pragati Prakashan, Anu Books, 2019.
2. Billmeyer F.W., *Text Book of Polymer Science*, A Wiley-Inter science Publication, 3<sup>rd</sup> Edition, John Wiley & Sons New York, 2007.
3. Nayak P.L. & Lenka S., *Text Book of Polymer Science*, Kalyani publishers, New Delhi, 2000.
4. Bhatnagar M. S., *A Textbook of Polymer Chemistry*, S Chand Publishing; First edition, 2004, ISBN-10: 8121941121.
5. Carraher Jr. C. E., *Introduction to Polymer Chemistry*, 4th Edition, CRC Press, 2017, ISBN-13: 978-14987,37616
6. Gowarikar V.R., Viswanathan N.V. and Sreedhar J., *Polymer Science*; New Age International (P) Ltd., New Delhi, 2000.

## SEMESTER - V

<b>Course Title</b>	<b>MEDICINAL CHEMISTRY</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>4</b>
<b>Course Code</b>	<b>21UECH52B</b>
<b>Course Type</b>	<b>DSE-II-B</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

### General Objectives:

This course describes the drug metabolism, medical diagnostic instruments, blood analysis, causes of diseases and their treatment.

### Course Objectives:

<b>CO</b>	<b>The learners will be able to :</b>
CO-1	Describe the classification and metabolism of drugs.
CO-2	Explore the idea of metabolic reactions.
CO-3	Illustrate the working principle of common medical instruments.
CO-4	Identify different blood groups based on composition.
CO-5	Evaluate quantitatively the glucose and urea present in the blood by different methods.

### UNIT I - Concepts and metabolism of drugs

Concepts: Classifications of drugs - biological and chemical classification nomenclature of drugs - International Non-proprietary names (INNs).

Metabolism of drugs: Factors affecting metabolism - chemical pathway of drug metabolism - bio transformation - oxidative, reductive and hydrolytic bio transformations - conjugate reactions - glucouranides, amino acids, ethereal sulphate, methylated, acetylated and glucothione conjugations. Absorption of drugs - routes of administration - factors affecting absorption. Assay of drugs: Chemical, biological and immunological assay.

### UNIT II - Diagnostic Medical Instruments

Design of medical instruments - general components - transducers - types - biopotential recorders - Electrocardiograph (ECG) - principles, block diagram, measurement and analysis of the ECG, X-ray - Principle, block diagram, measurement and analysis. Ultrasonic Scanning principle, block diagram, measurement and analysis of the scans. C.T.Scan - principle, block diagram, measurement and analysis.

### UNIT III - Clinical Chemistry

Clinical chemistry: Composition of blood - blood grouping - determination of blood groups and matching - blood pressure - hyper tension - determination.

Determination of glucose in serum – Folin method, Wu's method - determination of serum cholesterol – Sackett's method – tests for cholesterol.

Estimation of glucose in urine – Benedict's test – tests for salts in serum – tests for chlorides in serum – tests for salts in urine – tests for cholesterol in urine.

Detection of diabetes and anaemia. Estimation of hemoglobin (Hb concentration) – estimation of red blood cells(count).

Analysis of blood – determination of blood urea – urease method.

Estimation of bile pigment in serum – estimation of total protein in serum – estimation of total proteins and albumin based on Biuret and BCG methods.

#### **UNIT IV- Diseases and treatment I**

Causes and treatment of some common diseases:

Insect borne diseases – malaria and filariasis.

Air borne diseases – diphtheria, whooping cough, influenza, cold, fever and tuberculosis.

Water borne – cholera, typhoid and dysentery.

Digestive disorders – jaundice – respiratory disorder – asthma – nervous disorder –epilepsy - other diseases – piles and leprosy.

Functions, uses and effects of the following drugs:

Cardiovascular drugs – antiarrhythmic drugs - quinidine.

Anti-hypertensive drugs - reserpine.

Anti-anginal drugs - glyceryl trinitrate and isosorbide dinitrate.

Sulpha drugs – sulphanilide and sulphadiazine.

#### **UNIT V - Diseases and treatment II**

Cancer – causes, spread and treatment – structure and effects of chloram-Bucil (Leukeran), methotrexate (Anti-metabolite), plant products and hormones.

Diabetes – control – structure and uses of insulin - Oral hypoglycemic drugs – tolbutamide and chloropropanamide.

Anti-convulsant agents – structure and uses of barbiturates and succinimides.

Uses and effects of the following drugs:

Analgesics – narcotic analgesics – action, uses and structural activity of morphine. Non-narcotic analgesics – aspirin and paracetamol. Anesthetic – general anesthetic – uses and disadvantages of vinyl ether and halothane. Intravenous anesthetics – triptental sodium – local anesthetics – cocaine and cinchocaine. Anti-psychotic drugs – piperazine and benzamides.

Anti-anxiety drugs – benzodiazepine.

#### **REFERENCE BOOKS:**

1. Chatwal G. R., *Medicinal Chemistry*, , Himalaya Publishing House, New Delhi, 2002.
2. Gosh J., *Text Book of Pharmaceutical Chemistry*, S.Chand and Company, New Dehi, 2003.
3. Krupadanam G.L.D, Prasad D.V., Rao K.V., Reddy K.L.N. and Sudhakar C., *Drugs*, Orient Longmann Pvt. Limited, Hyderabad, 2005.
4. Khandpur R. S., *Handbook of Biomedical Instrumentation*, II Edition, Tata McGraw - Hill Publishing, Company, New Delhi.



## SEMESTER - VI

Course Title	CHROMATOGRAPHIC TECHNIQUES AND GREEN SYNTHESIS
Total Hrs.	60
Hrs./Week	4
Course Code	21UCCH6P2
Course Type	PRACTICAL-VIII
Credits	2
Marks	100/2

### General Objectives:

This practical course focuses on training the students with chromatography techniques like paper and thin layer chromatography and to synthesize organic compounds by applying green chemistry procedure.

### Course Objectives:

CO	The learners will be able to :
CO-1	Classify the naturally occurring pigment and carbohydrates by ascending paper chromatography.
CO-2	Observe the mechanism of chromatographic separation.
CO-3	Adapt the appropriate mobile phases based on the compounds to be separated.
CO-4	Figure out the $R_f$ value for a given compound by thin layer chromatography.
CO-5	Justify the importance of the atom economy and efficacy of an organic reaction by adopting green procedures.

### A. Chromatographic technique:

#### I Paper Chromatography:

1. Separation of pigments present in spinach leaves by ascending paper chromatography.
2. Separation of the monosaccharides and disaccharides [Glucose, Fructose, Sucrose] by ascending paper chromatography.
3. Separation and identification of amino acids by ascending paper chromatography

#### II Thin Layer Chromatography

1. Thin layer chromatography: Separation of organic mixture containing *o* -, *m* - and *p* - nitrophenol and the determination of  $R_f$  values of the separated components in a mixture.
2. Separation and identification of Group II cations in a mixture [ $\text{Cu}^{2+}$  and  $\text{Cd}^{2+}$ ] using TLC and report the  $R_f$  value.
3. Separation and identification of Group IV cations in a mixture  $\text{Co}^{2+}$  and  $\text{Ni}^{2+}$  by TLC and report the  $R_f$  value
4. Separation and identification of Aspirin, Phenacetin and Caffeine by TLC and report the  $R_f$  value.

**B. Green Synthesis of the following compounds**

1. Acetylation of Primary Amine - (Preparation of acetanilide)
2. Base Catalyzed Aldol Condensation - (Synthesis of dibenzalpropanone)
3. Bromination of trans-stilbene
4. [4+2] Cycloaddition Reaction - (Diels Alder reaction between furan and maleic acid).
5. Rearrangement Reaction - (Benzil- Benzilic acid rearrangement)
6. Electrophilic Aromatic Substitution Reaction - (Nitration of phenol).

**REFERENCE BOOKS:**

1. Ahluwalia, V. K., Dhingra, S., Gulati, A., *College Practical Chemistry*, Universities Press, 2005, ISBN: 9788173715068.
2. Bajpai, D. N., Pandey O. P. and Giri, S., *Practical Chemistry*, S Chand & Co Ltd, 2013, ISBN: 9788121908122.
3. Jeffery G. H., Bassett J., Mendham J., Denneya. R C., *Vogel's Text book of Quantitative Chemical Analysis*, Fifth Edition, Longman Scientific and Technical, UK, 1989
4. Mukhopadhyay, R., Chatterjee, P., Arunabha Sen R., *Advanced Practical Chemistry*, Books & Allied(P) Ltd., Kolkata, 2007.
5. Nad, A.K., Mahapatra, B., Ghoshal, A., *Advanced Course in Practical Chemistry*, New Central Book Agency (P) Ltd., Kolkata, 2000.
6. Vishnoi, N. K., *Advanced Practical Chemistry*, Vikas Publishing House, New Delhi, 2005.

## SEMESTER - VI

<b>Course Title</b>	<b>DAIRY CHEMISTRY</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>4</b>
<b>Course Code</b>	<b>21UECH61B</b>
<b>Course Type</b>	<b>DSE-III-B</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

### General Objectives:

This course describes the composition, properties, processing, lipids of milk and preparation of different milk products,

### Course Objectives:

CO	The learners will be able to :
CO-1	Describe the composition and properties of milk.
CO-2	Demonstrate the processing of milk under different conditions.
CO-3	Classify the various milk products after processing.
CO-4	Investigate different kinds of milk.
CO-5	Evaluate the nutrient values of milk and milk products.

### UNIT I - COMPOSITION AND PROPERTIES OF MILK

Milk - General properties - Chemical composition - Milk fat (taste, colour, acidity & pH, specific heat & gravity, electrical conductivity & freezing point) - Milk fat - Its properties like iodine number, RM number, Saponification number - Acid Degree Value Miner - Constituents of milk - Vitamins - factors affecting the composition of milk - Milk proteins - Its physical properties like electrical properties.

### UNIT II - PROCESSING OF MILK

Destruction of microorganisms in milk - Physiochemical changes during processing - Boiling, Pasteurisation - types - bottle, batch, HTST (High Temperature Short Time), Vacuum, UHT (Ultra High Temperature) Pasteurisation.

### UNIT III - MILK PRODUCTS - I

Special milks - Sterilized milk - advantages and disadvantages - Factors influencing homogenization - flow diagram of its manufacture - homogenizer - Soft curd - Milk - properties - method of its preparation - flavoured milks - flow diagram of its manufacture - sterilized flavoured milk - flow diagram of its manufacture - vitaminized/irradiated milk, frozen/concentrated milk - fermented milk - cultured buttermilk - flow diagram of its manufacture - acidophilus milk - flow diagram of its manufacture - Yogurt - flow diagram of its manufacture.

### UNIT IV - MILK PRODUCTS - II

Standardized Milk - Merits reconstituted/rehydrated milk - flow diagram of its manufacture - Recombined milk - merits, flow diagram of its manufacture - Toned milk - flow diagram of its manufacture - Double

toned milk – filled milk, Imitation milk, vegetable toned milk – soya milk cream – classification – manufacturing – Physiochemical properties – separation of cream, ghee – its composition.

Chemical analysis – isolation of casein from milk – estimation of lactose on milk – estimation of protein in milk – Determination of pH – Determination of specific gravity of milk, total solids in milk.

#### UNIT V - MILK LIPIDS

Milk lipids (or) esters (or) Oils (or) fats – compound lipids (Oils + fats) – structure of lecithin – derived lipids - churning operation – preparation of churn – filling cream into the churn – addition of colour – churning difficulties – refractive index – antioxidants – milk carbohydrates – its uses, properties – milk enzymes – condensed milk – its classification – differences between condensed milk & skim – condensed milk – nutritive value of milk – differences between human milk and Cow's milk.

#### REFERENCE BOOKS

1. Johnson, W. and Alford, *Fundamentals of Dairy Chemistry*, C.B.S. Publishers and Distributers Delhi, 2005.
2. Rangappa, K.S. and Achaya, K.T. *Indian Dairy products*, Asia Publishing House, Bombay, 1974.
3. Srinivasan, M. R. and Anantakrishnan, C.P.: *Milk Products of India*, ICAR Animal Husbandry Series No. 4, New Delhi, 1957.
4. Murray, R.K., Granner, D.K., Mayes, P.A. and Rodwell V.W., *Harper's Biochemistry*, 21<sup>st</sup>Edn., McGraw-Hill, 1990.
5. Sukumar De., *Outlines of Dairy Technology*, 1<sup>st</sup> Edition., Oxford University Press, 1991.
6. Webb, B.H. and Whittier, E.O., *By-products from Milks*, the A.V.I. Publ. Co. Inc., Westport, Connecticut, 1970.

#### Course Outcomes

CO	Upon completion of the course, the students will be able to :	PSOs Addressed	Cognitive Level
CO-1	Explain the composition, properties, lipids of milk and processing of milk.	1,3,5	Understanding
CO-2	Discuss the manufacture of different forms of milk and its products	1, 3,5	Understanding
CO-3	Illustrate the flow diagram for the manufacture of the various kinds of milk.	1, 5	Applying
CO-4	Analyze the nutrient values of milk and milk products.	1, 3, 5	Analyzing
CO-5	Determine the amount of lactose, protein, pH and specific gravity of milk	1, 3, 5	Evaluating

## SEMESTER - V

Course Title	ENVIRONMENTAL CHEMISTRY
Total Hrs.	60
Hrs./Week	4
Course Code	21UECH61C
Course Type	DSE-IIIC
Credits	4
Marks	100

### General Objectives:

The objective of the course is to acquaint the students about the composition of different matrices of the environment and various environmental pollutions.

### Course Objectives:

CO	The learner will be able to
CO-1	Infer the basics of environmental chemistry
CO-2	Illustrate the details of source, types and impacts of air pollution
CO-3	Outline different types of water pollution and its consequences
CO-4	Perceive knowledge of soil pollution
CO-5	Elaborate Radioactive, Thermal and Noise pollutions

### Unit I: Fundamentals and Components of the Environment

Environmental segments - Atmosphere, Hydrosphere, Lithosphere and Biosphere - The nature cycles-Hydrological, Carbon, Oxygen, Nitrogen, Sulphur, Phosphorous and Biogeochemical cycles- features, active and passive pools - perturbation by manmade activities.

### Unit II: Air Pollution

Air pollutants - Primary and secondary - Gases, small particulates, hydrocarbons - Cyclone separators, Fabric filters, Electrostatic precipitators, Wet scrubbers - Photochemical smog - Acid rain - Chemistry of greenhouse effect - Global warming - Ozone layer depletion - Propellants-Green propellants Unleaded petrol - Bhopal gas tragedy - Chernobyl disaster - Air quality standards [NAAQS and NEERI].

### Unit III: Water Pollution

The aquatic environment - types of water pollutants - organic pollutants - Inorganic pollutants - Eutrophication and its effects - Chemical and Physical treatment of industrial effluents and the methods of disposal- Heavy metal contamination and their biochemical effects- Determination of DO, BOD, COD and their significance - Total dissolved solids - Determination of fluoride and Removal from polluted water - Water quality parameters and standards [WHO, BIS and ICMR].

#### **Unit IV: Soil Pollution**

Composition of lithosphere – Soil water and Soil air – Sources of soil pollution – Solid waste, Sources of biodegradable, non-biodegradable wastes– general characteristics - Industrial waste, Urban waste, Agricultural waste, biomedical waste and their detrimental effects. Environmental hazards from fertilizers- Bio-fertilizers – Solid waste management - control rules - Disposal of solid waste (open dumping, sanitary landfill, incineration, composting)-Recycling and potential methods of disposal [glass, paper, metals and plastics].

#### **Unit V: Radioactive, Thermal and Noise pollution**

Radioactive pollution - Types and sources of Radioactivity - Natural and man-made radioactivity -Radioactive pollution - Fukushima Nuclear reactor accident– a case study - Precautions and control measures.

Thermal pollution- Sources, Impacts of thermal pollution on aquatic fauna and flora- Control measures

Noise Pollution- Sources of noise pollution-measurement-noise levels-permissible noise levels (Indoor and outdoor)- Physiological and Psychological effects – control devices mufflers, silencers , ear muffs, ear plugs.

#### **REFERENCE BOOKS:**

1. Environmental chemistry with green chemistry, Asim K. Das, Books and Allied Pvt Ltd, 2010.
2. Environmental chemistry, A. K. De, 5<sup>th</sup> edition, New Age International, 2004.
3. Environmental chemistry, Peter O' Neill, 3<sup>rd</sup> edition, Blackie Academic & Professional, 1998.
4. Textbook of Environmental chemistry. V. Subramanian. Wiley india Ltd. 2020.
5. Fundamentals concept of Environmental chemistry. G.S. Sodhi. Narosa publishers.2020.
6. Industrial Chemistry, B.K. Sharma, Krishna Prakashan Media P. Ltd., Meerut, 2016.
7. Environmental Science and Biotechnology, Theory and Techniques, A.G. Murugesan, C. Rajakumari, MJP Publisher, Chennai, 2005

## SEMESTER - IV

<b>Course Title</b>	<b>ENERGY PHYSICS</b>
<b>Total Hrs.</b>	<b>30</b>
<b>Hrs./Week</b>	<b>2</b>
<b>Course Code</b>	<b>21USPH42</b>
<b>Course Type</b>	<b>SEC-IV</b>
<b>Credits</b>	<b>2</b>
<b>Marks</b>	<b>100</b>

### Objectives:

To provide an understanding of the present energy crisis and various available energy sources

### Course Objectives:

<b>CO</b>	<b>The learner will be able to</b>
CO-1	Examine the conventional energy sources, their prospects and limitations with renewable ones
CO-2	Discuss the use of solar energy and the various components used in the energy production.
CO-3	Classify the types of wind machines and understand the advantages and disadvantages of wind energy
CO-4	Analyze the concepts of Photosynthesis and biogas generation.
CO-5	Appraise the features of chemical energy.

### UNIT I: Introduction to Energy Sources

World's reserve of Commercial energy sources and their availability-India's production and reserves-Conventional and non-conventional sources of energy, comparison - Coal- Oil and natural gas -applications - merits and demerits.

### Unit II Solar Energy

Introduction - Solar constant -Solar radiation at the Earth's surface -Solar radiation Geometry-Altitude angle -Zenith angle - Flat plate collectors- A typical liquid collector -Applications of solar energy - Solar Heaters - Solar cooking- Crop dryers.

### **Unit III Wind Energy**

The nature of the wind – site selection considerations –Basic components of WECS- Types of Wind machines -Advantage and dis advantages of WECS- Applications of wind energy

### **Unit IV Bio mass energy**

Biomass energy - classification - photosynthesis - biomass conversion process - Kachara gas plants – Materials used for bio gas generation - wood gasification - ethanol from wood - advantages and disadvantages of biomass as energy source

### **Unit V Chemical Energy sources**

General Introduction – Design and principle of operation of a fuel cell – Classification of fuel cells – Types of fuel cells – Hydrogen – Fossil fuel – Advantage and disadvantage of fuel cell – Applications of fuel cells.

#### **Books for Study:**

1. Non Conventional Energy Sources, G.D. Rai, Khanna Publishers (4th Ed., 2010).
2. Energy Technology by S. Rao and Dr. B.B. Parulekar, Khanna Publishers (2015).

#### **Books for Reference:**

- 1.Non-conventional energy sources, B.H. Khan, McGraw Hill
2. Solar Energy by G.D. Rai, Ed. V, 1995.



## SEMESTER - V

Course Title	BIOMEDICAL INSTRUMENTATION
Total Hrs.	60
Hrs./Week	4
Course Code	21UEPH52A
Course Type	DSE-IIA
Credits	4
Marks	100

### General Objective:

To have an exposure on various diagnostic instruments used in the medical field and to study the basics of radiation and medical imaging Physics

### Course Objectives:

CO	The learners will be able to:
CO-1	Identify the basic concepts of Biomedical Instrumentation
CO-2	Discuss the fundamentals of transducers as applicable to physiology
CO-3	Examine the various diagnostic instruments used in the medical field
CO-4	Correlate the use of ionizing radiation and its biological effects in the medical field.
CO-5	Appraise the basics of Medical imaging Physics

### Unit-I Introduction to Biomedical instrumentation

Overview of Biomedical Instrumentation system – Types of biomedical equipments – Analytical, Diagnostic, Therapeutic and Surgical equipments – calibration of medical devices and testing of biomedical equipments, Electrical classification of Biomedical Equipments

### Unit-II Bioelectric Potentials and Transducers

Transport of ions through cell membranes- Resting and acting potentials- biopotentials- bioelectric signals and their characteristics- design of medical instruments- components of biomedical instrument system-Transducers- active transducers- strain gauge- photoelectric type resistive transducers-metallic wire transducers- capacitive transducers- piezoelectric ultrasonic transducers

### Unit-III Diagnostic Equipments:

Electrocardiography (ECG) –ECG in diagnosis –ECG Machine. Principles and applications–Vector cardiography (VCG), Magnetocardiography (MCG) – SQUIDS and Phonocardiography (PCG). Electro encephalography (EEG), EEG Machine, Artifacts, Evoked potentials – Visual, Auditory and Somatosensory EPs. Principles and applications–Magneto encephalography (MEG), Electroretinography (ERG) and Electrooculography (EOG). Principles and applications–Electromyography (EMG)-

### Unit- IV Radiation Physics

Principles of Radiation protection- protective materials- radiation effects-somatic- genetic stochastic and deterministic effect-External beam therapy (basicidea)- conformal radiation therapy- Image Guided Radiotherapy

### Unit-V Medical Imaging Physics

Lasers in medicine- Endoscopy- radio graphic and fluroscopic techniques-computer tomography (CT)- applications of computer tomography- Thermography- Medical applications of thermography- ultrasonic imaging systems- Magnetic Resonance Spectroscopy (MRI)- Different types of bioelemetry systems and patient monitoring.

#### Books for study

1. Biomedical instrumentation- M.Arumugam, Anuradha Publications (2010)
2. Biomedical instrumentation/ Medical Electronics- R.L.Reka, C.Ravikumar, Lakshmi publications (2010)

#### Books for reference

1. Medical Physics- J.R.Cameron and J.G.Skofronick, WileyEastern(1978)
2. Bio medical Instrumentation -Khandpur

#### Course Outcomes

CO	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Enumerate the basic concepts of Biomedical Instrumentation	2,4	Remembering
CO-2	Illustrate the fundamentals of transducers as applicable to physiology	1,4,5	Understanding
CO-3	Interpret the application of Electronics in diagnostics	4,5	Applying
CO-4	Analyze the use of ionizing radiation in medical and industrial applications	1,4,5	Analyzing
CO-5	Summarize Medical Imaging techniques for diagnosis along with other diagnostic and therapeutic devices.	1,4,5	Evaluating

#### Relationship Matrix

Semester	Course Code	Title of the Course					Hours	Credits				
V	21UEPH52A	BIOMEDICAL INSTRUMENTATION					60	4				
Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)						
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5		
CO-1	✓	✓	✓				✓		✓			
CO-2	✓	✓	✓	✓	✓	✓			✓	✓		
CO-3	✓	✓	✓		✓				✓	✓		
CO-4	✓	✓	✓	✓	✓	✓			✓	✓		
CO-5	✓	✓	✓	✓	✓	✓			✓	✓		
Number of matches (✓) = 35 Relationship = High												

## SEMESTER- VI

<b>Course Title</b>	<b>RADIATION SAFETY</b>
<b>Total Hrs.</b>	<b>30</b>
<b>Hrs./Week</b>	<b>2</b>
<b>Course Code</b>	<b>21USPH61</b>
<b>Course Type</b>	<b>SEC-V</b>
<b>Credits</b>	<b>2</b>
<b>Marks</b>	<b>100</b>

### General Objective:

To familiarize themselves with the awareness and understanding of radiation hazards and safety.

### Course Objectives:

CO	The learners will be able to:
CO-1	Describe the production of X-rays and understand the various radioactive emissions
CO-2	Identify different units & doses of radioactivity
CO-3	Illustrate the basic concepts of radiation detection and working principles of various detectors
CO-4	Classify the standard protection and safety norms in radioactive wastes inclusive of nuclear waste
CO-5	Distinguish nuclear techniques involved in MRI , PET , PIGC & RT

### UNIT I Basics of Atomic and Nuclear Physics:

Basic concept of atomic structure; X rays – Production and characteristics, concept of bremsstrahlung and auger electron- Compton scattering theory -The composition of nucleus, Unstable elements and radioactive emissions – various radioactive sources, Radiation Quantities and their units

### UNIT IIRadiation monitoring devices :

Basic idea of different units of activity, KERMA, exposure, absorbed dose, equivalent dose, effective dose, collective equivalent dose, Annual Limit of Intake (ALI) and derived Air Concentration (DAC).

### UNIT III Radiation detection:

Basic concept and working principle of gas detectors (Ionization Chambers, Proportional Counter, Multi-Wire Proportional Counters (MWPC) and Gieger Muller Counter), Scintillation Detectors (Inorganic and Organic Scintillators), Solid States Detectors and Neutron Detectors, Thermo luminescent Dosimetry.

### UNIT IV Radiation safety management:

Radiation protection standards, International Commission on Radiological Protection (ICRP) principles, justification, optimization, limitation- introduction of safety and risk management of radiation. Nuclear waste and disposal management-

Management of radioactive waste in medical, industrial, agricultural and research establishments.

**UNIT V Application of nuclear techniques:**

Application in medical science (e.g., MRI, PET, Projection Imaging Gamma Camera, radiation therapy)- Archaeology, Art, Crime detection, Mining and oil. Industrial Uses: Tracing, Gauging, Material Modification, Sterization, Food preservation.

**Books for Study:**

1. *Text Book of radiological Safety – K Thayalan - Jaypee Brothers, Medical Publishers Pvt. Limited (2010).*
2. *Basic Radiological Physics – Second Edition – Kuppusamy Thayalan - Jaypee Brothers, Medical Publishers Pvt. Limited (2017).*

**Books for Reference:**

1. *W.E. Burcham and M. Jobes – Nuclear and Particle Physics – Longman (1995)*
2. *G.F.Knoll, Radiation detection and measurements (4th Edition) , Wiley; (2010)*
3. *W.J. Meredith and J.B. Massey, “Fundamental Physics of Radiology”. John Wright and Sons, UK, 1989.*
4. *J.R. Greening, “Fundamentals of Radiation Dosimetry”, Medical Physics Hand Book Series, No.6, Adam Hilger Ltd., Bristol 1981.*
5. *Practical Applications of Radioactivity and Nuclear Radiations, G.C. Lowental and P.L. Airey, Cambridge University Press, U.K., 2001*
6. *A. Martin and S.A. Harbisor, an Introduction to Radiation Protection, John Willey & Sons, Inc. New York, 1981.*
7. *IAEA Basic safety standards 115, 2006*
8. *AERB Radiation Protection Rules 2004*

**Course Outcomes**

CO	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Classify different radioactive emissions & sources	1,2 & 5	Understanding
CO-2	Illustrate Annual Limit of Intake (ALI) & Derived Air Concentration (DAC)	3, 4 & 5	Applying
CO-3	Analyze various detections related to IC, MWPC , GM, SD & SSD	2 & 3	Analyzing
CO-4	Explain safety standards in nuclear and radioactive wastes in industry, agricultural and other research establishments	2, 3 & 4	Analyzing
CO-5	Interpret the results of MRI, PIGC & RT in medical field and study the techniques involved in various industrial uses.	1 & 5	Evaluating

**SEMESTER - I**

<b>Course Title</b>	<b>BUSINESS ORGANISATION AND MANAGEMENT</b>
<b>Total Hrs.</b>	<b>75</b>
<b>Hrs./Week</b>	<b>5</b>
<b>Course Code</b>	<b>21UCCO12</b>
<b>Course Type</b>	<b>DSC-II</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

**General Objective:**

To enable the students understand the concepts of business and principles of management by facilitating them to become successful entrepreneurs.

**Course Objectives:**

<b>CO</b>	<b>The learners will be able to:</b>
CO-1	Understand the basic aspects of business organization.
CO-2	Distinguish the various forms of business organization.
CO-3	Discover the functions of the principles of management and to experiment the application of principles in an organization.
CO-4	Analyse the traditional management functions of planning and decision making.
CO-5	Assess the process involved in reorganizing the principles of Staffing, Co-ordination and Controlling.

**UNIT I: Concept of Business Organization**

Economics and Non-Economics activities- Profession and Employment- Meaning of Business- Characteristics of Business- Business Distinguished from Profession and Employment- Scope, Objectives and Importance of Business - Social Responsibilities of Business

**UNIT II: Forms of Business Organization**

Forms of Business Organization- Sole Proprietorship- Joint Hindu Family Business- Partnership- Joint Stock Company- Public and Private Company- Co-operative Organization- Meaning- Definition- Factors influencing the selection of suitable forms of organization- Relative Characteristics- Differences between the above forms - Merits and Demerits

**UNIT III: Management**

Meaning- Definition- Features - Importance Principles of Management- Management: Science or Art- Management as Profession- Functions of Management- Management and Administration.

**UNIT IV: Planning, Decision Making and Organising**

**Planning**- Meaning- Definition- Features- Steps- Types of Planning- Merits and Demerits- **Decision Making**- Process- **Organising**- Meaning- Definition- Characteristics of Organising- Principles of Organizing- Different forms of Organization.

## UNIT V: Profit Analysis:

Meaning – Types – Functions of Profit; Profit Policy – Break Even Analysis – Assumptions – Uses – Limitations – Profit Forecasting – Concepts – Methods.

### TEXTBOOK:

1. S. Sankaran, Business Economics, Margham Publications, Chennai.

### REFERENCE BOOKS:

1. Business Economics By Bani Mazumdar & V.G.Mankar–Himalaya Publishing House, Bombay
2. Business Economics – A.R.Arya Sri, V.V.Ramamoorthy, Tata McGraw Hill Companies
3. Managerial Economics by R.L.Varshney&K.L.Maheswari – Sultan Chand & Sons, New Delhi

### Course Outcomes:

CO	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Understand the concept and scope of Business Economics.	1,3	Understanding
CO-2	Apply the various methods of measuring elasticity of demand	1,2	Applying
CO-3	Distinguish between short run and long run cost curves.	1,2,5	Analyzing
CO-4	Assess the operations of markets under various competitive conditions	1,5	Evaluating
CO-5	Construct break – even analysis	1,2,5	Creating

### Relationship Matrix

Semester	Course Code	Title of the Course					Hours	Credits				
I	21UAEC11	BUSINESS ECONOMICS					90	4				
Course Outcomes (COS)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)						
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5		
CO-1	✓	✓	✓	✓	✓	✓		✓				
CO-2	✓	✓	✓	✓		✓	✓					
CO-3	✓	✓	✓	✓		✓	✓			✓		
CO-4	✓	✓	✓	✓		✓				✓		
CO-5	✓	✓	✓	✓		✓	✓			✓		
Number of matches (✓) = 32 Relationship = Medium												

**SEMESTER - III****Course Title MODERN BANKING****Total Hrs. 60****Hrs./Week 4****Course Code 21UCCO33****Course Type DSC-VII****Credits 4****Marks 100****General Objective:**

To enable the students learn the basic principles of modern banking.

**Course Objectives:****The learners will be able to:**

CO	The learners will be able to:
CO-1	Understand the nature of present-day banking in India.
CO-2	Explain the function of banking along with legal framework related to that.
CO-3	Apply their exposure in the operations of banking and its services.
CO-4	Evaluate the lending operation of banks and identify causes of NPA in banks.
CO-5	Justify the adaptations of the concepts related to Islamic Banking.

**UNIT I**

Banking – meaning and definition - Banking Regulation Act, 1949- Banking Regulation Amendment Act 2017- Types of Banks-Reserve Bank of India-Functions-Variou Departments of RBI - Methods of credit Control - FRDI, Standing Deposit Policy.

**UNIT II**

Opening and Operation of Bank account-saving-current-recurring deposit - fixed deposit - procedure for opening of account –special type of customer-minor-partnership firm-joint stock companies-clubs and association-Cheques-features-Types-Crossing - types - Material alteration - marking of a cheque -IFSC -meaning- importance- endorsement – types.

**UNIT III**

Paying banker - duties and liabilities - legal protection – Collecting banker - duties - core banking - ATM - Debit Card - Credit Card - TeleBanking-Internet banking-E-Cash-mobile banking- electronic transfer- SWIFT, NEFT, IMPS and RTGS.

**UNIT IV**

Types of Loan – Cash credit – Bank overdraft – Mortgage - Hypothecation – Pledge – Non-Performing Assets - Causes - Remedial Measures - Management of NPA

**UNIT V**

Islamic banking-Meaning origin of Islamic banking-definition-objectives - features - principles - Islamic Banking Vs conventional banking-operating structure of Islamic banks-models of Islamic banking; sources and application of funds.

**TEXTBOOKS:**

1. Banking Theory Law and Practice-E. Gorden and Dr.K.Natarajan
2. An Introduction to Islamic banking and finance – Abdul Fathah M.Farah

**REFERENCE BOOKS:**

1. Theory and Practice of Banking – Reddy and Appanaiah - M/S.Himalaya Publishing House, Mumbai
2. Theory and Practice of Banking –Radha swamy and Vasudevan.
3. Banking Law and Practice-S.N.LAL
4. Banking Law and Practice-Sundaram and Varshney
5. Banking Theory Law and Practice-Dr.S.Gurusamy, Thomson Learning

**Course Outcomes**

CO	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Discuss the principles of modern banking in comparison with the erstwhile banking systems.	1	Understanding
CO-2	Summarise the functions of banking in legal framework in line with Islamic banking.	1	Understanding
CO-3	Examine the operations of banking and its services.	3	Applying
CO-4	Analyse the lending operation of banks and thecauses of NPA in banks.	5	Analysing
CO-5	Assess concepts pertaining to Islamic bankingand its benefits to the society.	1	Evaluating

**Relationship Matrix**

Semester	Course Code	Title of the Course					Hours	Credits				
III	21UCCO33	MODERN BANKING					60	4				
Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)						
	PLO1	PLO2	PLO3	PLO4	PLO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO-1	✓	✓	✓	✓		✓		✓	✓	✓		
CO-2	✓	✓	✓	✓		✓		✓	✓	✓		
CO-3	✓	✓	✓	✓		✓		✓	✓	✓		
CO-4	✓	✓	✓	✓		✓		✓	✓	✓		
CO-5	✓	✓	✓	✓		✓		✓	✓	✓		
Number of matches (✓) = 40 Relationship = High												



**SEMESTER - VI**

<b>Course Title</b>	<b>Tally ERP</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>4</b>
<b>Course Code</b>	<b>21UECO61A</b>
<b>Course Type</b>	<b>DSE-III-A</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

**General Objective:**

To inculcate theoretical knowledge and skill in Tally.

**Course Objectives:**

<b>CO</b>	<b>The learners will be able to:</b>
CO-1	Locate company in Tally Software
CO-2	Estimate Vouchers
CO-3	Apply the Inventory management in Tally
CO-4	Analyze various financial Reports
CO-5	Measure the various statements Other than Final Accounts with the help of Tally

**UNIT I**

Introduction to Tally, Company and Accounting Information Menu  
 Tally Features - Technological advantages of tally accounting software  
 - Tally Screen components - Gateway of Tally - Company information menu - Creating a company - Accounting information menu - Managing of cost centers and cost categories - Concepts of Groups in Tally - Managing and Operating groups - Managing and operating Ledgers - F11 Features - F12 Configuration

**UNIT II**

Managing and Operating Vouchers - Meaning of Voucher - Predefined vouchers in Tally, Accounting Vouchers - Inventory Vouchers and Unconventional Vouchers - Entering Transaction in Vouchers

**UNIT III**

Managing and Operating Inventory Information Menu - Stock items - Units of measure; Stock groups, Stock categories, Godown, Price list, inventory vouchers

**UNIT IV**

Tally Reports - Reports which can be accessed from gateway of Tally under "Reports", Reports which can be accessed through the menu "Display" under report - Export and import of data - Printing reports - Tally ODBC

**UNIT V**

Tally Advanced Financial Management and Control - Preparation of Bank Reconciliation statement, Fund Flow Statement, Branch Accounting, Flexible period accounting, Budgeting and Control, Variance Analysis and Ratio Analysis

**(Theory 2 hours Practical 2 hours)**

**TEXTBOOK:**

Tally –NamrataAgarwal

**REFERENCE BOOKS:**

1. Tally User Manual, Tally Solutions (P) Limited
2. Tally –Nadani

**Course Outcomes**

CO	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Understand the various features of Tally.	1,2,3	Understanding
CO-2	Explain the system of Tally accounting in a business concern.	1,2,3	Understanding
CO-3	Apply the various vouchers in Tally.	1,2,3	Applying
CO-4	Appraise Inventory, godown and the price list.	2,4,5	Analysing
CO-5	Summarize report based on the Tally systems.	2,4,5	Evaluating

**Relationship Matrix**

Semester	Course Code	Title of the Course	Hours	Credits						
VI	21UECO61A	Tally ERP	60	4						
Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO1	PLO2	PLO3	PLO4	PLO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	✓	✓	✓	✓		✓	✓		✓	✓
CO-2	✓	✓	✓		✓	✓		✓		✓
CO-3	✓	✓		✓		✓	✓	✓	✓	
CO-4	✓	✓	✓	✓	✓	✓	✓		✓	✓
CO-5	✓	✓	✓		✓	✓	✓	✓		✓
Number of matches (✓) = 39 Relationship = High										

**SEMESTER - V**

<b>Course Title</b>	<b>ADVERTISING</b>
<b>Total Hrs.</b>	<b>30</b>
<b>Hrs./Week</b>	<b>2</b>
<b>Course Code</b>	<b>21USCO51</b>
<b>Course Type</b>	<b>SEC-V</b>
<b>Credits</b>	<b>2</b>
<b>Marks</b>	<b>100</b>

**General Objective:**

To learn the role of Advertising in commercial endeavors and to appreciate functions of advertising and advertising agencies.

**Course Objectives:**

<b>CO</b>	<b>The learners will be able to:</b>
CO-1	Identify objectives behind advertising
CO-2	Observe the marketing research
CO-3	Explain various advertising media
CO-4	Categorize the functions of Advertising Agency
CO-5	Grade the ethical and legal issue of advertising

**UNIT I: Advertising**

Advertising in Marketing Mix -Nature -Scope -Kinds -Advertising as a career-Economics aspects of advertising.

**UNIT II: Marketing research and advertising budget**

Marketing research for advertising - Consumer, media and product - Advertising Strategy - Objectives - Principles - DAGMAR - Advertising budget -Process- Methods

**UNIT III: Advertising copy and media**

Advertising campaign - Planning Creativity-Advertisement copy - Types - Components -Essentials - Copy layout - Visualisation to layout --Advertising Media -Types -Selection Scheduling -New media options: Internet.

**UNIT IV: Advertising agency**

Advertising Agency- Functions- Organisation - Agency relationship with client and with media selection of an agency- Agency compensation.

**UNIT V: Effectiveness of advertising**

Measuring effectiveness of advertising - Pre-testing - Post-testing- Advertising audit - Social, ethical and legal aspects of advertising - Control and regulation over advertising.

**TEXTBOOKS**

S.A. Chunawalla, K. J. Kumar, K.C. Sethia, G.V. Subramanian UG Suchark, Advertising theory and practice 4<sup>th</sup> Ed., Himalaya Publishers.

**REFERENCE BOOKS:**

1. Manendra Mohan - Advertising Management - Concepts and Cases, TMH
2. S.A.Chunawalla - Advertising Sales and Promotion Management , Himalaya Publishers
3. M.N.Mishra - Sales Promotion and Advertising Management 2nd Ed, Himalaya Publishers

### Course Outcomes

CO	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Define the concept of advertising	1,2	Remembering
CO-2	Explain the marketing research	2,3	Understanding
CO-3	Interpret the importance of advertising copy and various types of advertising media	3,4	Applying
CO-4	Appraise the concept of advertising agency	3, 4, 5	Analyzing
CO-5	Evaluate the effectiveness of advertising	4,5	Evaluating

### Relationship Matrix

Semester	Course Code	Title of the Course					Hours	Credits				
V	21USCO51	ADVERTISING					30	2				
Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)						
	PLO1	PLO2	PLO3	PLO4	PLO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO-1	✓	✓	✓	✓		✓		✓				
CO-2	✓	✓	✓	✓		✓	✓	✓		✓		
CO-3	✓	✓	✓	✓		✓	✓	✓				
CO-4	✓	✓	✓	✓		✓	✓	✓				
CO-5	✓	✓	✓	✓		✓	✓	✓		✓		
Number of matches (✓) = 36 Relationship = High												

<b>SEMESTER - VI</b>	
<b>Course Title</b>	<b>INTERNATIONAL BUSINESS</b>
<b>Total Hrs.</b>	<b>4</b>
<b>Hrs./Week</b>	<b>60</b>
<b>Course Code</b>	<b>21UECO61B</b>
<b>Course Type</b>	<b>DSE-III-B</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

**General Objective:**

To familiarize the students with the concepts of international business

**Course Objectives:**

<b>CO</b>	<b>The learners will be able to:</b>
CO-1	Understand the concepts of international business environment.
CO-2	Identify the concepts of international monetary system
CO-3	Articulate the concept of Balance of Payment and study about flow of goods and services between countries
CO-4	Classify multinational corporations
CO-5	Evaluate foreign direct investment

**UNIT I: International Business:**

Nature, importance, and scope – Mode of entry into international business - Framework for analyzing international business environment – geographical, economic, socio-cultural, political and legal environment. International trade barriers.

**UNIT II: International Monetary and Financial System:**

Importance of international finance; Bretton woods conference and afterward, IMF and the World Bank-ADB-WTO-

**UNIT III: The balance of Payment and International Linkages:**

Balance of payments and its components; the international flow of goods, services, and capital

**UNIT IV: Multinational Corporations:**

Conceptual framework of MNCs; MNCs and host and home country relations; Technology transfers – importance and types.

**UNIT V: Foreign Direct Investment:**

Foreign Direct Investment (FDI) – foreign indirect investment- foreign investment instrument – GDR, ADR.

**TEXTBOOKS:**

1. International Business, Bimal Jaiswal, Himalaya Publishing House, Mumbai.
2. International Business, Paul, Justin, Prentice Hall of India, New Delhi

**REFERENCE BOOKS:**

1. International Business: Text and Cases, Francis Cherunilam, Prentice Hall of India, New Delhi
2. International Business, Sumati Verma, Pearson Education
3. International Business, V.K. Bhalla, S.Chand Publishing
4. Adhikary, Manab, Global Business Management, McMillan, New Delhi.

5. Black and Sundaram, International Business Environment, Prentice Hall of India, New Delhi

6. Aswathappa, International Business, Tata McGraw Hill Publications, New Delhi.

### Course Outcomes

CO	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Understand the international business environment in the current scenario.	1,3	Understanding
CO-2	Discuss about the role of IMF, World Bank, ADB and WTO in initiating international business ventures.	1,3	understanding
CO-3	Chart out the importance of a balanced international trade.	2,3	Applying
CO-4	Categorize the function of Multinational Corporations and their trade relationship with Indian Companies.	1,2,5	Analyzing
CO-5	Justify the Foreign Direct Investment.	2,4,5	Evaluating

### Relationship Matrix

Semester	Course Code	Title of the Course					Hours	Credits				
VI	21UECO61B	INTERNATIONAL BUSINESS					60	4				
Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)						
	PLO1	PLO2	PLO3	PLO4	PLO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO-1	✓		✓		✓	✓		✓				
CO-2	✓	✓	✓			✓		✓				
CO-3	✓		✓		✓		✓	✓				
CO-4			✓	✓	✓	✓	✓					
CO-5		✓		✓	✓		✓		✓			
Number of matches (✓) = 25 Relationship = High												

## SEMESTER – V

<b>Course Title</b>	<b>PERSONALITY DEVELOPMENT</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>4</b>
<b>Course code</b>	<b>21UECS52C</b>
<b>Course Type</b>	<b>DSE II C</b>
<b>Credits</b>	<b>3</b>
<b>Marks</b>	<b>100</b>

### General Objective:

The course aims to help the students learn a self-awareness, self-esteem and self-respect and also overcome social conflicts and schedule the contribution of team work. This course helps to step-up the skills in the region of employability.

### Course Objectives:

<b>CO</b>	<b>The learners will be able to :</b>
CO-1	Create self-awareness, self-esteem and self-respect.
CO-2	Create SELF MONITORING, PERCEPTION, ATTITUDE, ASSERTIVENESS Shine as an exemplary model with impeccable character traits.
CO-3	Set a reasonably challenging goal exerting enough labor and effectively managing time.
CO-4	Build relationships in a world filled with different ideologies, overcome social conflicts, excel in team work and contribute constructively.
CO-5	Exhibit skills and manners required in the place of work and win over the approbation of the employers.

### UNIT -I

PERSONALITY - Definition – Determinants – Personality Traits –Theories of Personality – Importance of Personality Development. SELF AWARENESS - Meaning – Benefits of Self – Awareness – Developing Self – Awareness. SWOT – Meaning – Importance- Application – Components.

## **UNIT – II**

**SELF MONITORING** – Meaning – Advantages and Disadvantages self monitor  
- Self – monitoring and job performance. **PERCEPTION**- Definition- Factor  
influencing perception- Perception process. **ATTITUDE** – Meaning-  
Formation of attitude – Types of attitude – Measurement of Attitudes.  
**ASSERTIVENESS** – Meaning – Assertiveness in Communication –  
Assertiveness Techniques.

## **UNIT – III**

**TEAM BUILDING** – Meaning – Types of teams – Importance of Team  
building- Creating Effective Team. **LEADERSHIP** – Definition – Leadership  
style – Qualities of an Effective leader. **NEGOTIATION SKILLS** – Meaning –  
Principles of Negotiation – Types of Negotiation – The Negotiation Process.  
**CONFLICT MANAGEMENT** – Definition- Types of Conflict- Levels of Conflict.

## **UNIT – IV**

**COMMUNICATION** – Definition – Importance of communication – Process of  
communication – Barriers in communication – Overcoming Communication  
Barriers. **EMOTIONAL INTELLIGENCE**: Meaning – Components of Emotional  
Intelligence- Significance of managing Emotional intelligence. **STRESS  
MANAGEMENT** – Meaning – Sources of Stress – Symptoms of Stress –  
Consequences of Stress – Managing Stress.

## **UNIT – V**

**SOCIAL GRACES** – Meaning – Social Grace at Work – Acquiring Social  
Graces. **TABLE MANNERS** – Meaning – Table Etiquettes in Multicultural  
Environment- Do's and Don'ts of Table Etiquettes. **DRESS CODE** – Meaning-  
Dress Code for selected Occasions – Dress Code for an Interview. **GROUP  
DISCUSSION** – Meaning – Personality traits required for Group Discussion-  
Process of Group Discussion. **INTERVIEW** – Definition- Types of skills –  
Employer Expectations – Planning for the Interview – Interview Questions-  
Critical Interview Questions.

## **References :**

1. Dr.S. Narayana Rajan, Dr. B. Rajasekaran, G. Venkadasalaphi, V. Vijuresh Nayaham and Herald M.Dhas, Personality Development, Publication Division, Manonmaniam Sundaranar University, Tirunelveli
2. Stephan P.Robbins, Organisational Behaviour, Tenth Edition, Prentice Hall of India Private Limited, New Delhi, 2008
3. Jit S. Chandan, Organisational Behaviour, Third Edition, Vikas Publishing House Private Limited, 2008
4. Dr.K.K. Ramachandran and Dr.K.K. Karthick, From Campus to Corporate, Macmillan Publishers India Limited, New Delhi, 2010.



**SEMESTER – IV**

<b>HUMAN RESOURCE MANAGEMENT</b>	
<b>Course Title</b>	<b>HUMAN RESOURCE MANAGEMENT</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>4</b>
<b>Course Code</b>	<b>21UCCO42</b>
<b>Course Type</b>	<b>DSC-X</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

**General Objective:**

To enable the students understand the concepts pertaining to human resources and manpower planning.

**Course Objectives:**

<b>CO</b>	<b>The learners will be able to:</b>
CO-1	Understand the basic concepts of Human Resource Management.
CO-2	Associate themselves with Human Resources Planning and the procedures related to recruitment and selection.
CO-3	Develop knowledge on training and career planning.
CO-4	Determine the modalities in fixing salary and wages.
CO-5	Analyse the methods of performance appraisal.

**UNIT I: Concepts**

Meaning - Definition - Evolution - Nature of HRM – Role – Scope - Importance - Functions of HRM. Human Resource Accounting - meaning-Human Resource Audit-meaning.

**UNIT II: Human Resource Planning**

Manpower Planning-Job analysis -Job Description and Specification- Recruitment-Characteristics and types-Selection Process- Tests and Interviews

**UNIT III: Training and Development**

Introduction-Need and Importance--steps in training-Methods in training-Career Planning and Development-Career counseling, Job rotation - Promotion and transfer- Retirement and other separation process

**UNIT IV: Compensation**

Meaning-Wages and Salary Administration-factors-Wage Policy- Time rate and Piece rate-Bonus, Incentives and Benefits- Compensation administration-development of a sound compensation structure-Grievances Handling and Discipline.

**UNIT V: Performance Appraisal**

Performance Appraisal--Factors affecting Performance Evaluation-PAS (Performance Appraisal System)-Need and Importance- Methods of performance appraisal- 360 Degree Method, Assessment Centre Method, Behaviour Anchored Rating Scale (BARS)

**TEXTBOOKS:**

1. Human Resource Management- L.M.Prasad, Sultan Chand and Sons
2. Human Resource Management - Aswathappa, McGraw-Hill Education.

### REFERENCE BOOKS:

1. Human Resource Management-Dr.C.B.Gupta, Sultan Chand and Sons
2. Personal Management-C.B. Memoria - Himalaya Publishing House-Mumbai
3. Human Resource Management-Randi. L. Decimone, Thomson Learning Third Edition

### Course Outcomes:

CO	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Explain the concepts and functions of Human Resource Management with relevant examples.	1,2	Understanding
CO-2	Discuss the processes involved in recruitment of suitable employees.	1,2	Understanding
CO-3	Develop competence and calibre in training and managing professionals.	1,2	Applying
CO-4	Organise compensation packages funds for employees after evaluating the procedures.	3,4	Analysing
CO-5	Appraise employees' performance and offer remedial measures where needed.	2,4,5	Evaluating

### Relationship Matrix

Semester	Course Code	Title of the Course					Hours	Credits				
IV	21UCCO42	Human resource Management					60	4				
Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)						
	PLO1	PLO2	PLO3	PLO4	PLO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO-1	✓		✓		✓	✓	✓			✓		
CO-2	✓	✓	✓		✓	✓	✓	✓				
CO-3	✓	✓	✓	✓		✓	✓			✓		
CO-4	✓		✓	✓	✓	✓		✓	✓			
CO-5	✓	✓	✓	✓		✓	✓		✓	✓		
Number of matches (✓) = 35 Relationship = High												

SEMESTER - V	
<b>Course Title</b>	<b>HUMAN RIGHTS PERSPECTIVES</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>4</b>
<b>Course Code</b>	<b>21UEHS51B</b>
<b>Course Type</b>	<b>DSE -I-B</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

**General Objective:** To know about the Definition of Human Rights: Nature and its scope and understand the International, National, State Human Rights Commissions.

**Course Objectives:**

CO	The learner will be able to:
CO-1	Understand the Definition of Human Rights
CO-2	Determine the Universal Declaration of Human Rights and International Covenant on Civil and Political Rights
CO-3	Estimate the Non -Governmental Organisations
CO-4	Review on the prisoners' Rights
CO-5	Assess the State Human Rights Commission

**UNIT I - Definition of Human Rights**

Nature and Scope, Content - Theories of Human Rights-Philosophical-Historical - Sociological Perspectives.

**UNIT II-UNO AND HUMAN RIGHTS**

Universal Declaration of Human Rights-International Covenant on Civil and Political Rights - International Covenant on Economic, Social and Cultural Rights.

**UNIT III - Role of NGO's**

Non - Governmental Organisations - Amnesty international - Human Rights Helsinki Declaration - International Human Rights and Courts

**UNIT IV - Contemporary challenges**

Child and Women's Rights - Bonded Labour- Problem of Refugees - Capital punishment - Rights of Prisoners of War

**UNIT V - Human Rights Commissions**

National Human Rights Commission of India and State Human Rights Commissions in India - functions - Problems and Solutions

**Textbooks:**

1. Clapham, Andrew. *Human Rights: A Very short introduction*. Oxford: OUP, 2007.
2. O'Byrne, Darren. *Human Rights: An Introduction*. London & New York: Routledge, 2014.
3. Kanan, Satya, P. *Human Rights Evolution and Development*. New Delhi: Wisdom Press, 2012.
4. Brownlie, Ian, and Guy S. Goodwin-Gill. *Basic Documents on Human Rights*. Oxford: Oxford University Press, 2010.

5. Fagan, Andrew, and Clive S. Smith. *The Atlas of Human Rights: Mapping Violations of Freedom Around the Globe*. Berkeley: University of California Press, 2010.

6. Juss, Satvinder. *Human rights in India*. New York: Routledge, 2021.

**Reference Books:**

1.Sachar, Rajinder. *Human Rights Perspectives and Challenge*. New Delhi:Gyan Publishing Home, 2004.

2.Nirmal, Chiranjivi J. *Human Rights in India: Historical, Social and Political Perspectives*. New Delhi: Oxford University Press, 2010.

3. Symonides, nusz. *Human Rights: New Dimensions and Challenges: Manual on Human Rights*. Brookfield: Ashgate, 1998.

4.Desai. A.R. *Assault on Democratic Rights in Contemporary India*. Bombay: E.G. Shah Memorial Trust Publication, 1985.

5.Ujjwal, Kumar S. *Human Rights and Peace: Ideas, Laws, Institutions and Movements*. New Delhi: SAGE, 2009.

**Course Outcomes**

CO	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Understandthe Definitions of Human Rights and its Perspectives	PSO1	Understanding
CO-2	Summarize the Universal Declaration of Human Rights	PSO4	Understanding
CO-3	Determine the Amnesty international and Human Rights Helsinki Declaration	PSO3	Applying
CO-4	Estimate the Contemporary Challenges of Child and Women’s Rights, Bonded Labour	PSO3	Analysing
CO-5	Review on the National and State Human Rights Commissions in India	PSO3	Evaluating

**Relationship Matrix**

Semester	Course Code	Title of the Course					Hours	Credits			
V	21UEHS51B	Human Rights Perspectives					60	4			
Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)					
	PLO1	PLO2	PLO3	PLO4	PLO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO-1	✓	-	✓	✓-	-	✓	-	✓	✓	-	
CO-2	✓	✓		✓	-	✓	-	✓	-	✓	
CO-3	✓	✓	✓		✓	✓	✓	✓	✓	-	
CO-4	✓	-	✓	✓	✓	✓	-	✓	-	✓	
CO-5	✓	✓	✓			✓	-	✓	✓	-	
Number of matches (✓) =33 Relationship = Medium											

<b>Course Title</b>	<b>SOFTWARE ENGINEERING</b>
<b>Total Hrs.</b>	<b>75</b>
<b>Hrs./Week</b>	<b>5</b>
<b>Course code</b>	<b>21UCCS51</b>
<b>Course Type</b>	<b>DSC-XI</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

**General Objective:**

The course aims to develop a broad understanding of the software engineering discipline with a detailed knowledge of techniques for analyzing and designing complex software-intensive systems.

**Course Objectives:**

<b>CO</b>	<b>The learners will be able to :</b>
CO-1	Understand the discipline of software engineering.
CO-2	Understand project management and its requirements.
CO-3	Application of system models.
CO-4	Understand the concept of real-time software.
CO-5	Understand the user interface, design, application, and testing in real-time projects.

**Unit - I**

Introduction - What is Software - What is Software Engineering - Software Process - software Process model - software engineering methods. Emergent system properties - systems engineering - system requirements - system design - system modelling - sub-system development - system integration - system evolution - system decommissioning - system procurement. Software processes: Software Process models: the waterfall model - Evolutionary development - Spiral development - CASE

**Unit - II**

Project Management - Management activities - Project Planning - Milestones and Deliverables - Project Scheduling - Bar charts and activity networks. Software requirement : Functional and non-functional requirements - Domain requirements - User requirements - System

requirements – Structured language specification - Software Requirements Document(SRS) .

**Unit – III**

System Models – Context models – Behavioural models – Data-flow models – State machine models. Architectural Design - System Organisation - Repository model – Client-server model – Layered model

**Unit – IV**

Real time software - System design – Real-time operating systems – Monitoring and control systems – Data Acquisition systems. User Interface design: User Interface design issues – User Interface design process - User Interface prototyping - interface evaluation .

**Unit - V**

Verification and Validation – Software inspections. Clean – room software development. Software testing: System testing – Integration testing – Release testing - Performance testing –Component testing – Interface Testing. Software cost estimation: Algorithmic cost modeling – The COCOMO model. Quality management: Process and product quality – Software measurement and metric.

**Textbooks:**

Software Engineering, IAN SOMMERVILLE, 8th Edition, Pearson Education Asia.

UNIT I - Chapters 1.1,2.1,2.2,4.1,4.2,4.3,4.5

UNIT II - Chapters 5,6.1,6.2,6.3,6.5

UNIT III – Chapters 8.1,8.2,11, UNIT IV – Chapters 15,16

UNIT V - 22 , 23.1, 23.2 , 26.1 , 26.2, 26.3 , 27.1,27.3,27.4,27.5

**Reference Book:**

Software Engineering Theory and Practices, Shari Lawrence Pfleeger, 8<sup>th</sup>Edition, Pearson Education Asia.

**Course Outcomes**

CO	Upon completion of the course, the students will be able to :	PSOs Addressed	Cognitive Level
CO-1	Understand the system requirements and software process model	1,3	Understanding
CO-2	Explain project management its requirements and project scheduling	1,3	Understanding
CO-3	Illustrate system models and their types	1,3	Applying
CO-4	Analyzing data acquisition models and user interface prototyping	1,3	Analyzing
CO-5	Evaluate the techniques of Verification and Validation and quality management techniques	1,3,5	Evaluating

## SEMESTER – V

<b>Course Title</b>	<b>ARTIFICIAL INTELLIGENCE</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>4</b>
<b>Course code</b>	<b>21UECS52B</b>
<b>Course Type</b>	<b>DSE-II-B</b>
<b>Credits</b>	<b>3</b>
<b>Marks</b>	<b>100</b>

### General Objective:

The course aims to help the students learn the basic principles, models, and algorithms of AI to recognize, model, and solve problems in analyzing and designing information systems. Analyze the structures and algorithms of various techniques related to searching, reasoning, machine learning, and language processing.

### Course Objectives:

<b>CO</b>	<b>The learners will be able to :</b>
CO-1	Understand the concept of Artificial Intelligence.
CO-2	Apply the concept of knowledge reasoning and planning.
CO-3	Analyze the concept of Natural Language Processing.
CO-4	Develop Perception.
CO-5	Develop the concept of Robotics.

### UNIT I

**Introduction:** What Is AI? - **Intelligent Agents:** Agents and Environments - Good Behavior: The Concept of Rationality-Structure Of Agent - **Problem Solving:** Problem Solving Agents-Searching for Solutions - Uninformed Search Strategies - Informed (Heuristic) Search Strategies- Heuristic Function.

## UNIT II

**Knowledge Reasoning and Planning: Local Agents:** Knowledge-Based Agents – Logic - Propositional Logic-**First Order Logic:** Syntax And Semantics of First Order Logic-Using First Order Logic

## UNIT III

**Natural Language Processing:** Language Models - Text Classification - Information Retrieval - Information Extraction - **Natural Language Communication:** Phrase Structure Grammars-Syntactic Analysis (Parsing)- Machine Translation-Speech Recognition

## UNIT IV

**Perception:** Image Formation-Early Image-Processing Operations-Object Recognition by Appearance-Reconstructing The 3d World-Object Recognition from Structural Information-Using Vision

## UNIT V

**Robotics:** Introduction- Robot Hardware- Robotic Perception- Planning to Move- Planning Uncertain Movements- Moving- Robotic Software Architectures- Application Domains

### Textbook :

“Artificial Intelligence-A Modern Approach” by Stuart J. Russell and Peter Norvig, 3<sup>rd</sup> Edition, 2010, Pearson Publication

### Course Outcomes

CO	Upon completion of the course, the students will be able to :	PSOs Addressed	Cognitive Level
CO-1	Understand the concept of Artificial Intelligence.	1,4,5	Understanding
CO-2	Apply the concept of knowledge reasoning and planning in AI.	1,5	Applying
CO-3	Analyze the concept of Natural Language Processing and Communication in AI.	1,4,5	Analyzing
CO-4	Solve real-world organizational processes and workflows problems by applying critical thinking, problem-solving, and cognitive computing skills.	1,4,5	Creating
CO-5	Develop robotic process automation to manage business processes and to increase and monitor their efficiency and effectiveness.	1,4,5	Creating



<b>Course Title</b>	<b>DATA MINING</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>4</b>
<b>Course code</b>	<b>21UECS61B</b>
<b>Course Type</b>	<b>DSE-III-B</b>
<b>Credits</b>	<b>3</b>
<b>Marks</b>	<b>100</b>

**General Objective:**

The course aims to introduce to students the data mining principles and techniques and acquaint the students with different data mining techniques with basic terminologies and modeling and analyze and produce reports/memos of any large sets of data of any business to make decisions and demonstrate basic data mining algorithms, methods, and tools.

**Course Objectives:**

<b>CO</b>	<b>The learners will be able to :</b>
CO-1	Understanding the basic concepts of Data Warehouse and Data Mining techniques
CO-2	Examine the types of data to be mined and apply pre-processing methods to raw data
CO-3	Explain the designing of Data Warehousing schema for applications
CO-4	Predict interesting patterns, analyze supervised and unsupervised models, and estimate the accuracy of the algorithms.
CO-5	Design various tools of Data Mining and their techniques to solve real-time problems and to develop the ability to design various algorithms based on data mining tools.

**UNIT I**

**Introduction:**What is Data Mining-Data Mining Applications – Data Mining Techniques-**Data Understanding and Data Preparation** - Introduction-Data Collection and Pre-Processing - Types of Data – Displaying Data Graphically

**UNIT II**

**Association Rules Mining:** Basics – The task and a Naïve Algorithm–The Apriori Algorithm –Improving the efficiency of the Apriori Algorithm–Apriori TID–Direct has hing and pruning–Dynamicitem setcounting–Mining frequent patterns without candidate generation –

Performance evaluation of algorithms-Software for association rule mining.

### UNIT III

**Classification:** Decision tree - Building a decision tree - The tree induction algorithm - Split algorithm based on information theory - Split algorithm based on the Gini index - Over fitting and Pruning - Decision tree rules - Naïve Bayes Method - Estimating predictive accuracy of classification methods - Improving accuracy of classification methods - Other evaluation criteria for classification methods - Classification software.

### UNIT IV

**Cluster analysis:** Introduction- Desired features of cluster analysis - Types of cluster analysis methods - Partitional methods - Hierarchical methods - Density-based methods - Dealing with large databases - Quality and validity of cluster analysis methods - Cluster analysis software - **Web Data Mining:** Web terminology and characteristics - Locality and hierarchy in the Web - Web content mining - Web usage mining - Web structure mining - Web Data Mining - Web terminology and characteristics - Locality and hierarchy in the Web - Web content mining - Web usage mining - Web structure mining - Web mining software

### UNIT V

**Search Engines and Query Mining:** Introduction - Search Engine Functionality - Search Engine Architecture - Ranking of Web pages - Search Query Mining - Data Warehousing Introduction - Data warehouse design - Data warehouse Metadata - **OLAP:** Introduction - Multidimensional View and Data Cube - OLAP Software.

#### Textbook:

“Introduction to Data Mining with Case Studies” by G.K. Gupta, 2<sup>nd</sup> Edition, 2008, Prentice Hall Publications.

#### Reference book:

“Data Mining Techniques”, Arun K. Pujari, 1<sup>st</sup> Edition, 2001, Universities Press (India) Private Limited.

## SEMESTER - VI

<b>Course Title</b>	<b>INTERNET OF THINGS</b>
<b>Total Hrs.</b>	<b>30</b>
<b>Hrs./Week</b>	<b>2</b>
<b>Course code</b>	<b>21USCS61</b>
<b>Course Type</b>	<b>SEC-V</b>
<b>Credits</b>	<b>2</b>
<b>Marks</b>	<b>100</b>

### General Objective:

The course aims to provide an overview of an Internet of Things & enabling technologies and design IoT applications using the generic methodology of IoT.

### Course Objectives:

<b>CO</b>	<b>The learners will be able to :</b>
CO-1	Discover the IOT level in real time challenges.
CO-2	Illustrate the concept of IOT application in specific domain such as Agriculture, Home, etc.,
CO-3	Analyze the concept of IOT and Machine-to-Machine.
CO-4	Design an IOT application.
CO-5	Manage the functions of Raspberry Pi model.

### UNIT - I : INTRODUCTION TO IOT

Internet of Things - Physical Design - Logical Design - IoT Enabling Technologies - IoT Levels & Deployment Templates

### UNIT - II : DOMAIN SPECIFIC IOTs

Introduction - Homes - Cities - Environment - Agriculture - Industry

### UNIT - III : IoT and M2M

Introduction - M2M - Difference between IoT and M2M

## UNIT – IV : DEVELOPING INTERNET OF THINGS

Introduction - IOT Design Methodology

## UNIT - V : IOT PHYSICAL DEVICES AND END POINTS

What is an IoT Device - Basic building blocks of an IoT Device -  
Exemplary Device:Raspberry Pi

### Textbook:

ArshdeepBahga, Vijay Madiseti, –Internet of Things – A hands-on approach  
Universities Press, 2015

### Reference book:

“Getting Started with Internet of Things” – Cuno Pfister

### Course Outcomes

CO	Upon completion of the course, the students will be able to :	PSOs Addressed	Cognitive Level
CO-1	Understand the basic concepts of IoT and enabling Technologies	1,2,3,5	Understanding
CO-2	Construct the Domain Specific IoTs	1,2,3,5	Applying
CO-3	Distinguish the functions of IoT and M2M	1,2,3,5	Analyzing
CO-4	Estimate the concept of IoT Design Methodology	1,2,3,5	Evaluating
CO-5	Create an IoT application using the Raspberry Pi model	1,2,3,5	Creating

### Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credits						
VI	21USCS61	Internet of Things	30	2						
Course Outcomes (COS)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓	✓	✓	✓	✓	✓	✓		✓
CO-2	✓	✓	✓	✓	✓	✓	✓	✓		✓
CO-3	✓	✓	✓	✓	✓	✓	✓	✓		✓
CO-4	✓	✓	✓	✓	✓	✓	✓	✓		✓
CO-5	✓	✓	✓	✓	✓	✓	✓	✓		✓
Number of matches (✓) = 45 Relationship = Low/Medium/ <b>High</b>										

**SEMESTER - I**

Course Title	PRINCIPLES OF MANAGEMENT
Total Hrs	75
Hrs/Week	5
Course Code	21UCBA11
Course Type	DSC-I
Credits	4
Marks	100

**General Objective:**

The Course focuses on management principles, functions and techniques in running an organisation successfully.

**Course Objectives:**

CO	The learners will be able to:
CO-1	Understand the fundamentals of management.
CO-2	Classify the various forms of business organisation.
CO-3	Establish the requirements of human resource for an organisation.
CO-4	Appraise the performance of subordinates in an organisation.
CO-5	Consider and control techniques in order to rectify business related issues.

**Unit I: Management**

Definition of management – Science or art or profession – Manager Vs Entrepreneur – Managerial Skills – Levels of management – Managerial skills and organizational Hierarchy – The emergence of Management thought – Frederick W. Taylor, Henri Fayol and Elton Mayo.

**Unit II: Planning**

Importance of Planning - Types of Plans – Steps in planning - Nature and objectives of planning – Hierarchy of objectives – Setting objectives and the organizational Hierarchy – Management by Objectives (MBO) – Benefits of MBO.

### **Unit III: Organizing**

Nature and Purpose – Formal and Informal Organisation – Organisation chart – Organisation structure – Types – Line and Staff authority – Departmentalization – delegation of authority – Centralization and decentralization.

### **Unit IV: Staffing**

Importance – Situational factors affecting staffing – Internal and External factors – Recruitment – Sources of recruitment – Selection – Process of selection – Training and Development.

### **Unit V: Directing and Controlling**

Meaning and Nature of Directing – Elements of Directing – Importance of directing – Basic Control Process or Steps – Budgetary and Non budgetary control Techniques – Use of Computer and IT in Management control.

### **Text Book:**

1. Harold Koontz and Heinz Weihrich, *Essentials of Management: An International & Leadership Perspective*, 8th edition, Tata McGraw-Hill Education, 2016.

### **Reference Books:**

1. Don Hellriegel, Susan E. Jackson and John W. Slocum, *Management- A Competency Based Approach*, Thompson South Western, 11th edition, 2008.
2. Heinz Weihrich, Mark V Cannice and Harold Koontz, *Management- A global entrepreneurial perspective*, Tata McGraw Hill, 12th edition, 2008.
3. Stephen P. Robbins, David A. DeCenzo and Mary Coulter, *Fundamentals of management*, Prentice Hall of India, 2012.

## SEMESTER – I

<b>Course Title</b>	<b>MANAGERIAL COMMUNICATION</b>
<b>Total Hrs.</b>	<b>75</b>
<b>Hrs./Week</b>	<b>5</b>
<b>Course Code</b>	<b>21UCBA12</b>
<b>Course Type</b>	<b>DSC-II</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

### General Objective:

The Course facilitates the learners to develop adequate communication skills for effective business correspondence.

### Course objectives:

<b>CO No.</b>	<b>The learners will be able to:</b>
CO-1	Understand the process and barriers of effective communication.
CO-2	Rewrite the layout of business letters.
CO-3	Practice the format of business letters, applications and their importance
CO-4	Categorize the types of report writing prior to drafting business reports.
CO-5	Choose techniques and tools to promote judicious and efficient utilization of electronic media.

### UNIT – I Introducing communication and media

Communication – Meaning- Process and Significance – Objectives – Principles –Types – Media – verbal communication-non verbal communication-Barriers of Communication – The making of effectivecommunication.

### UNIT – II Business Correspondence

Correspondence – need-functions –business letter – need-function and Kinds of Business Letters – Layout of Business Letters – mechanical structure-style format and punctuation

**UNIT – III Business Letters formation and Application**  
 Enquiry and Reply –Offers and Quotations – important terms used in  
 Offers and Quotations- Orders – Execution of order and Cancellation of  
 order- Complaints-Claims and Adjustments – Collection Letters – Sales  
 Letters – Circular Letters.

**UNIT – IV Report writing and preparing**  
 Report writing- importance of reports-contents – features of good report  
 writing- Types and forms of reports – preparing a report –organization of  
 report- characteristics of good report-Specimen of Reports.

**UNIT – V Electronic communication**  
 Modern means of E-Communication – Internet – E-Mail – Video  
 conferencing– Social Media Communications – Ethical ways of using  
 social media for communication.

**BOOKS FOR REFERENCE:**

1. R.C.Sharma, Krishna Mohan – Business Communication, Tata McGraw Hills, 2012
2. Urmila Rai – Business Communication, Himalaya Publishing House,2015.

**Course Outcomes**

CO No.	Upon completion of the course, The students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Gain adequate knowledge in business correspondents and obtain the skills required for writing business letters.	1,2,3	Understanding/ Applying
CO-2	Categorize the formats of business letters, their applications and importance	1,2,3	Applying/ Analysing
CO-3	Discover soft skills in particular business etiquette.	1,2,3	Applying
CO-4	Prepare good business letters and reports	1,2,3	Creating
CO-5	Construct suitable e-communication models to become skilled communicators.	1,2,3	Creating



## SEMESTER - II

Course Title	ORGANIZATIONAL BEHAVIOUR
Total Hrs.	75
Hrs./Week	5
Course Code	21UCBA21
Course Type	DSC-III
Credits	4
Marks	100

### General Objective:

The general objectives of the course are designed to focus on the BBA students:

1. To understand the behavioural theories & patterns in an organization
2. To know the motivational theories & factors that will shape the personality traits
3. To get along with the working culture of an organisation

### Course Objectives:

CO	The learner will be able to:
CO-1	To comprehend the theories involved to identify an individual's behavioural pattern in an organization.
CO-2	To know the different types of personality & leadership styles.
CO-3	To realize the significance of motivation & various motivational theories.
CO-4	To accustom to the various organizational culture & its significance.
CO-5	To examine the different methods of conflict resolution with its merits & demerits

### Unit - I

#### Introduction to Organizational Behavior

Organizational Behaviour - Definition- Disciplines contribute to  
Organizational Behaviour - Key elements of Organizational Behaviour -  
Hawthorne experiments- Organizational Behaviour Models-Autocratic,  
custodial, supportive, collegial.

## **Unit - II**

### **Individual Behavior**

Foundations of Individual Behaviour – Ability, Intellectual, Physical. Learning-Theories-Classical conditioning theory, Operant conditioning theory. Perception-factors-process

## **Unit - III**

### **Personality**

Personality-Determinants- Big Five Model Theory. Leadership –Distinction between a Leader and a Manager – Styles of Leadership – Leadership Theory Transformational – Transactional.

## **Unit - IV**

### **Group Behavior**

Motivation – Importance – Methods – Monetary – Non-Monetary-Theories of motivation – Maslow's Hierarchy Need Theory - Herzberg Two Factor Theory. Groups in Organisation Foundations of group behaviour -Stages of group development – Decision Making and the groups.

## **Unit - V**

### **Culture and Conflict**

Organizational culture - Importance of culture – Types of culture - Conflict and Negotiation-Conflict process – Conflict Resolution – Transactional Analysis - Bargaining strategies – WLB (Work Life Balance).

### **Textbooks:**

1. Stephen P. Robins, Timothy, A. Judge and Neharika Vohra, Organisational Behavior, PHI Learning / Pearson Education, 15th edition, 2013.

### **Reference Books:**

1. Fred Luthans, Organisational Behavior, McGraw Hill, 11th Edition, 2001.
2. Mc Shane & Von Glinov, Organisational Behaviour, 4th Edition, Tata Mc Graw Hill, 2007.
3. Nelson, Quick, Khandelwal. ORGB – An innovative approach to learning and teaching. Cengage learning, 2nd edition.

**SEMESTER - III**

<b>Course Title</b>	<b>MARKETING MANAGEMENT</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>4</b>
<b>Course Code</b>	<b>21UCBA32</b>
<b>Course Type</b>	<b>DSC-VI</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

**General Objective:**

1. To fulfil the customer requirements i.e., needs and wants through various marketing tools and techniques.
2. To create a marketing mix strategies for gaining the competitive advantage and core competence for surviving in the market.
3. To understand the abstract foundations of Marketing Management as a useful space for the business.

**Course Objectives:**

<b>CO</b>	<b>The learner will be able to:</b>
<b>CO-1</b>	To Understand the basic concept of marketing management
<b>CO-2</b>	To inculcate the knowledge about Product, its Life Cycle and Methodology of New Product Development.
<b>CO-3</b>	To realize the pricing methods and its strategies for products among the students.
<b>CO-4</b>	To know about the different marketing channels for distribution of the produced goods and rendering services from producers to customers.
<b>CO-5</b>	To Evaluate the best promotional tools for marketing product and services.

## **UNIT I**

Marketing – Definition – Concepts of marketing – Significance  
- Segmenting, Targeting and Positioning, Marketing Mix.

## **UNIT II**

Product Mix-Product characteristics and classification-  
Product Life Cycle and New product development. Branding,  
Packaging and Labeling

## **UNIT III**

Pricing – Importance – objectives-Factors affecting pricing  
Decision- Kinds of pricing – steps in pricing.

## **UNIT IV**

Marketing Channels – Channels of Distribution - Nature of  
Channels - Wholesaling-Retailing - Role of Marketing channels.

## **UNIT V**

Promotional Mix- Advertisements - Sales Promotion-Public  
Relation- Direct Marketing -Personal Selling – Recent Trends in  
Marketing– Relationship Marketing and its importance –  
GreenMarketing

## **Text Book**

Kotler, P., Keller, K. L., Manceau, D., & Dubois, B. (2016). Marketing  
Management, 15e édition. *New Jersey: Pearson Education.*

## **Reference Books:**

1. Berkoviz Kerin Hontley Rudelivs, MARKETING, New York, Mcgraw Hill
2. Kotler, P. (1997). Gary Armstrong. *Principles of marketing.*
3. Rajan Saxena, Marketing Management, 2nd edition, New Delhi, Tata Mcgraw Hill Publishing Co.Ltd.

## Semester - IV

<b>Course Title</b>	<b>OFFICE MANAGEMENT</b>
<b>Total Hrs.</b>	<b>30</b>
<b>Hrs./Week</b>	<b>2</b>
<b>Course Code</b>	<b>21UNBA41</b>
<b>Course Type</b>	<b>NME-II</b>
<b>Credits</b>	<b>2</b>
<b>Marks</b>	<b>100</b>

### General Objective:

To give on hand knowledge on the issues related to office environment. The students should become familiar with modern office mechanism for conducting business transactions through electronic office appliances.

### Course Objectives:

<b>CO</b>	<b>The learner will be able to:</b>
CO-1	Demonstrate the fundamentals of office functions and office management
CO-2	Show the features of office accommodation and environment
CO-3	Identify the concepts of office appliances and office maintenance
CO-4	Analyse ethics in report writing and report maintenance
CO-5	Develop system enabled solutions for Office Service and Supervision

### Unit I: Office and Office Management

Office- Meaning - Features - Importance - Functions of office - Modern office-Principles of modern office management and organization- Office Management - Nature, Functions and Scope - Office Manager - Functions and Qualification - Centralization vs. decentralization of office services.

### Unit II: Office Accommodation and Environment

Office Accommodation - Principles - Location of an office - office Layout - Office furniture - Office Environment working conditions - Requirements Selection of site-Qualifications and qualities of office manager-The status of office manager in total organization- The authorities and responsibilities of an office manager.

### **Unit III: Office Appliances and Office Maintenance**

Office appliances-types of commonly used appliances- office Machines and Equipments- objectives of using machines- types of machines -office stationary and Supplies- Office Safety and Security – Meaning- importance of office Safety-safety hazards and steps to improve office safety.

### **Unit IV: Office Records Management**

Records –classification of regards-principles of record keeping-Meaning, importance of record keeping management-types of records kept in a business organization Filing – Essentials of a good filing system- Classification of filing system - Indexing – Meaning – objects – Indexing types.

### **Unit V: Office Service and Supervision**

Office service- centralization and decentralization- advantages – disadvantages- modern office department -measurement of office work – importance- purpose - difficulty in measuring office work- different ways of measurement - setting of work standards - benefits of work standards. Office supervision and Control –characteristics of supervision -effective supervision.

### **Text & Reference Books:**

1. B.N.Tandan, Manual of Office Management and Correspondence, S.Chand & Co., New Delhi
2. R. K. Chopra, Office Organisation and Management, Himalaya Publishing House, Mumbai

### **Course Outcomes**

<b>CO</b>	<b>Upon completion of the course, The students will be able to:</b>	<b>PSOs Addressed</b>	<b>Cognitive Level</b>
CO-1	Understand the modern office and office management and get aware of the duties to the office manager	1,2,3	Understanding
CO-2	Experiment with the Office Environment and Illustrate the working conditions	1,2,3	Applying
CO-3	Examine the different measures of office maintenances and office appliances and the steps to improve office safety.	1,2,3	Analyzing
CO-4	Perceive an idea about proper filing and indexing of office documents	1,2,3	Evaluating
CO-5	Develop different methods to measure the office Service and Supervision	1,2,3	Creating

**SEMESTER - V**

<b>Course Title</b>	<b>BUSINESS LAW</b>
<b>Total Hrs.</b>	<b>75</b>
<b>Hrs./Week</b>	<b>5</b>
<b>Course Code</b>	<b>21UCBA51</b>
<b>Course Type</b>	<b>DSC-XII</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

**General Objective:**

To provide in-depth knowledge of the law of contracts and the legal framework influencing Business Operations

**Course Objectives:**

<b>CO</b>	<b>The learner will be able to:</b>
CO-1	Understand the concepts and classification of contracts
CO-2	Enlighten the students on the valid contract and legal aspects of business
CO-3	Acquire knowledge on the performance, discharge and remedies of breach of contract
CO-4	Explain the law of agency ,the rights and duties of an agent
CO-5	Create knowledge on the legal aspects in bailment

**UNIT - I**

Introduction – Contract– Essential elements – Kinds of Contracts – Void, Voidable and Valid Agreement –Contingent Contract – Offer and Acceptance.

**UNIT - II**

Consideration – Capacity of Parties – Free Consent – Legality of Object – Void Contracts.

**UNIT -III**

Performance of Contracts – Discharge of contracts – Remedies for Breach of contract.

**UNIT - IV**

Law of Agency– Modes of creation – Rights and Duties of an Agent – Agency by Ratification – Sub-Agent and Substituted Agent – Termination of Agency.

## UNIT - V

Bailment- Features - Rights, duties of Bailor and Bailee- fundamentals in Sale of Goods Act-Unpaid seller-caveatemptor.

### TEXTBOOK RECOMMENDED:

N.D. Kapoor – Elements of Mercantile Law, Sultan Chand & Sons.

### BOOKS FOR REFERENCE:

1. Davar – Mercantile Law, Progressive Corporation.
2. R.S.N.Pillai and Bhagavathi–Business Law, Sultan Chand & Sons.
3. M.C.Shukla–Mercantile Law, S.Chand & Co.

### Course Outcomes

CO	Upon completion of the course, The students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Understand the concept and fundamentals of valid agreements	1,3,4	Understanding
CO-2	Analyse the capacity of parties and legality of objects	3,4	Analysing
CO-3	Asses the performance, discharge, and remedies breach of contracts.	3,4	Applying
CO-4	Develop the agency procedures and rights & duties of an agent.	3,4	Applying
CO-5	Create knowledge in bailment and sale of goods act	3,4	Creating

### Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credits						
V	21UCBA51	BUSINESS LAW	75	4						
Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓		✓	✓	✓	✓		✓		
CO-2	✓		✓	✓	✓	✓		✓	✓	
CO-3	✓		✓	✓	✓			✓	✓	
CO-4	✓		✓	✓				✓	✓	
CO-5	✓		✓	✓				✓	✓	
Number of matches (✓) =29 Relationship = Medium										



## SEMESTER – VI

<b>Course Title</b>	<b>COMPENSATION MANAGEMENT</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>4</b>
<b>Course Code</b>	<b>21UEBA61B</b>
<b>Course Type</b>	<b>DSE -IIIB</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

### General Objective:

The general objectives of the course are designed to prepare the BBA students to be familiar with the compensation rules and to understand the various theories of wage fixation. It also helps them to know about the benefits entitled to the workforce.

### Course Objectives:

<b>CO</b>	<b>The learner will be able to:</b>
CO-1	Categorize the different theories of compensation in an organization
CO-2	Know about the different models of determining wages in organisation
CO-3	Examine the different methods of remunerating labour
CO-4	Identify the types of fringe benefits available to the employees
CO-5	Understand the benefits entitled to the workforce

### Unit - I

Introduction – Compensation – Compensation Management – Definition-Objectives of Compensation Management-Principles of Compensation Management-Stakeholders in Compensation Management-Process of Compensation Management

### Unit – II

Compensation Theories-Economic theories – Behavioural Theories-Factors influencing Compensation Management- – Equity in Compensation

Management-Concepts of Job Evaluation- Objectives of Job Evaluation-  
Process of Job Evaluation-Techniques of Job Evaluation

### **Unit - III**

Wage Determination Models-Internal Labour Market Model, Insider-  
Outsider Model, Human Capital Model, Matching Model, Competitive Model-  
Determinants of Compensation-Designing Compensation Structure-  
Compensation systems planning-Designing a Compensation System.

### **Unit - IV**

Meaning of Wages & Salaries -Methods of Remunerating Labor-Time  
rate System-Advantages & Disadvantages -Piece Rate System- Advantages &  
Disadvantages -Different Incentive Plans- Methods of Remunerating  
Employees-Factors affecting Wages & Salary structure.

### **Unit - V**

Fringe Benefits – Definition - Types of Fringe Benefits - Voluntary  
Benefits – Statutory Benefits– Stock Based Compensation-Kinds of Stock  
Based Compensation-Methods to measure Stock Based Compensation-  
Activities involved in Stock Based Compensation –Executive Compensation-  
Principles of Executive Compensation.

### **Textbook:**

1. Essentials of Human Resource Management & Industrial Relations –  
P.SubbaRao., Himalaya Publishing House.

### **Reference Book:**

1. A Text book of Human Resource Management – C.B.Mamoria.,  
S.V.Gankar., Himalaya Publishing.

### **Web Reference:**

1. Eppgpathshala-  
<https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=1610>

## SEMESTER - III

Course Title	FUNDAMENTALS OF COMPUTING AND SECURITY
Total Hrs.	30
Hrs./Week	2
Course Code	21USFC31
Course Type	SEC-I
Credits	2
Marks	100

### General Objectives:

Introduce the fundamentals of computing devices and particularly with respect to personal use of computer hardware and software, the Internet, Cyber Crime and Cyber Security.

### UNIT I Fundamental of Computers

The Role of Computers in Modern Society - Block Diagram of Digital Computer - Working Principle of Computer - Hardware-Software- Types of Software - Operating system-Definition-Single user and multi-user operating system-Time sharing-multitasking-multiprogramming-Batch Processing-on-line processing-spooling.

### UNIT II Microsoft Office Package

Basics of Office Automation Tools - Microsoft Word: Create Documents - Edit and Format Documents - Microsoft Excel: Create Worksheet - Edit and Filter - Microsoft PowerPoint: Create Presentation - Edit and format Presentation - Microsoft Access: Create Database and Table - Designing database.

### UNIT III Networks

Components of a Communication System - Types of Networks : Local Area Network - Metropolitan Area Network - Wide Area Network - Wireless and Wired Network - Network Topologies - World Wide Web (WWW) - Client - Server Computing.

## **UNIT –IV Cyber Security for ICT**

Information and Communication Technology: Introduction-Basics of ICT- Ethical & Social Issues in ICT -Digital Citizenship-Elements of Digital Citizenship- Need for Cyber Security

## **UNIT –V Cyber Crime & Cyber Security**

Cyber Crime: Introduction--Types of Cyber Crime-Security Issues: Threats-Attacks-Vulnerabilities - Cyber Space-Security Services - Cyber Security: Definition, Key Concepts, Fundamentals, Cyber Challenges and Ethics.

### **Textbooks:**

1. Cyber Crime & Cyber Security – “Unit IV and V , Dr. S. Shajun Nisha,PG and Research Department of Computer Science “.

### **Reference Book:**

1. Fundamentals of Computers, by V.Rajaraman, PHI, Fifth Edition, April 2010.
2. Microsoft Office – Complete Reference – BPB Publication
3. “Introduction to Data communication and networking” – Behrouz Forouzan- Tata McGraw Hill 2<sup>nd</sup> Edition, 2006.

## SEMESTER - V

<b>Course Title</b>	<b>E-COMMERCE</b>
<b>Total Hrs.</b>	<b>75</b>
<b>Hrs./Week</b>	<b>5</b>
<b>Course Code</b>	<b>21UCBA52</b>
<b>Course Type</b>	<b>DSC-XIV</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

### General Objective:

1. To describe the major themes underlying the study of e-commerce in the modern era.
2. To analyze the pros and cons of electronic based business environment.
3. To know the strong physical infrastructure for safety use of electronic devices

### Course Objectives:

<b>CO NO.</b>	<b>The learner will be able to:</b>
CO-1	Access the various modes of e-commerce and its benefits to the organization and the customers.
CO-2	Analyze the growth of Mobile Commerce and its application for the ease of doing the business.
CO-3	Realize the impact of various electronic data interchange tools and standards for smooth business transactions in the technological world.
CO-4	Assess the various risks involved in handling electronic based business environment in the modern era
CO-5	Summarize the legislative acts towards supporting e-commerce for the business and its environment.

### UNIT I

Welcome to Electronic Commerce - Introduction, Concepts of B2B, B2C, C2C, B2G; benefits of E-Commerce to Organization, Consumers. The Network infrastructure for E-Commerce-Electronic Payment Applications.

## **UNIT II**

M-Commerce(Mobile Commerce) – Growth of M-Commerce – Wireless Applications – Technologies for M-Commerce – GPRS – Wireless Technologies (CDMA & GSM) – Generations in Wireless Communication – Security Issues in CellularTechnology.

## **UNIT III**

Electronic Data Interchange-Definition - Benefits of EDI- EDI Application in Business –Un/EDIFACTS Standard.

## **UNIT IV**

Security on Internet – Network and WebsiteSecurity Risks – Security incidents on Internet – Security and Email – Firewall Conceptsand Constituents–Benefits–SecurePhysicalInfrastructure.

## **UNIT V**

E- Commerce in India- The Internet in India-Laws for E-Commerce inIndia.

### **Text Book:**

1. Kamlesh, B., &Debjani, N. (1999). E-commerce: the cutting edge of business.

### **Reference Books:**

1. S.Jaiswal: Doing Business on the Business on the Internet commerce, Galgotia Publication,2011.
2. David Whitely:E-Commerce, Tata McGraw Hill Publications Co. Ltd., New Delhi, 2010.
3. Jaffrey F.Rayport: E-Commerce, Tata McGraw Hill Publications Co. Ltd., New Delhi,2012

## SEMESTER – 1

Knowledge Processing and Retrieval – Classification (Theory)	
Course Title	60
Total Hrs.	4
Hrs. Week	21UC1S13
Sub.Code	DSC-III
Course Type	4
Credits	100
Marks	

### General Objective:

To understand the role of Library classification in knowledge organization, mode of formation of subjects in the universe of knowledge, and various concepts, theories and principles in classification.

### Course Objectives:

The learner will be able to	
CO	
CO-1	Understand the nature and attributes of universe of knowledge and basic concepts of Library Classification
CO-2	Interpret the meaning, purpose, functions, theories and canons of library classification and elaborate meaning and types of subjects and modes of subject formation.
CO-3	Explain the fundamental categories and devices in library classification
CO-4	Construct Call number with reference to various facet notation.
CO-5	Estimate the characteristics, merits and demerits of different species of library classification schemes with reference to major classification schemes and recent developments in library classification

### Unit 1: Library Classification

Universe of Knowledge: Nature, Attributes - Subject: Meaning, Types (Basic, Compound, Complex) Library Classification: Concepts, Terminology, Need Purpose and Functions  
Species of classification Schemes – History and Development of Library Classification -  
Universe of Knowledge as Mapped in Different Classification Schemes

### Unit 2: Theory of Library Classification

General Theory – Descriptive Theories of J. D. Brown, E. C. Richardson, E. W. Hulme, W.C. B. Sayers, H. E. Bliss.

Dynamic Theory: S. R. Ranganathan – Normative Principles for various levels – Basic Laws, Fundamental Laws, Canons, Postulates, Principles of facet sequence, Principles of Helpful Sequence.

### Unit-3: Approaches to Library Classification

Postulational Approach and Systems Approach, Fundamental Categories, Facet Analysis and Fact Sequence, Phase Relation and Common Isolates, Devices in Library Classification -  
Modes of Formation of subjects.

### Unit-4: Notation and construction of Classification Number

Notation: Meaning, Need, Functions, Types, Qualities, Call number: Class Number, Book Number and Collection Number, construction of Class Number.

## **Unit 5: Classification Schemes and Current Trends**

Classification Schemes: Species of Library Classification Schemes - Dewey Decimal Classification (DDC), Colon Classification (CC); Universal Decimal Classification (UDC), - Library of Congress Classification (LCC)

Current Trends: Simple Knowledge Organization Systems (SKOS) - Automatic Classification, Web Dewey – Taxonomies – Folksonomy - Classification Research Group (CRG)

### **Text Books:**

- S.R. Ranganathan, Prolegomena to Library Classification, Sarada Ranganathan Endowment.
- S.R. Ranganathan, Classification and Communication, Sarada Ranganathan Endowment.
- S.R. Ranganathan, Elements of Library Classification, Sarada Ranganathan Endowment.
- Chakrabati, B, Library Classification theory, Calcutta, World Press.
- Krishan Kumar: Theory of Classification, Vikas Publisher.

### **Reference Books:**

- A.A.N. Raju, Dewey Decimal Classification [DDC-20]: Theory and Practice: A Self Instructional Manual, T.R. Publications.
- M.S. Achdeva, Colon Classifications, Sterling Publisher.
- S. R. Ranganathan, Colon Classification, Asia Publishing House.
- Rowley, Jennifer E. Organizing Knowledge: an introduction to information retrieval 2<sup>nd</sup> ex. Ashgati, 1992.
- Rajendra Kumbhar, Library Classification Trends in the 21st Century, Chandos Publishing, 2012.



**SEMESTER - II**

<b>Course Title</b>	<b>Knowledge Processing and Retrieval: Cataloguing (Practical)</b>
<b>Total Hrs.</b>	<b>120</b>
<b>Hrs./Week</b>	<b>8</b>
<b>Sub.Code</b>	<b>21UELS2P1</b>
<b>Course Type</b>	<b>Core Practical</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100/2</b>

**General Objective:**

To impart skills in cataloguing documents using AACRII and CCC

**Course Objectives:**

<b>CO</b>	<b>The learner will be able to</b>
CO-1	Describe the catalogue codes.
CO-2	Group catalogue entries for various types of information sources.
CO-3	Choose catalogues according to the catalogue codes for non-printing materials.
CO-4	Select catalogue cards for documents with various perspectives.
CO-5	Distinguish main entry into different added entries.

Cataloguing using

1. Classified Catalogue Code, Ed.5
2. Anglo-American Cataloguing Rules – II (1978).

Works of Single Authorship, Shared Authorship, Pseudonyms, Mixed Responsibilities, Editorial Works, Composite Works, Multi-volume Works, Serial Publications, Uniform Titles, Works of Corporate Authorship

**Reference Books:**

- Ranganathan S.R.: Classified Catalogue Code with additional rules for dictionary catalogue code, Bangalore, 1989.
- Anglo-American Cataloguing Rules. 2<sup>nd</sup> ed. London, Library Association, 1988.

**Course Outcomes:**

CO	Upon completion of the course, the student will be able to	PSOs Addressed	Cognitive Level
CO-1	Apply the catalogue codes.	2, 4, 5	Applying
CO-2	Interpret main entry into different added entries.	2, 4, 5	Evaluating
CO-3	Choose catalogue entries for various types of information sources.	2, 4, 5	Evaluating
CO-4	Compose catalogues according to the catalogue codes for non-printing materials.	2, 4, 5	Creating
CO-5	Create catalogue cards for documents with various perspectives.	2, 4, 5	Creating

**Relationship Matrix**

Semester	Course Code	Title of the Course	Hours	Credit						
<b>II</b>	<b>21UCLS2P1</b>	<b>Knowledge Processing and Retrieval: Cataloguing Practical</b>	<b>120</b>	<b>4</b>						
Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓	✓	✓	✓		✓		✓	✓
CO-2	✓	✓	✓	✓	✓		✓		✓	✓
CO-3	✓	✓	✓	✓	✓		✓		✓	✓
CO-4	✓	✓	✓	✓	✓		✓		✓	✓
CO-5	✓	✓	✓	✓	✓		✓		✓	✓
Number of matches (✓) = ...40.... Relationship = High										

**SEMESTER - I**

Course Title	COMMUNICATION SKILLS
Total Hrs	30
Hrs/Week	2
Sub.Code	21UELS11
Course Type	AECC
Credits	2
Marks	100

**General Objective:**

- To discuss the importance of Ethics in English Communication and to develop reading, writing, and vocabulary skills.

**Course Objectives:**

CO No.	The learner will be able to
CO-1	Understand the basic skills and fundamental aspects of language learning.
CO-2	Develop their interest in vocabulary and awareness of the structure of English.
CO-3	Correlate verbal fluency for face-to-face communication.
CO-4	Distinguish the comprehension skills and clear pronunciation.
CO-5	Create confidence to have more professional approach and expose them to suitable employment opportunities, challenges and jobs.

**Unit I**

Communication Skills: An Overview

**Unit II**

Basic Grammar: Parts of Speech

**Unit III**

Listening Skill

**Unit IV**

Reading and Speaking Skills

**Unit V**

Letter Writing

**TEXTBOOK:**

Communication Skills. PG Department of English.

### REFERENCE BOOKS:

1. Fowler H.W. Fowler's Modern English Usage. New Delhi: Oxford University Press, 1996.
2. Hornby. A.S.,ed. Oxford Advanced Learner's Dictionary of Current English. New York: Oxford University Press, 2010.

### Course Outcomes:

CONo.	Upon completion of the course, the student will be able to	PSOs Addressed	Cognitive Level
CO-1	Understand the different methods of communication.	1,2	Understanding
CO-2	Apply the various techniques and tools for an effective English communication.	1,2, 4	Applying
CO-3	Analyze the recent learning techniques for an effective communicator.	2,3	Analyzing
CO-4	Evaluate the importance of non-verbal communication.	3, 4	Evaluating
CO-5	Create an appropriate method and engage themselves with good written communication.	2,4,5	Creating

### Relationship Matrix

Semester	Course Code	Title of the Course					Hours	Credit				
I	21UCLS11	COMMUNICATION SKILLS					30	2				
Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)						
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5		
CO-1	✓		✓	✓	✓	✓	✓	✓		✓		
CO-2	✓	✓	✓	✓	✓	✓		✓	✓	✓		
CO-3	✓	✓		✓		✓	✓		✓	✓		
CO-4	✓	✓	✓		✓	✓	✓	✓	✓	✓		
CO-5	✓	✓	✓	✓	✓		✓	✓	✓	✓		
Number of matches (✓) = 42 Relationship = High												

## SEMESTER – VI

Course Title	POLITICAL HISTORY OF ISLAM
Total Hrs.	60
Hrs./Week	4
Course Code	21UCAR64
Course Type	DSC- XV
Credits	4
Marks	100

**General Objective:** To identify the classics and learn the political history of Islam with appreciation and account for their literariness

### Course Objectives:

CO	The learners will be able to:
1	Understand the present existing social political, religious and economic conditions of the people.
2	Show using their knowledge to develop skills and attitudes that helps to evaluate progress and encourage taking social responsibility.
3	Explain the terminal behaviour and desired changes in attitudes.
4	Experiment in understanding, thinking, practical skills, and attitudes relating to the historical affairs concerned.
5	Categorize moral and ethical values from political Islamic history to live a dignified life.

### Unit –I:

من العصر الجاهلي إلى العصر الإسلامي - العصر الجاهلي - تمهيد - البيئة الجغرافية -  
أوضاع العرب قبل الإسلام - الإمارة في الحجاز - الممالك في الشمال - الممالك في  
الجنوب- أوضاع لدولتي الفاطمية والفيزندية

## Unit -II:

من العصر الاسلامي - الي العصر الأموي عصر الرسالة - المرحلة المكية - محمد صلى الله عليه وسلم قبل البعثة - البعثة - هجرة النبي صلى الله عليه وسلم إلى المدينة خصائص الدعوة المكية - المرحلة المدنية - أسس الدولة الإسلامية - بناء المسجد - المؤاخاة بين المهاجرين والأنصار - الغزوات والسرايا- صلح الحديبية - كتب النبي صلى الله عليه وسلم إلى الملوك والأمراء- فتح مكة - وفاة النبي - عصر الراشدين

## Unit-III:

من العصر الأموي - الي - العصر العباسي العصر الأموي - معاوية بن أبي سفيان - يزيد بن معاوية - معاوية بن يزيد - معاوية الثاني - مروان بن الحكم - عبد الملك بن مروان - الوليد بن عبد الملك- سليمان بن عبد الملك - عمر بن عبد العزيز - يزيد بن عبد الملك يزيد الثاني - هشام بن عبد الملك- مروان بن محمد الجعدي مروان الثاني-

## Unit-IV:

من العصر العباسي إلي الخليفة هارون رشيد العصر العباسي الأول - عصر القوة التوسع - أبو العباس عبد الله السفاح - عبد الله أبو جعفر المنصور - الأوضاع الخارجية في عهد المنصور- أبو عبد الله محمد المهدي - أبو محمد موسى الهادي أبو جعفر هارون الرشيد - العلاقات الداخلية والخارجية في عصره وفاة الرشيد

## Unit-V:

من هارون رشيد - إلي - العلم في عهد المستنصر أبو موسى محمد الأمين - أبو جعفر عبد الله المأمون - الحركات المناهضة للدولة في عهد المأمون أبو إسحاق محمد المعتصم - أبو جعفر هارون الواثق - أبو الفضل جعفر المتوكل - أبو جعفر محمد المنتصر

Textbook: Taqoosh.Mohamed Suhail.Al Thareekhul Islami Al wajeecz.

Dharun Nafayis. Lebnan, 2011.

Course Title	பெண்ணியமும் பெண்ணெழுத்தும் Feminism and the Writings of Women
Total Hrs.	60
Hrs./Week	4
Course Code	21UCTA54
Course Type	DSC-X
Credits	4
Marks	100

### General Objective:

பெண்ணெழுத்தின் சமூக பங்களிப்பு பற்றி மாணவர்களுக்கு எடுத்துரைத்தல்.

### Course Objectives:

CO	The learners will be able to:
CO-1	Generalize women creators and creations in terms of its role.
CO-2	Observe to realise the uniqueness of women writings.
CO-3	Establish the value and importance of women.
CO-4	Record and realise the contribution of women in society.
CO-5	Explain the centre of women creations.

### அலகு - 1

பெண் கல்வி - விளக்கம் - நோக்கம் - பெண்கல்வியின் முக்கியத்துவம் - பெண் இயல்கல்வி - பாடங்கள் - பெண்கல்வி நிலையங்கள் - பெண்கல்வியும் - சமுதாய வளர்ச்சியும்

### அலகு - 2

சங்க காலப் பெண்பாற்புலவர்கள் - பக்தி காலப் பெண்பாற் புலவர்கள் - தற்காலப் பெண்பாற் புலவர்கள்

### அலகு - 3

பெண்கள் மதிப்பு நிலை - 21ஆம் நூற்றாண்டில் பெண்கள் - பெண்ணியத்தின் சமுதாய நோக்கு - பெண்மையின் பெருமை - பெண்ணுரிமைக்கான அமைப்புகள்

### அலகு - 4

பெண் படைப்பாளிகள் - வை.மு.கோதை நாயகி - குமுதினி, அனுத்தமா, ராஜம் கிருஷ்ணன், அம்பை, லட்சுமி ரமணன், வாஸந்தி, சிவசங்கரி, இந்துமதி, சிவகாமி,

அனுராதா, பாமா, சல்மா, தாமரை, நீலாவதி, ஆண்டாள் பிரியதர்ஷினி, உமா மகேஸ்வரி, திலகவதி IPS

அலகு 5

பெண்களும் பணியும் - ஆசிரியப் பணி - ஊடகம், பொதுப்பணி - அரசியல் - சமூகப்பணி, குடும்பப்பணி - சட்டப்பணி

பாடநூல்

பெண்ணியமும், பெண்ணெழுத்தும், தமிழ்த்துறை வெளியீடு, சதக்கத்துல்லாஹ் அப்பா கல்லூரி, திருநெல்வேலி.

பார்வை நூல்

பெண்ணியம் அணுகுமுறைகள், டாக்டர் இரா.பிரேமா, தமிழ்ப்புத்தகாலயம், சென்னை-17

### Course Outcomes

CO	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Illustrate the origin of women education, its growth, progress and the social contribution.	1,2,3	Understanding
CO-2	Discuss the progress of women over the times, their contribution in social, political and economical growth.	1,2,3,4,5	Understanding
CO-3	Explain feminist research, feminist traits, god consciousness, purity and skills.	1,2,3,4,5	Applying
CO-4	Analyze women's creations and its growth, life, adapting to changes in the course of time.	1,2,3,4,5	Analyzing
CO-5	Consider job-oriented plan, growth, self-development and global multifaceted environment.	1,2,3,4,5	Evaluating

### Relationship Matrix

Semester	Course Code	Title of the Course			Hours	Credits				
V	21UCTA54	பெண்ணியமும் பெண்ணெழுத்தும்			60	4				
Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓	✓			✓	✓	✓		
CO-2	✓	✓	✓	✓		✓	✓	✓		
CO-3	✓	✓	✓	✓		✓	✓	✓	✓	✓
CO-4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO-5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Number of matches (✓) = 44 Relationship = High										



**SEMESTER – VI**

<b>Course Title</b>	தொல்லியல் Archeology
<b>Total Hrs.</b>	30
<b>Hrs./Week</b>	2
<b>Course Code</b>	21USTA61
<b>Course Type</b>	SEC-VI
<b>Credits</b>	2
<b>Marks</b>	100

**General Objective:**

மனிதப் பண்பாட்டின் தோற்றத்தையும், வளர்ச்சியையும் ஆவணப்படுத்துதல்.

**Course Objectives:**

<b>CO</b>	<b>The learners will be able to:</b>
CO-1	Classify the birth and growth of human culture before history and after history.
CO-2	Illustrate culture into time periods and to categorize articles found in archeological excavations besides researching about human tendencies.
CO-3	Focus on the South Indian culture based on stone inscriptions and archeological findings to determine the time period of an article from the depth in which it is found in the ground.
CO-4	Experiment collecting, documenting, safeguarding, segregating, renewing stone inscriptions, documents and ancient things.
CO-5	Choose to find out archeological places that add to the history and to conduct excavations.

**அலகு – 1**

தொல்லியல் ஓர் அறிமுகம் - தொல்லியல் பொருளும் முக்கியத்துவமும் - வரலாற்றிற்கு ஆதாரமானத் தொல்லியல் - தொல்லியலின் வகைகள் - அகழாய்வின் நோக்கம் - மேற்பரப்பாய்வும் அகழாய்வும் - அகழாய்வின் வகைகள் - அகழாய்வு முறைகள்

**அலகு – 2**

கற்காலப் பண்பாடு விளக்கம் - காலப்பாகுபாடு ஒரு பார்வை – பழங்கற்காலம் வாழ்க்கை நிலை – புதிய கற்காலம் ஒரு புரட்சிக்காலம் - புதிய கற்கால மக்கள் வாழ்வும் பண்பாடும் - இடைக்கற்காலத்தின் தட்ப வெப்ப மாறுதல்கள் - பெருங்கல் காலம் விளக்கம் - பெருங்கல் சின்ன வகைகள் - உலோக காலப் பண்பாடு தோற்றம் - செப்புக்காலப் பண்பாடு - ஹரப்பாவில் அகழாய்வுகள் - இரும்புக்காலப்

பண்பாடு -- மட்கலப் பண்பாடு - இந்தியத் தொல்லியல் பரப்பாய்வுத்துறை  
தொடக்கம்

அலகு - 3

தொல்லியலும் பிற அறிவியற்பிரிவுகளும் - மண்ணியல் விளக்கம் - மண் வகை  
ஆய்வியல் - புவியியற் கூறுகள் - நாணவியல் விளக்கம் - எழுத்தமைதி அல்லது  
தொல்லெழுத்துக்கலை புதைப் படிவ இயல் - மானிட வியல் - உயிரின வாழ்வுச்  
சூழலியல் கல்வியின் முக்கியத்துவம்

அலகு - 4

பழம் பொருட்களின் காலத்தைத் துல்லியமாகக் கணிக்கும் நவீன காலக் கணிப்பு  
முறைகள் அறிமுக விளக்கம் - உத்தேச ஒப்பீட்டுக் காலக்கணிப்பு - ரேடியோ  
கார்பன் முறை - மகரந்தப் பொடி ஆய்வு முறை - காந்தவியல் கணிப்பு முறை -  
மரவளையம் கணக்கீடு - வெப்ப ஒளி உமிழ் காலக் கணிப்பு - ஒலி அதிர்  
வாய்வுக் காலக்கணிப்பு - ஆப்சிடியன் படிவக் காலக் கணிப்பு - நாணவியல்  
பொருளும் முக்கியத்துவமும் - வரலாற்றிற்கு ஆதாரமான நாணவியல் - அசோகர்  
காலத்திய நாணயங்கள் - கனிஷ்கரின் காசுகள் - சாளுக்கியர் நாணயங்கள் -  
பாண்டியர் நாணயங்கள் - சோழர் நாணயங்கள் - விசயநகரத்தார் நாணயங்கள் -  
இந்தியாவில் அயல்நாட்டுக் காசுகள் - தமிழ் நாட்டில் அயல் நாட்டார் நாணயங்கள்

அலகு - 5

கல்வெட்டியல் அறிமுகமும் முக்கியத்துவமும் - கல்வெட்டுகளின் உள்ளடக்கமும்  
வழக்காறுகளும் - கல்வெட்டின் அமைப்பு - கல்வெட்டின் பல்வேறு வகைகள் -  
கல்வெட்டுகள் வரலாற்று ஆதாரங்கள் - கல்வெட்டுகளின் கால நிர்ணயம் -  
கல்வெட்டுக்கள் உணர்த்தும் அறிய செய்திகள் - தமிழி எழுத்தின் பெயர் பற்றிய  
விளக்கம் - தமிழி கல்வெட்டுகளின் முக்கியத்துவம் - வட்டெழுத்துக்களின்  
தோற்றம் பற்றி அறிஞர்களின் கருத்து - எழுத்துக்களின் தோற்றம் - கிரந்தம்  
விளக்கம் - அசோகரின் கல்வெட்டுக்கள் - மாங்குளம் தமிழிக் கல்வெட்டு -  
உங்கள் பகுதியில் உள்ள கல்வெட்டுகளைப் படிஎடுத்து வாசிக்கக் கற்றுக்  
கொள்ளுதல் - கல்வெட்டுகளை இணையத்தில் ஆவணப்படுத்துதல் -  
கல்வெட்டுகளை நிழற்படம் எடுத்துத் திட்டக்கட்டுரை வடிவில் தருதல்.

பாடநூல்கள்:

- 1) தொல்லியல் (Archaeology), ம.இராசசேகர தங்கமணி, கொங்கு பதிப்பகம்,  
கரூர்.
- 2) கல்வெட்டியல், ஜே.தர்மராஜ், டென்சி பப்ளிகேஷன்ஸ், சிவகாசி

பார்வை நூல்கள்:

- 1) தமிழ் இலக்கியத்தில் கல்வெட்டியல் கூறுகள், ஆ.ஜெகதீசன், ராமையா  
பதிப்பகம், சென்னை-14.

## SEMESTER IV

<b>Course Title</b>	<b>FOOD PROCESSING AND QUALITY CONTROL</b>
<b>Total Hrs.</b>	<b>30</b>
<b>Hrs./Week</b>	<b>2</b>
<b>Course Code</b>	<b>21USMB42</b>
<b>Course Type</b>	<b>SEC-IV</b>
<b>Credits</b>	<b>2</b>
<b>Marks</b>	<b>100</b>

### General Objective:

The course focuses on the post-harvest process and its importance, food packaging material and techniques, and importance of quality control in food processing industry.

### Course Objectives:

<b>CO</b>	<b>The learners will be able to:</b>
CO-1	Understand the basics of Food processing.
CO-2	Apply the sensory assessment to check the food quality.
CO-3	Categorize food packaging materials.
CO-4	Interpret the modern concept of food package technology.
CO-5	Assess the importance of quality control in food processing industry.

### UNIT I: BASICS OF FOOD PROCESSING (5 hours)

Introduction- Post Harvest Technology - Introduction, Definition, Primary and secondary processing- Importance. Definition and importance of sensory evaluation, Quality attributes –appearance, flavor, texture and additional quality factors.

### UNIT II: SENSORY ASSESSMENT OF FOOD QUALITY (6hours)

Taste (Gustation) - Introduction and importance. Taste sense to mouth, tongue. Chemical dimensions of basic tastes- sweet, bitter, sour, salt and umami, Taste enhancers, perception of taste, Taste measurement- E-tongue. Odour And Flavor (Olfaction) Introduction and importance of odour and flavor, Smelling techniques- Vonskramlk Test, E- Nose. Colour - Introduction and importance. Texture -Introduction, and importance, Texture classification.

### UNIT III: FOOD PACKING (7 hours)

Definition, functions and requirements for effective packaging. Classification of food packaging Primary, secondary and tertiary packaging. Flexible, rigid and Semi- rigid packaging. Materials for Food Packaging- types, uses, merits and draw backs- Paper, Glass, Tin, Aluminium, Plastic, Boxes, Jars, Cans, Bottles. Interaction between food packaging material and foods- Tin can corrosion and Global migration of plastics.

**UNIT IV: MODERN CONCEPTS OF PACKAGING TECHNOLOGY (6 hours)**

Aseptic packaging, Form Fill Seal packaging, Edible Films, Vacuum, Controlled atmospheric Packaging, Retort Pouches, Active and intelligent packaging systems. Easy - Open End, Boil in- bags, Closures.

**UNIT V: QUALITY ASSURANCE AND QUALITY CONTROL (6 hours)**

Definition of Quality Assurance, Difference between QA and QC. Total Quality Control- Definition, History, approaches, advantages and limitation. Definition of Statistical Quality Control- Definition, History, Characteristics, Advantages and limitation of SQC.

**Textbooks:**

1. Davis, E.G. *Evaluation of tin and plastic containers for food*. CBS publishers. New Delhi.2004.
2. Potter, N.N. and Hotchkiss, J. H. *Food Science*. CBS Publishers, New Delhi. 2000.
3. Srilakshmi, B. *Food Science*, New Age International (P) Limited, New Delhi. 2005.

**Reference Books:**

1. Jellinek, G. *Sensory Evaluation of Food- Theory and Practice*. Elis Horwood Ltd England. 1985.
2. Kher, C.P. *Quality control for the food industry*. ICT Publishers, Geneva. 2000.
3. Manay, S. and Shadaksharaswamy, M. *Food Facts and Principles*. New Age International (P) Limited, New Delhi. 2008.
4. Sacharow, S., and Griffin, R.C. *Food Packaging*. AVI publishing Company, West Port, Connecticut.2000.

**Course Outcome**

CO	Upon completion of this course, students will be able to :	PSO addressed	Cognitive Level
CO-1	Explain the significance of the food processing technology.	1,2,4, 5	Understanding
CO-2	Examine the quality of food by sensory assessment.	1,2,4, 5	Applying
CO-3	Make use of different materials for food packaging.	1,2,4, 5	Applying
CO-4	Summarize the modern techniques for food package.	1,2,4, 5	Analyzing
CO-5	Assess the significance of the quality control in food industry.	1,2,4, 5	Evaluating

## SEMESTER - V

Course Title	TECHNIQUES IN FOOD AND DAIRY MICROBIOLOGY
Total Hrs	60
Hrs/Week	4
Course Code	21UCMB5P2
Course Type	Practical-VI
Credits	2
Marks	100/2

### General Objective:

The course focuses on the analyze of spoiled fermented food, vegetable and fruits under microscope using wet mount preparation, TVC of bacterial and fungal cells in vegetables, fruits and meat and the quality of milk using various techniques.

### Course Objectives:

CO	The learners will be able to:
CO-1	Examine the spoiled vegetables and fruit using Wet mount technique.
CO-2	Analysis of microbial load in vegetables and fruits.
CO-3	Analysis of microbial load in meat and fish.
CO-4	Assess of milk quality using various techniques.
CO-5	Predict the thermal death time.

### Course outline:

1. Wet mount preparation of spoiled bread, tomato, grapes, potato.
2. Enumeration of bacteria from meat.
3. Enumeration of bacteria from fresh and spoiled vegetables .
4. Enumeration of bacteria from fresh and spoiled fish.
5. Determination of quality of milk-
  - a. Methylene Blue Reduction Test (MBRT).
  - b. Resazurin test of milk.
6. Determination of Pasteurized milk quality- Phosphatase Test.
7. Direct microbial count of Milk
8. Thermal Death Time(TDT)

### REFERENCE BOOKS :

- 1) Cappuccino, J.G., and Sherman, N. *Microbiology – A laboratory manual*. Benjamin CUMMINS. New York. 1996.
- 2) Dubey, D.C., and Maheshwari, D.K. *Practical Microbiology*. S. Chand and Company pvt ltd, Delhi. 2002.
- 3) Kannan, N. *Laboratory Manual in General Microbiology*. Palani Paramount Publication, Palani. 1996.
- 4) Rajan, S., and Christy, S.R. *Experimental Procedure in Life sciences*. Anjanaa Book House. 2012.

### Course Outcomes

CO. No.	Upon completion of this course, students will be able to :	PSO addressed	Cognitive Level
CO-1	Examine wet mount preparation of spoiled bread, vegetables and fruits under microscope.	1, 2,3,4,5	Applying
CO-2	Analyze the number of bacterial cell in vegetable and fruits	1, 2,3,4,5	Analyzing
CO-3	Estimate the number of bacterial cell in meat and fish	1, 2,3,4,5	Evaluating
CO-4	Choose technique to check the quality of milk.	1, 2,3,4,5	Evaluating
CO-5	Assess thermal death time	1, 2,3,4,5	Creating

### Relationship Matrix

Semester	Course Code	Title of the Course					Hours	Credits		
V	21UCMB5P2	Techniques In Food and Dairy Microbiology					60	2		
Course Outcomes (COS)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO3	PLO4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO-2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO-3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO-4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO-5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Number of matches (✓) =50 Relationship = High										

### SEMESTER - III

<b>Course Title</b>	<b>CLINICAL INTERVIEWING AND CASE HISTORY</b>
<b>Total Hrs.</b>	<b>30</b>
<b>Hrs./Week</b>	<b>2</b>
<b>Course Code</b>	<b>21UCPY3P1</b>
<b>Course Type</b>	<b>Practical - III</b>
<b>Credits</b>	<b>1</b>
<b>Marks</b>	<b>100/2</b>

**General Objective :** To acquire skills pertaining to clinical interviewing and case history writing.

<b>CO.</b>	<b>The learner will be able to :</b>
CO 1	To get familiarized with the basics of clinical interviewing and case history writing.
CO 2	To learn the skills of clinical interviewing and case history writing.
CO 3	To acknowledge the various aspects of the interview process.
CO 4	To know the components of a case report .
CO 5	To understand the salience of case history making and reporting.

#### **Unit I Foundations**

Self-awareness- Effective Interviewing – The physical setting – Professional and Ethical issues – Relationship variables in interviewing.

#### **Unit II Skills**

Attending behaviour – The pull to reassurance - Non-directive and directive listening responses – Using Questions.

#### **Unit -III Interview process**

Structural Models: The introduction – The opening – The body - The Closing - The termination – The Science of clinical interviewing.

#### **Unit IV Case Report Writing - I**

Identifying Information – Behavioural Observation- Presenting Complaints - History of present problem/ illness - Past treatment history - Relevant medical history.

## Unit V Case Report Writing – II

Personal and Social History – history of Substance use – Premorbid personality – Current situation and functioning – Diagnostic impressions – Treatment plan

### References

1. John, S. F., & Rita, S. F. (2003). *Clinical Interviewing* (3rd ed.). John Wiley & Sons, Inc.
2. Niraj Ahuja. (2011). *A short text book of Psychiatry* (7de editie). JAYPEE Brothers Medical Publishers (P) Ltd.

### Course Outcomes

CO.	Upon completion of the course students will be able to:	PSOs Addressed	Cognitive Level
CO 1	Order the components of clinical interviewing and case history taking.	2, 3, 4	Analyzing and Evaluating
CO 2	Reframe the skills required for interviewing and case history taking.	2, 3, 5	Evaluating
CO 3	Integrate the interviewing process.	2, 3, 5	Creating
CO 4	Design a case history report.	2, 3, 4, 5	Creating
CO 5	Discriminate relevant information in order to place it under appropriate components of a case history report.	2, 3, 4, 5	Analyzing and Evaluating

### Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credits						
III	21UCPY3P1	Clinical Interviewing and Case History	30	1						
Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)				
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1		✓	✓	✓	✓		✓	✓	✓	
CO-2		✓	✓	✓	✓		✓	✓		✓
CO-3		✓	✓	✓	✓		✓	✓		✓
CO-4		✓	✓	✓	✓		✓	✓	✓	✓
CO-5		✓	✓	✓	✓		✓	✓	✓	✓
Number of matches (✓) = 37 Relationship = <b>High</b>										



## SEMESTER - IV

<b>Course Title</b>	<b>GUIDANCE AND COUNSELING</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs./Week</b>	<b>4</b>
<b>Course Code</b>	<b>21UAPY41</b>
<b>Course Type</b>	<b>Allied-II-2</b>
<b>Credits</b>	<b>3</b>
<b>Marks</b>	<b>100</b>

**General Objective :** To know the psychological basis for providing guidance and counseling.

**Course Objective:**

<b>CO.</b>	<b>The learner will be able to :</b>
CO 1	To define the nature and scope of guidance and counseling
CO 2	To demonstrate various approaches to counseling
CO 3	To learn psychological testing and diagnosis necessary for counseling process
CO 4	To get oriented with qualities skills and responsibilities of a counselor
CO 5	To get familiarized with special areas where counseling can be applied appropriately

### UNIT 1 NATURE AND SCOPE OF GUIDANCE AND COUNSELING

Counseling and Guidance : Meaning- Nature, Need and Functions of Guidance and Counseling, Emergence of Guidance and Counseling in India, Goals and Scope of Guidance and Counseling, Types of Counseling Services.

**UNIT 2 APPROACHES TO COUNSELING AND THE COUNSELING PROCESS-**  
Directive and non-directive approaches, Humanistic approach, Behaviouristic approach, Existential Approach, Eclectic Approach. Counseling Process- Preparation for counseling, Steps in the counseling process.

**UNIT 3 PSYCHOLOGICAL TESTING AND DIAGNOSIS**  
Use of psychological tests in guidance and counseling, Types of psychological tests, Nature of a good psychological test, Test interpretation in counseling, Limitations of psychological tests. Diagnosis and its limitations.

## UNIT 4 COUNSELLOR QUALITIES, SKILLS AND ETHICAL RESPONSIBILITIES

Qualities of an effective counsellor, Counsellor skills - Building Trust: Listening, Attending, Observing, Building Rapport, Demonstrating Empathy. Ethics in counseling.

## UNIT 5 SPECIAL AREAS IN COUNSELING

Family group consultation, Counseling Families Concerning Children, Counseling with Parents, Counseling the Delinquent, Marriage Counseling, Premarital Counseling, Counseling the Handicapped, Career Counseling, and Adolescent Counseling, Role of Counselor in developing Good Mental Health.

### Text books :

Nayak, A. K. (2007). Guidance and counseling. New Delhi: APH Publishing.

Rao, N. (2013). Counseling and Guidance. India: Tata McGraw Hill.

Gladding, S.T. (2017). Counseling: A Comprehensive Profession. India: Pearson.

### References :

1. Barki, B. G., & Mukhopadhyay, B. (2008). Guidance and counseling: A manual (10th reprint). New Delhi: Sterling.
2. Gibson, R. L., & Mitchell, M. H. (2007). Introduction to counseling and guidance (7th ed.). Upper Saddle River, NJ: Prentice Hall.
3. Kochhar, S. K. (1984). Guidance and Counseling in Colleges and Universities. New Delhi: Sterling.

### Course Outcomes

CO.	Upon completion of the course students will be able to :	PSOs Addressed	Cognitive Level
CO 1	Discover the nature and scope of counseling.	2, 3, 4, 5	Understanding and applying
CO 2	Integrate the various approaches to suit the requirements of the counselee.	2, 3, 4	Creating
CO 3	Measure psychological parameters that would provide the background for counseling.	2, 3, 4	Evaluating
CO 4	Appraise and adopt counselor qualities, skills and responsibilities.	3, 4, 5	Analyzing and Evaluating
CO 5	Plan counseling interventions in unique areas involving unique issues of human beings.	2, 3, 4	Creating

## SEMESTER - IV

<b>Course Title</b>	<b>COUNSELING SKILLS</b>
<b>Total Hrs.</b>	<b>30</b>
<b>Hrs./Week</b>	<b>2</b>
<b>Course Code</b>	<b>21UAPY4P1</b>
<b>Course Type</b>	<b>Allied Practical-II/2P</b>
<b>Credits</b>	<b>1</b>
<b>Marks</b>	<b>100/2</b>

**General Objective:** To acquire skills pertinent to counseling.

**Course Objective:**

<b>CO.</b>	<b>The learner will be able to :</b>
CO 1	To learn listening skills pertaining to counseling.
CO 2	To acknowledge the skills related to understanding in a counseling scenario.
CO 3	To know how to clarify the problems expressed during counseling .
CO 4	To get awareness about interventions and planning the same appropriately.
CO 5	To gain knowledge on the ethical parameters related to counseling.

### **Unit I: Listening Skills**

Listening: Attitude of respect and acceptance – Understand client's internal frame of reference – Receiving voice messages accurately – Receiving body language accurately- giving small rewards and asking open-ended questions

### **Unit II: Understanding Skills**

Showing Understanding - Paraphrase – Reflect feelings – Use mind skills – managing initial resistance – showing understanding of context and difference

### Unit III: Clarifying problem and assessing

Questioning skills – Challenging Skills – Feedback skills – Self-disclosure skills – Skills for eliciting and assessing: Physical reaction, thinking, communication and action – Shared analysis of problem

### Unit IV: Planning Interventions

Skills for working with clients – Interventions for thinking – Intervention for communication and action – intervention for feeling

### Unit V Resolving Ethical Dilemma

Professional responsibility - Confidentiality and privacy – Informed Consent – Relationship with other professionals - Legal considerations

### References :

Nelson - Jones, R. (2005). *Practical Counseling and Helping Skills* (5de editie). SAGE Publications.

American Counseling Association. (2014). *ACA Code of Ethics*. American Counseling Association.

Burnard, P. (1992). *Counseling Skills Training*. Kogan Page limited.

Gladding, S. T., & Promila, B. (2021). *Counseling, A Comprehensive Profession* (8ste editie). Pearson Education Inc.

### Course Outcomes

CO.	Upon completion of the course students will be able to :	PSO s Addressed	Cognitive Level
CO 1	Develop listening skills essential for counseling.	2, 3, 5	Creating
CO 2	Integrate understanding skills necessary for counseling.	2, 3, 5	Creating
CO 3	Assess and estimate the problems expressed during counseling.	2, 3, 5	Evaluating
CO 4	Plan interventions to suit the requirements of the counselee.	3, 4, 5	Creating
CO 5	Resolve the ethical dilemma that arises during counseling.	2, 3, 4	Applying and Analyzing

**SEMESTER - IV**

<b>Course Title</b>	<b>COUNSELING FUNDAMENTALS</b>
<b>Total Hrs.</b>	<b>30</b>
<b>Hrs./Week</b>	<b>2</b>
<b>Course Code</b>	<b>21USPY42</b>
<b>Course Type</b>	<b>SEC- IV</b>
<b>Credits</b>	<b>2</b>
<b>Marks</b>	<b>100</b>

**General Objective:** To acquire the skills that are fundamental to counseling process.

**Course Objective:**

<b>CO.</b>	<b>The learner will be able to :</b>
CO 1	To identify aspects of pre-counseling contact .
CO 2	To know how to start a counseling process.
CO 3	To acknowledge the fundamentals of listening .
CO 4	To understand the basic parameters for counseling sessions.
CO 5	To familiarize with process of termination and maintenance of counseling records.

**Unit 1: Pre-counseling contact**

Orientation of counseling services – Physical premises – advertising a counseling service – clients making initial contact

**Unit 2: Starting the counseling process**

Goals for initial counseling session – starting initial sessions – structuring skills – contracting – referral skills – crisis counseling – ending initial session

**Unit 3: Fundamentals of listening and empathy building**

SOLER- Positive versus negative listening - proximity in listening – Using silence – head nodding – active listening – distraction- Clarifying empathy – Empathy building statements .

#### **Unit 4: Counseling sessions**

Counseling sessions (Between initial contact and termination) - Length, frequency and number of sessions – monitoring and evaluating the process – resolving transference and counter transference - Record keeping in counseling and Case note

#### **Unit 5: Termination and Counseling records**

Ending a counseling session (When) – Formats – Consolidating skills – termination skills – Client self helping - resistance to closing - reporting.

#### **References :**

1. Nelson - Jones, R. (2005). *Practical Counseling and Helping Skills* (5de editie). SAGE Publications.
2. American Counseling Association. (2014). *ACA Code of Ethics*. American Counseling Association.
3. Burnard, P. (1992). *Counseling Skills Training*. Kogan Page limited.
4. Gladding, S. T., & Promila, B. (2021). *Counseling, A Comprehensive Profession* (8ste editie). Pearson Education Inc.

#### **Course Outcomes**

<b>CO.</b>	<b>Upon completion of the course students will be able to :</b>	<b>PSOs Addressed</b>	<b>Cognitive Level</b>
CO 1	Plan a counseling contact .	2, 3, 4	Creating
CO 2	Prepare for the start of the counseling process .	2, 3, 4	Applying
CO 3	Create scenario for listening and empathy building.	2, 3, 4	Creating
CO 4	Design counseling sessions.	2, 3, 4	Creating
CO 5	Predict and resolve termination issues and writing counseling records.	2, 3, 5	Understanding and evaluating

## SEMESTER – I

Course Title	HUMAN DEVELOPMENT
Total Hrs.	60
Hrs./Week	4
Course Code	21UCND12
Course Type	DSC – II
Credits	4
Marks	100

### General Objective:

The course focuses on the physical, psychological and social development of an individual from infancy to old age.

### Course Objectives:

CO.	The learner will be able to:
CO-1	Identify the progression from conception to confinement
CO-2	Describe the process of maturation during infancy.
CO-3	Interpret the development of child from 1-12 years.
CO-4	Discover the various developmental changes in adolescence.
CO-5	Evaluate the psychological stress concerned with geriatric care.

### Unit I Fundamentals of Growth and Development

Definition, Scope of Human Development in contemporary society- Principles of growth and development- Factors that influence the development- Methods of child study with special emphasis on case study and observation methods.

#### Unit II Infancy

Infancy -Appearance, size and proportion of newborn- Physical care and daily routine- bathing, clothing and sleeping. Apgar Score - Feeding -natural and artificial- Immunization Schedule

#### Unit III Early and Late Childhood Period

**Early Childhood Period** -Physical, motor, emotional, language, moral, social and intellectual development. Accidents and their prevention.

**Late Childhood Period** -Physical, motor, emotional, language, moral, social and intellectual development. Behavior problems – causes, prevention and treatment, Habit formation.

#### Unit IV Period of Adolescence

Definition, physical, emotional, intellectual and motor development, personal adjustment and maladjustment. Delinquency – causes, prevention and rehabilitation. Role of Parents and Society.

#### Unit V Period of Old age

Physical and psychological changes, problems of the aged, family attitude towards aged, place of the aged in Indian Society.

### Textbooks:

1. Suriyakanthi. (1978), *Child Development*, New Age Publisher, New Delhi,
2. Rajaammal, P. D, (1980), *Child Development*, New Age Publisher, New Delhi.

### References:

1. Breakenridge, M.E. & Vincent, E. L , (1956). *Child Development*, W.B. Saunders & CO., Philidelphia.
2. Hurlock, E.B.( 1950), *Child Development*, Mcgraw Hill Co., New York.
3. Breakenridge, M. Murphy, E, Margaret N , (1958). *Growth and Development of the young child* ,W.D. Saunders & Co., Philidelphia:

### Course Outcomes

CO.	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive level
CO-1	Understand the biological, psychological and cultural influences of human development.	1	Understanding
CO-2	Determine the progressive process period of infancy.	1,5	Applying
CO-3	Analyze the growth as well as need of the child from childhood adolescence.	1	Analyzing
CO-4	Assess the varied developmental changes during adolescence.	1,5	Evaluating
CO-5	Discuss the collective problems related with geriatric care.	1,5	Creating

### Relationship Matrix

Semester	Code	Title of the course					Hours	Credits				
I	21UCND12	Human Development					60	4				
Course Outcomes (COs)	Programme Learning Out Come (POS)					Programme Specific Outcomes (PSOs)						
	PLO 1	PLO2	PLO3	PLO4	PLO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5		
CO-1	✓	✓	✓			✓				✓		
CO-2	✓	✓	✓			✓						
CO-3	✓	✓	✓	✓		✓				✓		
CO-4	✓	✓	✓	✓		✓				✓		
CO-5	✓	✓	✓	✓		✓						

Number of matches (✓) = 26  
Relationship = **Medium**



**SEMESTER – III**

<b>Course Title</b>	<b>NUTRITION THROUGH LIFE SPAN</b>
<b>Total Hrs.</b>	<b>60</b>
<b>Hrs/Unit</b>	<b>4</b>
<b>Course Code</b>	<b>21UCND31</b>
<b>Course Type</b>	<b>DSC – V</b>
<b>Credits</b>	<b>4</b>
<b>Marks</b>	<b>100</b>

**General Objective:**

This course covers the basis of menu planning, balanced diet and nutritional needs for different age groups

**Course Objectives:**

<b>CO.</b>	<b>The learners will be able to:</b>
CO-1	Understand the basis of menu planning
CO-2	Plan balanced diet for different age groups
CO-3	Assess the food requirements of different age groups.
CO-4	Evaluate nutritional needs of different age groups.
CO-5	Plan the menu based on RDA

**UNIT I Menu Planning**

Planning balanced diets – Balanced diet, Low cost balanced diets, vegetarian diets, Food exchange lists, Principles of planning diets, points to be considered in planning a diet and steps involved in planning a diet.

Recommended Dietary Allowances for different age groups (2020).

**UNIT II Nutritional & food requirements for pregnancy and lactation**

Pregnant woman – Nutritional requirements, food requirements, Dietary guidelines, General dietary problems.

Lactating mother – Nutritional requirement, Food requirement and menu planning.

**UNIT III Nutritional & food requirements for Infancy and preschool**

Infancy –Nutritional requirements, food requirements, Artificial feeding, weaning and supplementary foods.

Pre - School – Nutritional requirements, food requirements, dietary guidelines, nutrition related problems of preschoolers.

**UNIT IV Nutritional& food requirements for school going & adolescence**

School going children - Nutritional requirements, food requirements, dietary guidelines, diet related problems, packed lunches, school lunch programmes.

Adolescence – Nutritional requirements, Nutritional problems – Eating disorders.

**UNIT V Nutritional & food requirements for Adult and old age**

Adult – Reference Man, Women, Nutritional requirements and Food requirements.

Geriatric Nutrition –Nutritional requirements, food requirements, dietary guidelines, Nutrition related problems of old age, suggested recipes during old age.

**Textbooks:**

1. B. Srilakshmi, (2019), Dietetics, Eighth edition, New age international publishers
2. Swaminathan M (2003) Principles of Nutrition and Dietetics Babbco publishers, Bangalore

**References:**

1. Srilakshmi., Food Science, New age international publishers.
2. Shakundala Manay., Food Facts and Principles New age international publishers.
3. CarrineJ.Robinson (1990) Principles of Nutrition and Dietetics Babbco publishers, Bangalore
4. Gopalan (1999) Nutritive Value of Indian food NN publication, Hyderabad.
5. BhavanaSabrawal (1999) principles and practices of Dietetics Ajay verma
6. Davidson and Passmare (1989) Human Nutrition and Dietetics, London Churchill and Livingston Publishers.

**Course Outcomes**

CO.	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive level
CO-1	Outline on the basis of menu planning.	1,2,3	Understanding
CO-2	Analyze the nutritional requirements of the pregnant and lactating mother.	1, 2,3	Applying
CO-3	Demonstrate the ability to plan and manage the dietary needs of infants and preschool children.	2,3,4	Analyzing
CO-4	Evaluate the ability to educate and inform about nutrient needs for school going children and adolescence.	2,3,4,5	Evaluating
CO-5	Estimate the nutritional and food requirements for adult and old age.	1.2,3,4	Creating

**Relationship Matrix**

Semester	Course Code	Title of the Course					Hours	Credits				
III	21UCND31	Nutrition Through Life Span					60	4				
Course Outcomes (COs)	Programme Learning Outcomes (PLOs)					Programme Specific Outcomes (PSOs)						
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5		
CO-1	✓	✓	✓	✓		✓	✓	✓				
CO-2	✓	✓	✓	✓		✓	✓	✓				
CO-3	✓	✓	✓	✓	✓		✓	✓				
CO-4	✓	✓	✓	✓	✓		✓	✓	✓			
CO-5	✓	✓	✓	✓		✓	✓	✓	✓	✓		
Number of matches (✓) = ...39.... Relationship = <b>High</b>												

## SEMESTER – IV

Course Title	FOOD MICROBIOLOGY
Total Hrs.	60
Hrs./Week	4
Course Code	21UAND41
Course Type	ALLIED – II -2
Credits	3
Marks	100

### General Objective:

To gain knowledge on microbes in daily life and develop skills in food fermentation microbiology.

### Course Objectives:

CO.	The learners will be able to:
CO-1	Identify and classify types of microorganisms in food and compare their characteristics and behaviour
CO-2	Know about the morphology of microorganism
CO-3	Describe the contamination of cereals, fruits, vegetables and dairy products
CO-4	Understand the spoilage and contamination of non-vegetarian foods
CO-5	Apply the microbes in food production

### UNIT: I - INTRODUCTION TO FOOD MICROBIOLOGY

Definition of Food microbiology- Aims and objectives of food microbiology -General classification of microorganism-Factors affecting growth of microorganisms in food

### UNIT: II - MORPHOLOGY OF MICROORGANISMS

Structure of molds, types ,characteristic features and economic uses ,Structure of yeast , characteristic features and economic uses,Structure of bacteria , characteristic features and economic uses

### UNIT: III - FOOD SPOILAGE AND CONTAMINATION

Contamination and spoilage of cereals and cereals product, Contamination and spoilage of fruits and vegetables products, Contamination and spoilage of dairy products.

### UNIT: IV - FOOD IN RELATION TO DISEASES

Contamination and spoilage of Meat, Contamination and spoilage of Fish, Contamination and spoilage of Egg and Poultry

### UNIT: V - MICROBES IN FOOD PRODUCTION

Wine and beer production, Food from microorganisms (SCP), Different enzymes used as microorganisms

### Textbooks:

1. William C Frazier & Dennis C Westhoff ,Food Microbiology , MC Graw Hill Publication, New York, 2012.

<b>Course Title</b>	<b>SPORTS NUTRITION</b>
<b>Total Hrs.</b>	<b>30</b>
<b>Hrs./Week</b>	<b>2</b>
<b>Course Code</b>	<b>21USND42</b>
<b>Course Type</b>	<b>SEC-IV</b>
<b>Credits</b>	<b>2</b>
<b>Marks</b>	<b>100</b>

**General Objective:**

This course covers the basic principles of health education and sports nutrition, importance of diet for an athlete.

**Course Objectives:**

<b>CO.</b>	<b>The learners will be able to:</b>
<b>CO-1</b>	Understand the Importance of health education and sports nutrition
<b>CO-2</b>	Gain knowledge about Aerobic exercises and Yoga
<b>CO-3</b>	Understand the benefits of doing exercise regularly
<b>CO-4</b>	Discuss the difference between dietary supplements and doping.
<b>CO-5</b>	Gain knowledge about the importance of Balanced diet in sports

**UNIT – I Introduction to Health Education**

- Definition of health education and sports nutrition
- Aims and objectives of health education
- Need and Importance of health education and nutrition

**UNIT – II Benefits of Exercises**

- Types of exercises -Aerobic and anaerobic exercises
- Yoga – types and health benefits
- Health benefits of doing exercise regularly

**UNIT – III Doping and Dietary Supplements**

- Doping in athletes and its types
- Claimed dietary supplements for athletes,

Sports anemia and female athlete

#### UNIT – IV Importance of diet in sports

Balanced diet in sports, Antioxidants rich foods for athletes  
Role of a healthy diet in promoting an athlete

Effect of diet in sports performance

#### UNIT – V Fluids and Electrolytes

Fluid and electrolytes balance

Water dehydration and intoxication

Fluid replacement for athletes during sports.

#### Textbooks:

- 1.Srilakshmi., Food Science, New age international publishers.
- 2.B. Srilakshmi, Nutrition Science 4<sup>th</sup> edition, New Age International Publishers, 2012

#### References:

- 1.Shakuntala Manay., Food Facts and Principles New age international publishers.
- 2.Carrine Robinson (1990) Principles of Nutrition and Dietetics Babbco publishers Bangalore.
- 3.Swaminathan M (2003) Principles of Nutrition and Dietetics Babbco publishers Bangalore.

#### Course Outcomes

CO.	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive level
CO-1	Infer the objectives and importance of sports nutrition and health education.	1,2	Understanding
CO-2	Demonstrate aerobic exercises and yoga.	2,3,5	Applying
CO-3	Outline dietary supplements and doping.	2 & 4	Analyzing
CO-4	List out the role of diet in sports performances.	1,2, 3,4	Evaluating
CO-5	Outline the importance of fluids and antioxidants for athletes.	2,3	Creating

## SEMESTER – IV

Course Title	HEALTH AND FITNESS
Total Hrs.	30
Hrs./Week	2
Course Code	21UNND41
Course Type	NME - II
Credits	2
Marks	100

### General Objective:

- This course covers the importance of health and fitness and diet in maintaining good health.

### Course Objectives:

CO.	The learners will be able to:
CO-1	Familiarize about the terms related to health and fitness
CO-2	Acquire knowledge about role of foods in maintaining health.
CO-3	Understand the importance of physical activity.
CO-4	Acquire knowledge about Balanced Diet and Menu planning
CO-5	Compare the relationship between fitness and nutrition.

### UNIT I Health and Hygiene

Definitions – Health, physical health, mental health & public health Four Dimensions of Health. Hygiene – importance of hygiene, food hygiene & personnel hygiene

### UNIT II Role of Foods in health

Role of foods in maintaining health – Antioxidant rich foods, immune boosting foods, cancer fighting foods, anti-inflammatory foods

### UNIT III Role of Yoga and Exercises

Types of exercises -Aerobic and anaerobic exercises  
Yoga – types and health benefits