

YEAR – III	AMERICAN LITERATURE - II From Batch 2015 *New Question Pattern From 2019	Code: 19EN614 S* Second Revision
SEMESTER – VI		Hours: 6
CORE PAPER – XIII		Credit: 5

Objectives

1. To familiarize students more with the developments in American Literature from its beginning to the mid-twentieth century.
2. To introduce students to a few further select writings in American Literature.

Course Outcomes:

CO1. Basic knowledge of the origin of American literature.

CO2. The basic concepts of American literary texts.

CO3. Difference in Indian and American literature.

CO4. The classicism in the culture of American texts.

CO5. The fundamentals of American literature.

SEMESTER – VI	COURSE CODE: 19EN614	TITLE OF THE PAPER : AMERICAN LITERATURE-II										HOURS:6	CREDIT: 5	
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)								MEAN SCORE OF CO'S
CO	PO 1	PO2	PO3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5	PSO 6	PSO7	PSO 8	MEAN SCORE
CO1	5	5	5	2	5	5	3	4	4	4	5	5	5	4.3
CO2	5	5	5	1	5	5	5	3	3	3	4	4	4	4.0
CO3	5	5	4	1	4	5	5	1	1	1	3	3	4	3.2
CO4	5	5	5	2	5	5	5	5	5	4	5	5	5	4.6
CO5	5	5	5	2	5	5	5	2	2	2	4	4	5	3.9
Mean Overall Score														4.0

This Course is having VERY **HIGH association** with Programme Outcome and Programme Specific Outcome

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

Unit I Poetry – Detailed**[18 HRS]**

1. Emily Dickinson : Because I could not Stop for Death
2. Carl Sandburg : Happiness
3. Wallace Stevens : The Emperor of Ice Cream

**Unit II Poetry – Non-Detailed
HRS]****[18**

1. Langston Hughes : The Negro Speaks of Rivers
2. Theodore Roethke : The Meadow Mouse

Unit III Drama**[18 HRS]**

1. Arthur Miller : All My Sons (Detailed)
2. Harold Pinter : The Caretaker(Non-Detailed)

Unit IV Prose**[18 HRS]**

1. Robert Frost : The Figure a Poem Makes(Detailed)
2. William Faulkner : Nobel Prize Acceptance Speech(Non Detailed)
3. Henry James : The Art of Fiction (Non Detailed)

Unit V Fiction – Non – Detailed**[18 HRS]**

1. Ernest Hemingway : The Old Man and the Sea
2. William Faulkner : As I Lay Dying

Text:

1. American Literature of 19th century: An Anthology Eurasia Publishing House, New Delhi.
2. American Literature 1890-1965 : An Anthology Eurasia Publishing House, New Delhi.

Reference:

1. Millard's Contemporary American Fiction. (OUP)
2. America Is Drewry O'Connor, Glencoe Publishers. Pvt., Ltd.,
3. C.T.Thomas, 20th Century Verse An Anglo – American Anthology (Macmillan)
4. Beyond Gender and Geography, American Women Writers (EWP)

III- B.A ENGLISH	OFFICE AUTOMATION*	19GEN66A
SEMESTER VI		HRS/WK – 5
GENERIC ELECTIVE		CREDITS - 4

Objective:

To enable the students understand use of MS OFFICE.

Course Outcomes:

At the end of the Course the students should be able to exhibit

CO1: Basics of MS OFFICE.

CO2: Knowledge pertaining to MS WORD.

CO3: Basics knowledge of data handling in Excel.

CO4: Skills using different functions and format in Excel.

CO5: Knowledge pertaining to MS WORD.

SEMESTER VI		COURSE CODE: 19GEN66A				COURSE TITLE: OFFICE AUTOMATION				HOURS 5		CREDITS:4		
COURSE OUTCOMES		PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)								MEAN SCORE OF CO'S
CO	PO 1	PO2	PO3	PO4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO5	PSO6	PSO7	PSO8	
CO1	4	5	4	4	4	4	5	4	5	4	4	5	4	4.3
CO2	5	4	4	5	5	4	4	4	4	4	4	4	4	4.3
CO3	4	5	5	5	5	5	5	5	5	4	5	5	4	4.8
CO4	5	4	4	5	5	5	5	5	5	4	5	5	4	4.7
CO5	4	5	4	5	5	5	5	5	5	4	5	5	4	4.7
Mean Overall Score														4.6

Result: The score of this course 4.6 (**VERY HIGH**)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit I: [18 Hrs]

Introduction to Microsoft Office: Overview of the Office components (Word, Excel, PowerPoint, Access) – Identifying Common Screen Elements – Exiting a Program.

Common Office Tools and Techniques: Switching from one application to another – Sizing and Arranging Windows – Working with Menus – Working with Dialog Boxes – Working with Toolbars. – Using the Clipboard to cut, copy and paste.

Unit II: [18 Hrs]

Starting Word: Starting a New Document – Opening an Existing File – Saving a Document – Printing a Document – Closing a Document.

Word Basics : – Typing Text – Inserting, Selecting and Deleting Text – Using Undo and Redo – Inserting Special Characters or symbols – Formatting Characters (Changing Fonts and Font Sizes, Applying Bold, Italic or Underline, Changing Text Case – Drop Caps) – Margins & Gutters - Working with Bulleted or Numbered Lists – Aligning Text – Borders and Shading - Formatting Paragraphs – Line Spacing

Unit III: [18 Hrs]

Working with AutoCorrect and AutoFormat: Using Find and Replace – Correcting Spelling and Grammatical Errors – Working with Headers and Footers – Working with Tabs - Working with Tables.

Working with Graphics: Importing Graphics – ClipArt Gallery – Drawing Objects.

Unit IV: [18 Hrs]

Using Excel: Creating a Simple Spreadsheet – Editing a Spreadsheet – Working with Functions and Formulas – Formatting Worksheets – Creating Charts.

Unit V: [18 Hrs]

Using PowerPoint: Creating & Viewing Presentations – Editing a Presentation – Working with Presentation Special Effects.

TEXT BOOKS:

1. Microsoft Office XP fast & easy by Diane Koers, Prentice-Hall of India, New Delhi, 2001.
2. "Working in Microsoft Office", by Ron Mansfield, Tata McGraw-Hill Publishing Company Limited, New Delhi, 1997.

REFERENCE BOOKS:

1. "Microsoft Excel 2016 BIBLE" by John Walkenbach, DurgaPrinto Graphics, Delhi
2. "Microsoft Office Professional Instant Reference" by Sheila S. Dienes, BPB Publications, New Delhi.
3. "Mastering Word 2000" by Ron Mansfield & J.W Olsen, BPB Publications, New Delhi.

**OFFICE AUTOMATION
SEMESTER-VI
CODE: 19GEN66A**

QUESTION PATTERN

Time: 3hrs

Marks: 75

**Section-A Total Marks-75 (No choice)
Objective Type**

(20x1=20)

**Section-B (No choice)
Short Answers**

(5X2=10)

**Section-C (Either or type)
Essay Type**

(3x10=30)

**Section- D (3 out of 5)
Paragraph Type**

(3x5=15)

III B.A. ENGLISH	INTERNET TECHNOLOGIES	19GEN66B
SEMESTER VI		HOURS-5
GENERIC ELECTIVE		CREDITS -4

OBJECTIVES

1. To expose students to the World of Internet and its usefulness
2. To create employability in IT industry

Course Outcomes:

At the end of the Course the students should be able to exhibit

CO1: Basics of MS OFFICE.

CO2: Knowledge pertaining to MS WORD.

CO3: Basics knowledge of data handling in Excel.

CO4: Skills using different functions and format in Excel.

CO5: Knowledge pertaining to MS WORD.

SEMESTER VI		COURSE CODE: 19GEN66B				TITLE OF THE COUSE :Internet Technologies						HOURS 5		CREDITS:4
COURSE OUTCOMES		PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO5	PSO6	PSO7	PSO8	
CO1	4	5	4	4	4	4	5	4	5	4	4	5	4	4.3
CO2	5	4	4	5	5	4	4	4	4	4	4	4	4	4.3
CO3	4	5	5	5	5	5	5	5	5	4	5	5	4	4.8
CO4	5	4	4	5	5	5	5	5	5	4	5	5	4	4.7
CO5	4	5	4	5	5	5	5	5	5	4	5	5	4	4.7
Mean Overall Score														4.6

Result: The score of this course 4.6 (**VERY HIGH**)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit-I:

Internet Basics: What is Internet?-Origin of Internet-IP address-Domain name-Host Name-DNS-Port Number-WWW-URL-Web server-Web browser-Search Engine-Types of Internet Connections-Hardware Requirements-Internet accounts-Network-Types of Network-Network Topologies.

Unit-II:

Introduction to HTML: History of HTML-Structure of HTML-Basic HTML tags-Linking HTML document-Adding images into HTML document-List

Unit-III:

HTML and CSS: Tables creation in HTML-Frames in HTML-Cascading Style Sheet (CSS)-Uses of CSS-Types of CSS

Unit-IV:

Java Script: Java Script Syntax-Input and Output in Java Script-Data types- Variables-Arrays-Expressions-Dialog box-Looping structure.

Unit-V:

Uses of Internet: E-mail-Chat-On line Transaction-credit card transaction-Debit card transaction-Net banking-E-Business-Uses of internet in education-E-Shopping-Web publishing

Text Books:

1. Ivan Bayross, Web Enabled Commercial Application Development HTML, Java Script, DHTML and PHP- 4TH Edition, 2010.
2. H.Schildt, The Complete Reference-Internet, Tata McGraw Hill Edition,1999

REFERENCE BOOK:

1. Thomas.A.Powel., The Complete Reference-HTML & CSS., Fifth Edition., Tata McGraw Hill

YEAR – II	COMMUNICATIVE ENGLISH -III B.A., B.Sc., From Batch 2020 onwards	20LE303
SEMESTER – III		Hours: 4
PART – I ENGLISH		Credit: 3

OBJECTIVES:

To make students acquire Basic English Skills-Listening, Speaking, Reading and Writing.

To help them taste the essence of language through literature.

To imbibe values for life, touching upon the different facts of literature.

Course Outcomes:

CO1: Narrate simple experiences in a coherent manner.

CO2: Make use of the students to practice the situational basic skills.

CO3: Different types of warm up activities to discuss the theme of the play.

CO4: Comprehend the local and global issues and using writing skills.

CO5: Enhance their language Skills and understanding the social and literatures.

SEMESTER III	COURSE CODE:					TITLE OF THE PAPER : Communicative English III								HOURS:4	CREDITS:3
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)								MEAN SCORE OF CO'S	
CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	Mean score	
CO1	5	5	4	4	5	5	5	5	3	5	5	5	3	4.5	
CO2	5	5	4	5	5	5	5	5	4	5	5	5	5	4.8	
CO3	5	5	4	5	5	5	5	5	3	5	5	5	5	4.6	
CO4	5	5	5	5	5	5	5	5	3	5	5	5	3	4.6	
CO5	5	5	5	5	5	5	5	5	4	5	5	5	3	4.7	
Mean Overall Score														4.6	

This Course is having **HIGH association** with Programme Outcome and Programme Specific Outcome

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

UNIT- I

I Listening: Narration

II Speaking:

Welcoming the gathering

Introducing a Guest to the audience

Thanking the gathering and organizers of an event

III Reading: One – Act Play : *Refund* – Fritz Kazinthy

IV Writing: Publicity Literature

UNIT–II

I . Listening :

1. *Quit India* – Mahatma Gandhi (Prose)

2. *Tryst with Destiny* – Jawaharlal Nehru (Speech: Prose)

II. Speaking : Giving One’s Opinion on current National/ Social issues

III. Reading : One – Act Play : *The Bear* – Anton Chekhov

IV. Writing: Spotting Errors

UNIT – III

I. Listening

1. *Gettysburg Address*- Abraham Lincoln (Speech: Prose)

2. *I have a Dream* – Martin Luther King (Speech: Prose)

II. Speaking

1. Preparing news items of local events and speaking about them

2. Sample News Item (Event)

III. Reading : One – Act Play : *The Hour of Truth* – Percival Wilde

IV. Writing : E- Mail Writing

UNIT – IV

I. Listening

1. *Inaugural Address* – John. F. Kennedy (Speech: Prose)

2. *Prepared to Die*- Nelson Mandela (Speech: Prose)

II. Speaking : Presentation Skills

III. Reading : Autobiography : *Sorrows of Childhood* – Charles Chaplin

IV. Writing: Resume Writing

UNIT – V

I. Listening: Some useful Expressions

II. Speaking : Speech Writing

III. Reading :

1. Biography: *Marie Curie*- Colin Mitchell

2. Biography: *Sarojini Naidu* – Padmini Sengupta

IV. Writing: Minutes Writing

Communicative English – III

Text:

1. Aravindakshan.T.Y, Vijayalakshmi.C.K, Sailaja. A.K. *Reading Literature In English*. Delhi: Cambridge University Press India. Pvt., Ltd., 2013. Print.
2. Board of Editors. *Break Through*. Hyderabad: Orient Blackswan, 2015. Print.
3. Board of Editors. *Lime Light-3 (An Anthology of Prose, Biography, Poetry, Short Story and One Act Plays)*. Chennai: SSK Publishers& Distributers, 2015. Print.
4. Board of Editors. *Lime Light-1 (An Anthology of Prose, Biography, Poetry, Short Story and One Act Plays)*. Chennai: SSK Publishers& Distributers, 2015. Print.
5. Board of Editors. *Sunlight-IV (An Anthology of Prose, Poetry, Drama and Language Items)*. Chennai: Anuradha Publications, 2016. Print.
6. Dr. Ramesh, Sree. *English Through Literature (A Textbook For Undergraduate Studies)*. Hyderabad: Orient Blackswan, Pvt Ltd, 2013. Print.
7. Narayanaswami.V.R. *Strengthen Your Writing*. Kolkata: Orient Blackswan Pvt., Ltd., 2013. Print.
8. Natarajan, Lalitha & Natesan, Sasikala. *English for Excellence (Short Stories and Biographies)* Chennai: Anuradha Publications, 2014. Print.
9. Pillai, Radhakrishna. G & Rajeevan.K. *Spoken English for You*. Chennai: Emerald Publishes,1994. Print.
10. Pillai, Radhakrishna.G, Baskaran Nair.P & Rajeevan.k. *Written English for You*. Madras: Emerald Publishers, 1994. Print.
11. Seshadri,K.G, ed. *A Prism of Plays*. Chennai: Anuradha Publications, 2014. Print.
12. Sukumaran, Beena. *Indian Voices (An Anthology of Indian Writings In English)*. India: Cambridge University Press.Pvt Ltd, 2015.Print.
13. Suresh Kumar. E. *Essential English*. Hyderabad: Orient Blackswan, 2015. Print.

REFERENCE:

Bhatnagar.R.P, Bhargava, Rajul, ed. *English for Competitive Examinations*. Chennai: Macmillan, 2002. Print.

YEAR – II	COMMUNICATIVE ENGLISH -IV B.A., B.Sc., (From Batch 2020 onwards)	20LE404
SEMESTER – IV		Hours: 4
PART – I ENGLISH		Credit: 3

OBJECTIVES:

1. To make students acquire Basic English Skills-Listening, Speaking, Reading and Writing.
2. To help them taste the essence of language through literature.
3. To imbibe values for life, touching upon the different facets of literature.

Course Outcomes:

CO1: Introduce themselves to the others through the soft skills.

CO2: Comprehend the local and global issues through the play and novel.

CO3: Different types of warm up activities can be used to group discussion.

CO4: Use the interactive skills through the negations and homophones in the text.

CO5: Enhance their language Skills and understanding the social background.

SEMESTER –IV		COURSE CODE:		TITLE OF THE PAPER : COMMUNICATIVE ENGLISH-IV									HOURS: 4		CREDIT: 3	
COURSE OUTCOMES		PROGRAMME OUTCOMES(PO)			PROGRAMME SPECIFIC OUTCOMES (PSO)										MEAN SCORE OF CO'S	
Co	Po 1	Po 2	Po 3	Po 4	Po 5	PSo 1	PSo 2	PSo 3	PSo 4	PSo 5	PSo 6	PSo 7	PSo 8	Mean Score		
Co1	5	5	4	5	5	5	5	5	5	4	5	5	5	4.8		
Co2	5	5	3	5	5	3	4	5	4	5	5	3	5	4.3		
Co3	5	5	4	3	3	4	3	4	4	4	2	3	5	3.7		
Co4	5	5	4	4	4	5	5	3	5	4	4	5	5	4.4		
Co5	5	5	4	5	3	5	5	5	4	5	4	4	5	4.5		
Mean Overall Score														4.3		

This Course is having **VERY HIGH association** with Programme Outcome and Programme Specific Outcome

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

UNIT- 1

I. Listening: Mock – Interviews / Actual Interviews

II. Speaking:

1. Facing an Interview
2. Tele – Interviews

III. Reading

1. Drama: *Julius Caesar - Funeral Oration* – William Shakespeare
2. Novel: *The Count of Monte Cristo* - Alexandre Dumas
(Chapter 01-10)

IV. Writing: Description

UNIT- II

I. Listening: Words often confused

II. Speaking: Seminar Skills

III. Reading

1. Drama: *Macbeth- He Kills Sleep* - William Shakespeare
2. Novel: *The Count of Monte Cristo* - Alexandre Dumas (Chapter 11-20)

IV. Writing : Idioms and Phrases

UNIT- III

I. Listening:

1. Homonyms and Similar words
2. Tele – conferences

II. Speaking:

1. Handling Customers or Clients
2. Receiving Visitors

III. Reading

1. Drama: *Henry IV (Part I) -Play out a Play* –William Shakespeare
2. Novel: *The Count of Monte Cristo* - Alexandre Dumas
(Chapter 21-30)

IV. Writing: The use of Graphics

UNIT- IV

I. Listening: Homophones

II. Speaking:

1. Booking Hotel Accommodation
2. Making Small Talk and Telling Stories

III. Reading

1. Drama: *Patterns of Love – As You Like It* - William Shakespeare
2. Novel: *The Count of Monte Cristo* - Alexandre Dumas
(Chapter 31-40)

IV. Writing Negotiations

UNIT- V

I. Listening: Group Discussions

II. Speaking:

1. Making Appointments
2. Cancelling and Rescheduling Appointments

III. Reading

1. Drama: *Hamlet – Churchyard* - William Shakespeare
2. Novel: *The Count of Monte Cristo* - Alexandre Dumas
(Chapter 41-49)

IV. Writing : Writing Review of Books

Communicative English - IV

Text:

1. Board of Editors. *Selected Scenes from Shakespeare's Plays*. Chennai: Emerald Publishers, 2000. Print.
2. Dumas, Alexandre. *The Count of Monte Cristo*. Madras: Macmillan, 1994. Print.
3. Green, David, ed. *Contemporary English Grammar Structures and Composition*. Delhi: Macmillan publishers, 1971. Print.
4. Narayanaswami, V.R. *Strengthen Your Writing*. Kolkata: Orient Blackswan Pvt., Ltd., 2003. Print.
5. Pillai, Radhakrishna. G & Rajeevan. K. *Spoken English for You*. Madras: Emerald, 1994. Print.
6. Rao, Prasanna, N.D.V, *A Guide to Better English for Students (The Students Handbook)*. New Delhi: S. Chand & Company Ltd., 1992. Print.
7. Samson, T, Rajeevan, Geetha & Consultant Editor. *Interface 2*. Chennai: Cambridge University Press. 2008. Print.
8. Sharma, R.C, Krishna Mohan. 4thed. *Business Correspondence and Report Writing (A Practical Approach to Business & Technical Communication)*. New Delhi: Tata MC Graw Hill Education Pvt Ltd., 2010. Print.
9. Suresh Kumar. E. *Essential English*. Hyderabad: Orient Blackswan, 2015. Print.
10. Tina Thoburn, Ruta Schlatterbeck and Ann Terry. *Macmillan English*. New York: Macmillan Publishing Co., 1982. Print.

REFERENCE:

Bhatnagar, R.P. *English for Competitive Examinations*. Chennai: Macmillan, 2002. Print.

Year – I	ENGLISH DRAMA From the year 2018	Code : 18PEN21
Semester – II		Hours : 6
Main – V		Credit : 5

Objectives:

1. To introduce the students to the earliest English dramatists through representative texts.
2. To gain a deeper knowledge of the writers and their works.

Course Outcomes

CO1: understanding and interpretation of drama as a genre of literature.

CO2: Techniques in modern English Drama

CO3: In acquiring knowledge of some of the important dramatic works

CO4 : Various trends in drama, and the different themes dealt in the dramas during the different literary periods.

CO5: The development of modern English Drama also with the intellectual and social background..

SEMESTER -2		COURSE CODE: 18PEN21		TITLE OF THE PAPER : English Drama				HOURS:6		CREDIT:5				
COURSE OUTCOMES		PROGRAMME OUTCOMES(PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)						MEAN SCORE OF CO'S		
Co	Po 1	Po 2	Po 3	Po 4	Po 5	PS o1	PS o2	PS o3	PS o4	PS o5	PSo 6	PSo7	PSo 8	Mean score
Co1	5	5	4	1	5	5	5	5	5	4	5	5	5	4.5
Co2	5	5	4	1	5	5	5	2	2	2	4	4	5	3.7
Co3	5	5	3	1	5	5	5	4	4	4	5	5	5	4.3
Co4	5	5	5	1	5	5	5	4	4	4	5	5	5	4.4
Co5	5	5	5	1	5	5	5	2	2	2	4	4	4	3.7
Mean Overall Score													4.1	

This Course is having **VERY HIGH association** with Programme Outcome and Programme Specific Outcome

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

Unit – I Chaucer and Elizabethan Age	15 Hrs
Thomas Kyd: <i>The Spanish Tragedy</i> (Detailed)	
Unit – II Elizabethan Age	20 Hrs
Christopher Marlowe: <i>Edward II</i> (Non-Detailed)	
Unit – III The Neo- Classical Age	20 Hrs
John Bunyan : <i>The Pilgrim’s Progress</i> (Detailed)	
John Dryden : <i>All for Love</i> (Non-Detailed)	
Unit – IV Romantic and Victorian Age	15 Hrs
P.B Shelley : <i>Prometheus Unbound</i> (Detailed)	
Oscar Wilde : <i>Lady Windermere’s Fan</i> (Non-Detailed)	
Unit – V Twentieth Century Literature	20 Hrs
Bernard Shaw : <i>Pygmalion</i> (Detailed)	
T.S. Eliot : <i>Murder in the Cathedral</i> (Non-Detailed)	
Harold Pinter : <i>The Birthday Party</i> (Non-Detailed)	

Text:

1. Kyd, Thomas. *The Spanish Tragedy*. London: Bloomsberry, 2013. Print.
2. Marlowe, Christopher. *Edward II*. London: Nick Hern Books, 1997. Print.
3. Bunyan, John. *The Pilgrim’s Progress*. New York: Barnes and Noble Books, 2005. Print.
4. Dryden, John. *All for Love*. London: Nick Hern Books Limited, 1998. Print.
5. Shelley, P.B. *Prometheus Unbound: A Lyric Drama*. London: E. Arnold and Essex House Press, 1904. Print.
6. Wilde, Oscar. *Lady Windermere’s Fan*. New York: Oxford University Press, 1998. Print.
7. Eliot, T.S. *Murder in the Cathedral*. Delhi: OOP, 1990. Print.
8. Shaw, G.B. *Pygmalion*. New Delhi: Orient Longman, 1999. Print.
9. Pinter, Harold. *Complete Works: One*. New York: Grove Weidenfeld, 1976. Print.

Reference:

1. Iyer, K.S., Pradip Patil, and M.B. Kauthekar, eds. *The English Drama*. Baramati: Prestige Publications. 2000.
2. Gassner, John. *An Anthology: An Introduction to the Drama*. New York: Holt, Rinehart and Winston. 1963. Print.
3. Esslin. M. *The Theater of the Absurd*. London: Eyer and Spottiswoode, 1964.

I B.A., ENGLISH	BRITISH POETRY	21EN203
SEMESTER – II		HRS / WK 6
CORE - III		CREDITS: 4

Objectives

1. To expose students to a comprehensive knowledge pertaining to the evaluation of English poetry down the ages.
2. To inculcate a sense of appreciation and enjoyment of English Poetry.

Course Outcomes:

At the end of the course, students

CO 1: Understand and appreciate the literary aspects of poetry.

CO 2: Understand analyse the various elements of poetry

CO 3: Critically analyse poetry

CO 4: Develop their own creativity from a variety of cultures, language and histo

CO 5: Create their own poetry through the writing skills

SEMESTER II		COURSE CODE: 21EN203				COURSE TITLE: BRITISH POETRY					HOURS 6		CREDIT: 4	
COURSE OUTCOMES		PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)								MEAN SCORE OF CO'S
CO	PO 1	PO2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	Mean score
CO1	5	5	5	1	5	5	5	4	4	4	5	5	5	4.4
CO2	5	5	5	1	5	5	5	5	5	5	5	5	5	4.6
CO3	5	5	5	1	2	5	5	5	5	5	5	5	5	4.4
CO4	4	5	4	2	4	5	5	2	2	2	4	4	4	3.2
CO5	4	4	4	2	5	5	5	2	2	2	4	4	5	3.6
Mean Overall Score														4.04

Result: The score of this course 4.04 (**VERY HIGH**)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

Unit – I: (Detailed) [18 HRS]

1. Spenser: Sonnet No. 75
2. Milton : On his Blindness
3. Dryden : St. Cecilia's Day

Unit – II: (Non-Detailed) [18 HRS]

4. Gray: Elegy Written in a Country Churchyard
5. Coleridge: Kubla Khan
6. Shelley : Ode to the West Wind
7. Keats: Ode to a Nightingale

Unit – III: (Detailed) [18 HRS]

8. Alfred Lord Tennyson: The Lady of Shallot
9. R. Browning: My Last Duchess
10. D. G. Rossetti: The Blessed Damsel

Unit – IV: (Non-Detailed) [18 HRS]

11. G. M. Hopkins: God's Grandeur
12. W. B. Yeats: Sailing to Byzantium
13. Wilfred Owen: Anthem for Doomed Youth
14. D.H. Lawrence: The Snake

Unit – V: (Detailed) [18 HRS]

15. W. H. Auden : The Unknown Citizen
16. Louis Mac Niece: Prayer Before Birth
17. Ted Hughes: Hawk Roosting

Text Books:

1. Green, David. *The Winged Word*. Chennai: Macmillan, 2002.Print.
2. Wain, John. Ed. **The Oxford Anthology of English Poetry**. New York: OUP, 1986.
3. Mundern. S.C. Ed. **W.B. Yeats: Selected Poems**. New Delhi: Prakash Book Depot, 2004.
4. Roberts, Micael (Ed.): Faber Book of Modern Verse
5. Leavis, F. R : New Bearings in English Poetry

Reference Books:

1. Wain, John. Ed. The Oxford Anthology of English Poetry. Vol.II. New York: OUP, 1990.
2. Hiller, Geoffrey G. Poems of the Elizabethan Age. London and New York: Routledge, 1990.
3. Leavis, F.R. New Bearings in English Poetry. New Delhi: OUP, 2002.
4. Lewis, D.C. The Poetic Image, New Delhi: OUP, 1990.
5. Greene, David.The Winged Word
6. The Pelican Guide to English Literature, Vol. IV

Question Paper Pattern

**Semester II
CORE - III – British Poetry
CODE: 21EN203**

Total Marks-75

Section-A

- I. Five Annotations (only from detailed texts)/ Five Short Answers (covering all units)
(No Choice) 10x2=20

Section-B

- II. Paragraph (150 words)
(Either or type) 5x5=25

Section-C

- III. Essays (300 words)
(Answer 3 out of 5) 3x10=30

NOTE: Questions must be taken covering all units in all the three sections

II B.A., ENGLISH	AMERICAN LITERATURE	Code: EN305A
SEMESTER – III		HRS / WK 6
CORE – V		CREDITS: 4

Objectives

1. To familiarize students more with the developments in American Literature from its beginning to the mid-twentieth century.
2. To introduce students to a few further select writings in American Literature.

Course Outcomes:

At the end of the course the students exhibit

CO1. Basic knowledge of the origin of American literature.

CO2. The basic concepts of American literary texts.

CO3. Difference in Indian and American literature.

CO4. The classicism in the culture of American texts.

CO5. The fundamentals of American literature.

SEMESTER –III	COURSE CODE: 21EN305		COURSE TITLE : AMERICAN LITERATURE										HOURS 6	CREDITS: 4	
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)										MEAN SCORE OF CO'S
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6	PS O7	PS O8	MEAN SCORE	
CO1	5	5	5	2	5	5	3	4	4	4	5	5	5	4.3	
CO2	5	5	5	1	5	5	5	3	3	3	4	4	4	4.0	
CO3	5	5	4	1	4	5	5	1	1	1	3	3	4	3.2	
CO4	5	5	5	2	5	5	5	5	5	4	5	5	5	4.6	
CO5	5	5	5	2	5	5	5	2	2	2	4	4	5	3.9	
Mean Overall Score														4.0	

Result : The score of this course is 4.0 (VERY HIGH)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT - I POETRY (DETAILED)**[18 HRS]**

Edgar Allan Poe	:	The Raven
Robert Frost	:	Stopping by Wood on a snowy Evening
Carl Sandburg	:	Happiness

UNIT - II POETRY (NON – DETAILED)**[18 HRS]**

Theodore Roethke	:	The Meadow Mouse
Emily Dickenson	:	I taste a liquor never Brewed
Walt Whitman	:	On the Beach at Night

UNIT - III PROSE (DETAILED)**[18 HRS]**

Emerson	:	The American Scholar
Thoreau	:	Where I lived and what I lived for

UNIT - IV DRAMA**[18 HRS]**

Tennessee Williams	:	The Glass Menagerie
Arthur Miller	:	All my Sons

UNIT - V FICTION**[18 HRS]**

Mark Twain	:	The Adventures of Tom Sawyer
Ernest Hemingway	:	The Old Man and the Sea

Text Books:

1. American Literature of 19th century: An Anthology Eurasia Publishing House, New Delhi.
2. American Literature 1890-1965 : An Anthology Eurasia Publishing House, New Delhi.
3. Egbert, s Oliver. Ed. **An Anthology of American Literature 1890 – 1965**. Chennai: S. Chand and Company.

Reference Books:

1. Millard's Contemporary American Fiction. (OUP)
2. America Is Drewry O'Connor, Glencoe Publishers. Pvt., Ltd.,
3. C.T.Thomas, 20th Century Verse An Anglo – American Anthology (Macmillan)
4. Beyond Gender and Geography, American Women Writers (EWP)
5. 1. Yanni Robert Di **Literature : Reading Fiction, Poetry and Drama**, McGraw Hill,2000.
6. Forester, Norman et al: **Introduction to American Poetry and Prose**.

I B.A., ENGLISH	COMMUNICATIVE ENGLISH – II B.A., B.Sc.,	LE202A
SEMESTER – II		HRS / WK 4
PART – II ENGLISH		CREDITS: 3

OBJECTIVES:

- To make students acquire Basic English skills: Listening, Speaking, Reading and Writing.
- To enable the students learn the art of communication through reading Literature.
- To enable the students understand and appreciate the beauty of life through Literature.

COURSE OUTCOMES

At the end of the course students exhibit

- CO 1.** Fundamental knowledge of English language.
CO 2. Communication skills.
CO3. The task centering on language skills development.
CO 4. Train and develop the conversation skills.
CO 5. Develop creative and critical thinking and speaking skills.

SEMESTER - II		COURSE CODE: LE202A		COURSE TITLE : COMMUNICATIVE ENGLISH – II								HOURS 4		CREDITS: 3
COURSE OUTCOMES		PROGRAMME OUTCOMES(PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)								MEAN SCORE OF CO'S
CO	PO 1	P O 2	P O 3	PO 4	P O 5	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6	PS O7	PS O8	MEAN SCORE
CO1	1	2	1	3	2	3	3	1	1	1	1	1	1	1.6
CO2	3	4	3	4	3	5	5	1	1	1	3	3	5	3.1
CO3	5	4	4	3	5	5	5	2	2	2	5	5	5	4.0
CO4	2	2	2	4	3	4	5	2	2	2	4	5	5	3.2
CO5	5	5	5	4	5	5	5	4	4	4	5	5	5	4.6
Mean Overall Score														3.3

Result: The score of this course is 3.3 (HIGH)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT-I

- I Listening:** Triphthongs **12 HRS**
- II Speaking:** 1. Making Requests and Responding to Requests
2. Thanking someone and Responding to thanks
- III Reading:** Prose: *How to be a Doctor* - Stephen Leacock
- IV Writing:** 1. Precis Writing
2. Non – Finite Verbs
3. Strong and Weak Verbs
4. The Auxiliaries

UNIT-II

- I Listening:** Strong and Weak Forms in Transcription **12 HRS**
- II Speaking:** 1. Inviting and Accepting and Refusing an Invitation
2. Apologising and Responding to an Apology
- III Reading:** Poem: *Auguries of Innocence* – William Blake
- IV Writing:** 1. Note Making
2. Use of wrong Preposition
3. Unnecessary use of Articles

UNIT-III

- I Listening:** The Relationship between Spelling and Sound **12 HRS**
- II Speaking:** 1. Paying Compliments, Showing Appreciation, Offering Encouragement and Responding to them.
2. Asking for, Giving and Refusing Permission.
- III Reading:** Prose: *My Vision for India* – A.P.J. Abdul Kalam
- IV Writing:** 1. Report Writing
2. Punctuation and Capitals

UNIT-IV

- I Listening:** Sentence Transcription **12 HRS**
- II Speaking:** Describing Daily Routines
- III Reading:** 1. Poem: *If* – Rudyard Kipling
2. One-Act Play: *The Merchant of Venice*
-William Shakespeare
- 'Trial for a Pound of Flesh'
- IV Writing:** 1. Paragraph Writing
2. Personal Details

UNIT-V

- I Listening:** Transcribing short passages **12 HRS**
- II Speaking:** Asking for directions and giving directions
- III Reading:** Biography: *Kiran Bedi*- Parmesh Dangwal
- IV Writing:** 1. Use of wrong tenses
1. The uses of prefixes and suffixes

2. Text Books:

1. **A Text Book of English Phonetics for Indian Students:** Balasubramanian. T, Hyderabad, Macmillan, (1981).
2. **Spoken English for You:** Pillai, Radhakrishna.G&Rajeevan.K, Madras. Emerald, (1994).
3. **Vision In Verse (An Anthology Of Poems):** ed. S.P.S. Dahiya, Chennai, OUP. 2003.
4. **English For Excellence (Prose):** Lalitha Natarajan, Sasikala Natesan, Chennai. Anuradha Publications, 2007.
5. **English For Excellence (Short Stories and Biographies):** Lalitha Natarajan, Sasikala Natesan, Chennai. Anuradha Publications, 2007.
6. **The Tuneful Voice (Poetical Selections for The Young):** ed. K.G. Seshadri, Chennai. Anuradha publications, 2005.
7. **Selected Scenes From Shakespeare's Plays:** Board of Editors, Chennai. Emerald publishers, 2000.
8. **Contemporary English Grammar Structures and Composition:** ed. David Green, Delhi. Macmillan, 2014.

Reference Books:

1. **English for Competitive Examinations:** ed. R.P. Bhatnagar, Rajul Bhargava. Chennai. Macmillan, 2002.
2. **Living English Structure (Practice Book for Foreign Students and Key):** Stannard Allen. London. Longmans, Green and Co., 1956.

I B.Com / BBM/ BCA / BBA	COMMUNICATIVE ENGLISH – I B.Com./B.Com.(BM)/ B.C.A./B.B.A.(CA)	LEC101A
SEMESTER – I		HRS / WK 5
PART – II ENGLISH 1		CREDITS: 3

OBJECTIVE:

To expose the students to human values through Literature and to enable them acquire communication skills.

Course Outcomes:

At the end of the course students

CO1: Make use of the different genres for understanding the language skills.

CO2: Use the language skills activities for effective communication.

CO3: Understanding the social background and human values through literature.

CO4: Develop interpersonal skills for their using way of language

CO5: Improve their General Writing Skills.

SEMESTER -I	COURSE CODE: LEC101A	COURSE TITLE : COMMUNICATIVE ENGLISH-I											HOURS 4	CREDI TS: 3
COURSE OUTCO MES	PROGRAMME OUTCOMES (PO)	PROGRAMME SPECIFIC OUTCOMES (PSO)												MEAN SCORE OF CO'S
CO	PO 1	P O2	P O3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5	PSO 6	PS O7	PSO 8	Mean score
CO1	5	5	5	2	5	5	5	3	2	4	4	4	5	4.1
CO2	5	5	5	5	5	5	5	2	2	2	4	5	5	4.2
CO3	5	4	3	2	5	5	5	5	5	3	4	5	5	4.3
CO4	5	5	3	5	3	5	5	1	1	1	3	3	4	3.3
CO5	5	5	3	3	2	4	5	2	2	2	2	4	4	3.3
Mean Overall Score														3.84

Result : The score of this course is 3.84 (**HIGH**)

Associatio n	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT- I Preparatory Language Skills:**[15 HRS]**

1. Character is Destiny – S. Radha Krishnan (Prose)
2. All the World's a Stage – William Shakespeare (Poetry)
3. The Never Never Nest – Cedric Mount (Play)

UNIT- II Communication Skills**[15 HRS]**

1. Understanding Communication
2. Greeting and Introducing
3. Making Requests
4. Agreeing and Disagreeing
5. Seeking and Giving Permission
6. Persuading and Debating
7. Sounds and Symbols in English
8. Word and Sentence Stress
9. Effective Use of Intonation
10. Telephone Manners in Business Situations
11. Handling Customer Orders and Enquiries
12. Handling Complaint Calls

UNIT-III Literature**[15 HRS]**

1. The Gift of the Magi – O'Henry (Short Story)
2. MallalaYousafzai Pakistani Activist – Naomi Blumberg (Biography)
3. The Monkey's Paw – W.W Jacob (One – Act Play)

UNIT – IV INTERPERSONAL COMMUNICATION**[15 HRS]**

1. Effective Listening
2. Understanding the Audience
3. Perceptual Clarity
4. Channel Awareness
5. Role of Non – Verbal Communication
6. Pragmatics
7. Handling Delivery and After – Sales Problems
8. Taking Part in Teleconferences
9. Tele – Interviews

UNIT-V Writing Skills**[15 HRS]**

1. Note – Making
2. Report – Writing
3. Publicity Literature (Advertisements)

COMMUNICATIVE ENGLISH – I

Text Books:

1. Dutt, Kiranmai. PandGeethaRajeevan. *Basic Communication Skills*. New Delhi: Cambridge University Press India Pvt. Ltd., 2007. Print.
2. Pillai, Radhakrishna.G, Rajeevan.K, BhaskaranNair.P. *Written English For You*. Madra: Emerald Publishers, 1994. Print.
3. Ravindran. Padma, M.D.V.Kalyani Annie and Board of Editors. *Interface I*.New Delhi: Cambridge University Pres India Pvt. Ltd., 2007. Print.
4. Samson.T,GeethaRajeevan and Consultant Editor. *Interface 2*. New Delhi: Cambridge University Press India Pvt. Ltd., 2008. Print.
5. Samson.T,GeetahRajeevan, M.D.V.K .Ayani Annie and Board of Editors. *English for Life 2*. New Delhi: Cambridge University press India Pvt. Ltd., 2008. print.
6. Sharma.R.C. and Krishna Mohan. *Business Correspondence and Report Writing*. New Delhi: Tata McGraw Hill Education Pvt. Ltd., 2010. Print.

Reference Books:

1. Pillai, Radhakrishna.G, Rajeevan.K, BhaskaranNair.P. *Written English For You*. Madra: Emerald Publishers, 1994. Print.
2. Ravindran. Padma, M.D.V.Kalyani Annie and Board of Editors. *Interface I*.New Delhi: Cambridge University Pres India Pvt. Ltd., 2007. Print.

I B.A., ENGLISH	COMMUNICATIVE ENGLISH – I B.A., B.Sc.,	LE101A
SEMESTER – I		HRS / WK 4
PART – II ENGLISH		CREDITS: 3

OBJECTIVE: To make students acquire Basic English skills-Listening, Speaking, Reading and Writing

COURSE OUTCOMES

At the end of the course students

- CO 1. Acquire Basic English language skills
- CO2. Learn communication through language.
- CO 3. Learn Basic English sounds and spelling.
- CO 4. Learn report writing and use of punctuation.
- CO 5. Acquire basic grammar.

SEMESTER -I	COURSE CODE: LE101A					COURSE TITLE : COMMUNICATIVE ENGLISH – I								HOURS 4	CREDITS: 3
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)								MEAN SCORE OF CO'S	
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	Mean score	
CO 1	1	2	1	3	2	3	3	1	1	1	1	1	1	1.6	
CO 2	3	4	3	4	3	5	5	1	1	1	3	3	5	3.1	
CO 3	5	4	4	3	5	5	5	2	2	2	5	5	5	4.0	
CO 4	2	2	2	4	3	4	5	2	2	2	4	5	4	3.1	
CO 5	5	5	5	4	5	5	5	4	4	4	5	5	5	4.6	
Mean Overall Score														3.28	

Result: The score of this course is 3.28 (**HIGH**)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT-I

- I Listening:** English speech sounds- Consonants **12 HRS**
- II Speaking:**
1. Meeting People, Exchanging Greetings & Taking Leave
 2. Introducing people to others
- III Reading:** Prose: *Forgetting* - Robert Lynd
- IV Writing:**
1. Letter-Writing - Informal Letters
 2. The Sentence
 3. Parts of Speech

UNIT-II

- I Listening:** Speech sounds- Pure Vowels **12 HRS**
- II Speaking:**
1. Giving Personal Information
 2. Talking about people
- III Reading:** Poem: *Mending Wall* – Robert Frost
- IV Writing:**
1. Letter-Writing - Formal Letters
 2. Nouns – Classes and Gender
 3. Nouns – Number and case
 4. Adjectives
 5. Comparison of Adjectives

UNIT-III

- I Listening:** Diphthongs **12 HRS**
- II Speaking:**
1. Taking and leaving messages
 2. Making enquiries on the phone
- III Reading:** Poem: *Time and Love* – William Shakespeare
- IV Writing:**
1. Dialogue Writing
 2. Articles
 3. Pronouns – Personal, Reflexive and Emphatic
 4. Pronouns – Demonstrative, Indefinite, Interrogative, Distributive and Reciprocal
 5. Pronouns – Relative

UNIT-IV

- I Listening:** Phonetic Transcription (words) **12 HRS**
- II Speaking:** Answering the Telephone and Asking for Someone
- III Reading:**
1. Prose: *Mother Teresa* - John Frazer
 2. One-Act Play: *The Best Laid Plans* - Farrel Mitchell
- IV Writing:**
1. Reading Comprehension
 2. Verbs – Transitive and Intransitive
 3. Verbs – Active and Passive Voices

UNIT-V

- I Listening:** Voiced and Voiceless sounds **12 HRS**
- II Speaking:** Dealing with a wrong number
- III Reading:** Short Story: *The Selfish Giant*- Oscar Wilde
- IV Writing:**
1. Verbs: Mood and Tense
 2. Concord or Agreement of the verb with the Subject

Text Books:

1. **A Text Book of English Phonetics for Indian Students:** Balasubramanian. T, Hyderabad, Macmillan, (1981).
2. **Spoken English for You:** Pillai, Radhakrishna.G&Rajeevan.K, Madras. Emerald, (1994).
3. **A Galaxy of Precious Prose** (an anthology of prose sections): ed. Dr.Rao, Syamala.B, Madras. Blackie Books, (2001).
4. **American Literature 1890-1965 (An Anthology):** ed. Dr. Egbert.S, Oliver, P.hd., New Delhi. Eurasia Publishing House (Pvt) Ltd. 2008.
5. **Vignettes of Life (A Collection of Short Stories):** ed. Padma.T, Chennai. Macmillan (1998).
6. **Portraits In Prose (An Anthology of Biographical Sketches):** Jagadesan. S, Chennai. Orient Blackswan, 2007.
7. **The Book of Elizabethan Verse:** ed. William Stanley Braithwaite. Boston: Herbert B. Turner & Co., www.bartley.com
8. **A Pride of Plays:** ed. Prof. K.G. Seshadri, Chennai. Anuratha Publications. 2014.
9. **Contemporary English Grammar Structures and Composition:** ed. David Green, Delhi. Macmillan, 2014.

Reference Books:

3. **English for Competitive Examinations:** ed. R.P. Bhatnagar, Rajul Bhargava. Chennai. Macmillan, 2002.
4. **Living English Structure (Practice Book for Foreign Students and Key):** Stannard Allen. London. Longmans, Green and Co., 1956.

I B.A., ENGLISH	COMMUNICATIVE ENGLISH – II B.A., B.Sc.,	LE202A
SEMESTER – II		HRS / WK 4
PART – II ENGLISH		CREDITS: 3

OBJECTIVES:

- To make students acquire Basic English skills: Listening, Speaking, Reading and Writing.
- To enable the students learn the art of communication through reading Literature.
- To enable the students understand and appreciate the beauty of life through Literature.

COURSE OUTCOMES

At the end of the course students exhibit

CO 1. Fundamental knowledge of English language.

CO 2. Communication skills.

CO3. The task centering on language skills development.

CO 4. Train and develop the conversation skills.

CO 5. Develop creative and critical thinking and speaking skills.

SEMESTER - II		COURSE CODE: LE202A		COURSE TITLE : COMMUNICATIVE ENGLISH – II								HOURS 4		CREDITS: 3
COURSE OUTCOMES		PROGRAMME OUTCOMES(PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)								MEAN SCORE OF CO'S
CO	PO 1	P O 2	P O 3	PO 4	P O 5	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6	PS O7	PS O8	MEAN SCORE
CO1	1	2	1	3	2	3	3	1	1	1	1	1	1	1.6
CO2	3	4	3	4	3	5	5	1	1	1	3	3	5	3.1
CO3	5	4	4	3	5	5	5	2	2	2	5	5	5	4.0
CO4	2	2	2	4	3	4	5	2	2	2	4	5	5	3.2
CO5	5	5	5	4	5	5	5	4	4	4	5	5	5	4.6
Mean Overall Score														3.3

Result: The score of this course is 3.3 (HIGH)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT-I

- I Listening:** Triphthongs **12 HRS**
- II Speaking:** 1. Making Requests and Responding to Requests
2. Thanking someone and Responding to thanks
- III Reading:** Prose: *How to be a Doctor* - Stephen Leacock
- IV Writing:** 1. Precis Writing
2. Non – Finite Verbs
3. Strong and Weak Verbs
4. The Auxiliaries

UNIT-II

- I Listening:** Strong and Weak Forms in Transcription **12 HRS**
- II Speaking:** 1. Inviting and Accepting and Refusing an Invitation
2. Apologising and Responding to an Apology
- III Reading:** Poem: *Auguries of Innocence* – William Blake
- IV Writing:** 1. Note Making
2. Use of wrong Preposition
3. Unnecessary use of Articles

UNIT-III

- I Listening:** The Relationship between Spelling and Sound **12 HRS**
- II Speaking:** 1. Paying Compliments, Showing Appreciation, Offering Encouragement and Responding to them.
2. Asking for, Giving and Refusing Permission.
- III Reading:** Prose: *My Vision for India* – A.P.J. Abdul Kalam
- IV Writing:** 1. Report Writing
2. Punctuation and Capitals

UNIT-IV

- I Listening:** Sentence Transcription **12 HRS**
- II Speaking:** Describing Daily Routines
- III Reading:** 1. Poem: *If* – Rudyard Kipling
2. One-Act Play: *The Merchant of Venice*
-William Shakespeare
- 'Trial for a Pound of Flesh'
- IV Writing:** 1. Paragraph Writing
2. Personal Details

UNIT-V

- I Listening:** Transcribing short passages **12 HRS**
- II Speaking:** Asking for directions and giving directions
- III Reading:** Biography: *Kiran Bedi*- Parmesh Dangwal
- IV Writing:** 1. Use of wrong tenses
5. The uses of prefixes and suffixes

6. Text Books:

9. **A Text Book of English Phonetics for Indian Students:** Balasubramanian. T, Hyderabad, Macmillan, (1981).
10. **Spoken English for You:** Pillai, Radhakrishna.G&Rajeevan.K, Madras. Emerald, (1994).
11. **Vision In Verse (An Anthology Of Poems):** ed. S.P.S. Dahiya, Chennai, OUP. 2003.
12. **English For Excellence (Prose):** Lalitha Natarajan, Sasikala Natesan, Chennai. Anuradha Publications, 2007.
13. **English For Excellence (Short Stories and Biographies):** Lalitha Natarajan, Sasikala Natesan, Chennai. Anuradha Publications, 2007.
14. **The Tuneful Voice (Poetical Selections for The Young):** ed. K.G. Seshadri, Chennai. Anuradha publications, 2005.
15. **Selected Scenes From Shakespeare's Plays:** Board of Editors, Chennai. Emerald publishers, 2000.
16. **Contemporary English Grammar Structures and Composition:** ed. David Green, Delhi. Macmillan, 2014.

Reference Books:

3. **English for Competitive Examinations:** ed. R.P. Bhatnagar, Rajul Bhargava. Chennai. Macmillan, 2002.
4. **Living English Structure (Practice Book for Foreign Students and Key):** Stannard Allen. London. Longmans, Green and Co., 1956.

I B.Com / BBM/ BCA / BBA	COMMUNICATIVE ENGLISH – II B.Com./B.Com.(BM)/ B.C.A./B.B.A.(CA)	LEC202A
SEMESTER – II		HRS / WK 5
PART – II ENGLISH 2		CREDITS: 3

OBJECTIVE:

To expose the students to human values through Literature and to enable them acquire communication skills.

Course Outcomes:

At the end of the course, students will able to

CO1: Make use of literary texts to develop their reading skills.

CO2: Understand the basic business English for effective communication.

CO3: Understanding and inculcating universal human values through literature texts.

CO4: Develop Positive Self –Esteem and Inter-active skills.

CO5: Write business letters and prepare Resumes for Jobs and Career skills.

SEMESTER -II		COURSE CODE: LEC202A				COURSE TITLE : COMMUNICATIVE ENGLISH-II						HOURS 5		CREDITS: 3
COURSE OUTCOMES		PROGRAMME OUTCOMES(PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)								MEAN SCORE OF CO'S
Co	P O1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5	PSO 6	PS O7	PS O8	Mean score
CO1	5	5	5	3	5	5	5	3	2	2	4	5	5	4.1
CO2	5	5	4	5	5	5	5	1	1	1	4	4	4	3.7
CO3	5	5	4	3	5	5	5	2	2	2	4	4	5	3.8
CO4	5	5	4	5	5	5	5	2	2	2	3	3	4	3.8
CO5	4	4	4	4	2	4	5	1	1	1	2	3	3	2.9
Mean Overall Score														3.68

Result : The score of this course is 3.68 (**HIGH**)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT- I [15 HRS]

Preparatory language skills

1. Indian Women - S. Radhakrishnan (Prose)
2. The Solitary Reaper – William Wordsworth (Poem)
3. The Purple Dress – O’Henry (Short Story)

UNIT-II [15 HRS]

Basics of Business English

1. Importance of Effective Communication in Business Contexts
2. Face – to - Face Communication with Customers and Visitors.
3. Basic Skills for Talking to People in Transactional Situations
4. Receiving Visitors
5. Booking Hotel Accommodation
6. Making Small Talk and Telling Stories.
7. Group Discussions
8. Preparing for Interviews
9. Taking Interviews
10. Promotion Interviews

UNIT-III - Literature [15 HRS]

1. Give us a Role Model – A.P.J. Abdul Kalam (Prose)
2. Sowali – Mahasweta Devi (Story)
3. J.R.D’s Words of Inspiration to Sudha Murthy (Prose)

UNIT-IV [15 HRS]

Discussions / Meetings / Team Skills

1. Preparing Agenda for Meetings
2. Writing Minutes of Meetings
3. Making Notes of Business conversations
4. Making Business Presentations
5. Business promotions and Language for Advertising
6. Negotiating
7. Communication Skills with Public, Fellow Employees, Supervisors and Customers
8. Soft Skills for Team Building
9. Team Maintenance and Task Maintenance roles
10. Brainstorming and Consensus –Making Communication

UNIT-V [15 HRS]

JOBS AND CAREERS

1. Standard Business Letter

2. Applying for Jobs and Preparing Resumes
3. Writing cover letters for resumes

COMMUNICATIVE ENGLISH – II

Text Books:

1. Aravindakshan.T.Y. *Reading Literature in English*. Chennai: Cambridge University press India Pvt. Ltd., 2012. print.
2. Board of Editors. *Sunlight III*. Chennai. Sankari Printers Pvt. Ltd., 2015. Print.
3. Samson.T, GeethaRajeevan and Cosultant Editor. *Interface 2*. New Delhi: Cambridge University Press India Pvt., Ltd., 2008. Print.
4. Sharma.R.C. and Krishna Mohan. *Business Correspondence and Report Writing*. New Delhi: Tata McGraw Hill Education Pvt. Ltd., 2008. Print.
5. Sharma.R.C. and Krishna Mohan. *Business Correspondence and Report Writing*. New Delhi: Tata McGraw Hill Education Pvt. Ltd., 2010. Print.
6. Sivakumaran.V. et. al *Limelight – 1*.Chennai: Sankar Printers Pvt., Ltd, 2015. Print.
7. Sivakumaran.V. et.al *Limelight – 3*. Chennai: Sankari Printers Pvt. Ltd., 2015. Print.
8. Sivakumaran.V. et.al *Limelight – 4*. Chennai. Sankari Printers Pvt. Ltd., 2015. Print.

Reference Books:

1. Pillai, Radhakrishna.G, Rajeevan.K, BhaskaranNair.P. *Written English For You*. Madra: Emerald Publishers, 1994. Print.
2. Ravindran. Padma, M.D.V.Kalyani Annie and Board of Editors. *Interface I*.New Delhi: Cambridge University Pres India Pvt. Ltd., 2007. Print.

II BBA (CA)	ENGLISH FOR COMPETTITVE EXAMINATIONS <i>Offered to BBA (CA) Department</i>	CODE:GBB31A
SEMESTER III		HRS / WK 5
Inter-Disciplinary Course (IDC)		CREDITS: 4

Objectives

1. To enrich the students in English Competitive Examinations.
2. To create an awareness on Bank Examinations.
3. To stabilize the career with banking skills.

Course Outcome:

At the end of the course Students should exhibit

CO 1 creative thinking, decision making, communication, and understanding of operations and change

CO2 verbal ability and quantitative ability

CO3 individual presentations and interview skills

CO4 The skills and self-confidence to assist in effective career

CO5 professional life to work as a business manager and entrepreneur.

SEMESTER -III	COURSE CODE: GBB31A	COURSE TITLE : English for Competitive Examinations										HOURS 5	CREDIT S:4	
COURSE OUTCO MES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)								MEAN SCORE OF CO'S
CO	PO 1	P O 2	P O 3	PO 4	P O 5	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6	PS O7	PS O8	Mean score
CO1	5	4	4	5	5	4	5	5	5	4	5	4	5	4.6
CO2	5	4	3	5	4	3	4	5	4	5	5	3	5	4.2
CO3	5	5	4	3	3	4	3	4	5	5	5	3	5	4.1
CO4	5	5	4	4	5	5	5	3	5	4	4	5	5	4.5
CO5	5	5	4	5	3	4	4	5	4	5	5	4	5	4.4
Mean Overall Score														4.3

Result : The score of this course is 4.3 (**VERY HIGH**)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating< =1	1.1<=rating<= 2	2.1<=rating<= 3	3.1<=rating<= 4	4.1<=rating<= 5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

Unit – I Knowledge**[15 HRS]**

1. Parts of Speech
2. Sentence Structure
3. Answering a Passage
4. Fill In the Blanks (American Words, Grammar, Homophones)

Unit – II Understanding**[15 HRS]**

1. Error Spot
2. Odd One Out
3. Phrase Replacement
4. Sentence Connector

Unit – III Skill/ Ability**[15 HRS]**

1. Cloze Test
2. Sentence Rearrangement
3. Double Filters
4. Reading Comprehension

Unit – IV Writing**[15 HRS]**

1. Word Association
2. One Word Substitution
3. Verbal Ability
4. Writing Skill with Expressions.

Unit – V Creative Technique**[15 HRS]**

1. Multiple Meaning
2. Miscellaneous
3. Sentence Improvement
4. Mock Interview

Text Books

1. R.S.Agarwal, *Objective English*. Chennai.
2. Lewis, Norman. *Word Power Made Easy*.
3. S.P.Bakshi and Richa Sharma. *Descriptive General English*.

Reference Books:

1. Allport, G.W., *Personality: A Psychological Interpretation*. New York: Holt, 2010.
2. Asha. *Effective Business Communication*. PHI Private Learning Limited, 2000.

II B.Com (BM)	ENGLISH FOUNDATIONAL COURSE FOR BANK EXAMINATIONS <i>Offered to Commerce (BM) Department</i>	CODE:GBM42A
SEMESTER IV		HRS / WK 5
Inter-Disciplinary Course (IDC)		CREDITS: 4

Objectives

1. To enrich the students in English Competitive Examinations.
2. To create an awareness on Bank Examinations.
3. To stabilize the career with banking skills.

Course Outcome:

At the end of the course Students should exhibit

CO 1 creative thinking, decision making, communication, and understanding of operations and change

CO2 verbal ability and quantitative ability

CO3 individual presentations and interview skills

CO4 The skills and self-confidence to assist in effective career

CO5 professional life to work as a business manager and entrepreneur.

SEMESTER -IV	COURSE CODE: GBM42A	COURSE TITLE : English Foundational Course for Bank Examinations										HOURS 5	CREDITS:4	
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)								MEAN SCORE OF CO'S	
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6	PS O7	PS O8	Mean score
CO1	5	4	4	5	5	4	5	5	5	4	5	4	5	4.6
CO2	5	4	3	5	4	3	4	5	4	5	5	3	5	4.2
CO3	5	5	4	3	3	4	3	4	5	5	5	3	5	4.1
CO4	5	5	4	4	5	5	5	3	5	4	4	5	5	4.5
CO5	5	5	4	5	3	4	4	5	4	5	5	4	5	4.4
Mean Overall Score														4.3

Result : The score of this course is 4.3 (VERY HIGH)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	$0 \leq \text{rating} < 1$	$1.1 \leq \text{rating} \leq 2$	$2.1 \leq \text{rating} \leq 3$	$3.1 \leq \text{rating} \leq 4$	$4.1 \leq \text{rating} \leq 5$
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

Unit – I Knowledge [15 HRS]

1. Parts of Speech
2. Sentence Structure
3. Answering a Passage
4. Fill In the Blanks (American Words, Grammar, Homophones)

Unit – II Understanding [15 HRS]

1. Error Spot
2. Odd One Out
3. Phrase Replacement
4. Sentence Connector

Unit – III Skill/ Ability [15 HRS]

1. Cloze Test
2. Sentence Rearrangement
3. Double Filters
4. Reading Comprehension

Unit – IV Writing [15 HRS]

1. Word Association
2. One Word Substitution
3. Verbal Ability
4. Writing Skill with Expressions.

Unit – V Creative Technique [15 HRS]

1. Multiple Meaning
2. Miscellaneous
3. Sentence Improvement
4. Mock Interview

Text & Reference

1. R.S.Agarwal, *Objective English*. Chennai.
2. Lewis, Norman. *Word Power Made Easy*.
3. S.P.Bakshi and Richa Sharma. *Descriptive General English*.

Reference Books:

1. Allport, G.W., *Personality: A Psychological Interpretation*. New York: Holt, 2010.
2. Asha. *Effective Business Communication*. PHI Private Learning Limited, 2000.

Year – II	SOFT SKILLS From the year 2021	Code : 3N EN SS
Semester – III		Hours : 3
NME		Credit : 3

Course Outcome

CO 1-Soft skills help the students to learn about the cultural and linguistic barriers.

CO 2-It enhances the positive qualities of the students.

CO 3-Soft skills promote and strengthen the leadership qualities and communication skills.

CO 4-It makes the students to learn the work ethics.

CO 5- It helps to understand the corporate lifestyle.

SEMESTER II	COURSE CODE:					TITLE OF THE PAPER : Soft Skills (NME)							HOURS:3	CREDITS :3
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)								MEAN SCORE OF CO'S
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	Mean score
CO1	5	5	4	4	5	5	5	5	4	5	5	5	3	4.6
CO2	5	5	4	5	5	5	5	5	3	5	5	5	5	4.7
CO3	5	5	4	5	5	5	5	5	3	5	5	5	5	4.7
CO4	5	5	5	5	5	5	5	5	3	5	5	5	3	4.7
CO5	5	5	5	5	5	5	5	5	3	5	5	5	3	4.7
Mean Overall Score														4.6

The value shows that the course has **VERY HIGH association** with programme outcomes and programme specific outcomes

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

UNIT – I: **8 HOURS**

Learning Skills
Interview Skills
Adaptability Skills

UNIT – II: **8 HOURS**

Non-Verbal Communication Skills
Written Communication Skills
Barriers to Communication

UNIT – III: **8 HOURS**

Emotional Intelligence Skills
Stress Management and Time Management Skills
Problem-Solving Skills

UNIT – IV: **8 HOURS**

Effective Teamwork Skills
Leadership, Assertiveness and Negotiation Skills
Teaching Personality Development

UNIT – V: **7 HOURS**

Formation of Attitude
Functions of Attitude
Components of Attitude: Emotional, Behavioral, Cognitive.

TEXT:

Dhanavel, S P. *English and Soft Skills*. Orient Blackswan Private Limited, 2010.

Tengse, Ajay R. *Soft Skills*. Orient Blackswan Private Limited, 2015.

REFERENCE:

Allport, G.W., *Personality: A Psychological Interpretation*. New York: Holt, 2010.

Asha. *Effective Business Communication*. PHI Private Learning Limited, 2000.

Barrett, D. J. *Leadership Communication*. McGraw-Hill, 2010.

Mitra.B, *Personality Development & Soft Skills*. 1st edition. Oxford Press, 2011.

Payne, H.J. *Communication and Social Skills*. New York: Harper and Row, 2013.

**Question Paper Pattern
(From Batch 2021)
NME –SOFT SKILLS
Semester III
Code: 3N EN SS**

Section-A

Total Marks 75

I. Five Short Answers (covering all units) 10x2 = 20
(No Choice)

Section-B

II Paragraph (150 Words) 5x5 = 25
(Either or type)

Section-C

III Essays (300 Words) 3x10 = 30
(Answer 3 out of 5)

NOTE: Questions must be taken covering all units in all the three sections.

II YEAR	SOFT SKILLS	Code : 4NENSS
Semester – IV		HRS / WK - 2
NME		CREDITS :2

OBJECTIVES

To provides strong practical orientation to the students.

To help them in building and improving their skills in communication, the effective use of English, business correspondence, presentations, team building, leadership, time management, group discussions, interviews, and inter-personal skills.

COURSE OUTCOMES

CO 1-Soft skills help the students to learn about the cultural and linguistic barriers.

CO 2-It enhances the positive qualities of the students.

CO 3-Soft skills promote and strengthen the leadership qualities and communication skills.

CO 4-It makes the students to learn the work ethics.

CO 5- It helps to understand the corporate lifestyle.

SEMESTER IV	COURSE CODE: NENSS401					COURSE TITLE : Soft Skills							HOURS 2	CREDITS:2
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)								MEAN SCORE OF CO'S
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	Mean score
CO1	5	5	4	4	5	5	5	5	4	5	5	5	3	4.6
CO2	5	5	4	5	5	5	5	5	3	5	5	5	5	4.7
CO3	5	5	4	5	5	5	5	5	3	5	5	5	5	4.7
CO4	5	5	5	5	5	5	5	5	3	5	5	5	3	4.7
CO5	5	5	5	5	5	5	5	5	3	5	5	5	3	4.7
Mean Overall Score													4.6	

Result : The score of this course is 4.6 (VERY HIGH)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

The value shows that the course has **VERY HIGH** association with programme outcomes and programme specific outcomes

UNIT – I: 6 HOURS

Learning Skills
Interview Skills
Adaptability Skills

UNIT – II: 6 HOURS

Non-Verbal Communication Skills
Written Communication Skills
Barriers to Communication

UNIT – III: 6 HOURS

Emotional Intelligence Skills
Stress Management and Time Management Skills
Problem-Solving Skills

UNIT – IV: 6 HOURS

Effective Teamwork Skills
Leadership, Assertiveness and Negotiation Skills
Teaching Personality Development

UNIT – V: 6 HOURS

Formation of Attitude
Functions of Attitude
Components of Attitude: Emotional, Behavioral, Cognitive.

TEXT BOOKS:

1. Dhanavel, S P. *English and Soft Skills*. Orient Blackswan Private Limited, 2010.
2. Tengse, Ajay R. *Soft Skills*. Orient Blackswan Private Limited, 2015.

REFERENCE BOOKS:

1. Allport, G.W., *Personality: A Psychological Interpretation*. New York: Holt, 2010.
2. Asha. *Effective Business Communication*. PHI Private Learning Limited, 2000.
3. Barrett, D. J. *Leadership Communication*. McGraw-Hill, 2010.
4. Mitra.B, *Personality Development & Soft Skills*. 1st edition. Oxford Press, 2011.
5. Payne, H.J. *Communication and Social Skills*. New York: Harper and Row, 2013.

III BCA	Tech-Empowerment English Training (OFFERED BY ENGLISH DEPARTMENT TO BCA DEPARTMENT)	CODE: GCA63A
SEMESTER VI		HOURS -5
GENERIC ELECTIVE(GE)		CREDITS -4

Objectives:

1. To enrich the students in English Competitive Examinations.
2. To create an awareness on TOEFL/IELTS Examinations.
3. To stabilize the career with Computer-English skills.

Course Outcomes:

At the end of the course students

CO 1 Develop their intellectual, personal and professional abilities

CO 2 Acquire basic language skills (listening, speaking, reading and writing) in order to communicate with speakers of English language

CO 3 Comprehend the main ideas of texts or paragraphs, and guessing vocabulary from context.

CO 4 Acquire professional skills integrating three basic skills, research, information technology and critical thinking

CO 5 Gain Knowledge about the career goals and background.

SEMESTER VI	COURSE CODE: GCA63A					COURSE TITLE: Tech Empowerment English Training								HOURS 5	CREDITS:4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)								MEAN SCORE OF CO'S	
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	Mean score	
CO1	5	5	4	4	5	5	5	5	3	5	5	5	3	4.5	
CO2	5	5	4	5	5	5	5	5	4	5	5	5	5	4.7	
CO3	5	5	4	5	5	5	5	5	3	5	5	5	5	4.7	
CO4	5	5	5	5	5	5	5	5	3	5	5	5	3	4.7	
CO5	5	5	5	5	5	5	5	5	4	5	5	5	3	4.8	
Mean Overall Score														4.7	

Result: The score of this course 4.7

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

The value shows that the course has **VERY HIGH association** with programme outcomes and programme specific outcomes

Unit – I Practical Knowledge

1. Building Vocabulary
2. Parts of Speech
3. Sentence Formation
4. Phonetic Sounds

Unit – II Understanding

1. Listen and Repeat
2. Situational Writing
3. British / American English
 - Introduction
 - Its Use
 - Difference

Unit – III Developing Ability (Practical-Lab)

1. Reading Comprehension
2. Listening Comprehension
3. American English & British English Conversation

Unit – IV Practical Development

1. Situational Speaking
2. Public Speaking
3. Debate
4. Group Discussion

Unit – V Career Skill

1. Book Review
2. Interview Skills
3. Mock Interview

Note:

Units I, II, IV& V are practised in class.

Unit III is engaged in Lab.

Text Book:

1. Green, David. *Contemporary English Grammar: Structures and Composition*. Chennai: Macmillan Publishers India Pvt. Ltd., 2010.

Reference Book:

2. Balasubramanian, T. : A Text book of English Phonetics for Indian Students (Macmillan)

UG III YEAR	நாட்டுப்புறவியல் - முனைவர் ச.சக்திவேல் மூன்றாம் ஆண்டு (B.A., Tamil)	19ETA512
SEMESTER – V		HRS/WEEK – 6
Elective- II Main - V		CREDIT – 5

அலகு 1: நாட்டுப்புறவியல் - விளக்கம் - நாட்டுப்புறவியலின் சமூகமுக்கியத்துவம் - நாட்டுப்புறவிலக்கியங்கள் தோன்றுவதற்கானகாரணங்கள் - நாட்டுப்புற இலக்கியங்களைப் பாதுகாத்தல்

அலகு 2: நாட்டுப்புறக் கலைகள் பற்றியவிளக்கமானசெய்திகள் - நம்பிக்கைகள் - பழக்கவழக்கங்கள் - நாட்டுப்புறவிடுகதைகள்,பழமொழிகள்

அலகு 3: பிறப்புமுதல் இறப்புமுடியஉள்ளநாட்டுப்புறச் சடங்குகள் - நாட்டுப்புறவிளையாட்டுகள் - திருவிழாக்கள் - சகுணம் - தாலாட்டு

அலகு 4: நாட்டுப்புற இலக்கிய வகைகள் - பாடல்,கதை,கதைப்பாடல்,புராணக்கதை - நாட்டுப்புறத் தெய்வவழிபாட்டுமுறைகள் - குலதெய்வவழிபாடு

அலகு 5: நாட்டுப்புறப் பாடல்களின் இலக்கியச் சிறப்பு - கற்பனை - உவமை,உருவகம்,அறிவியல் மருத்துவம்,தொழில் நுட்பம்

பாடநூல் :

நாட்டுப்புற இயல் ஆய்வு முனைவர் ச. சக்திவேல்,மணிவாசகர் பதிப்பகம், 12 ஆ மேலசன்னதிவீதி, சிதம்பரம்-1.

பார்வை நூல் :

1. நாட்டார் கள ஆய்வு - தே. லூர்து
2. நாட்டார்வழக்காறுகள் - தே. லூர்து
3. நாட்டுப்புறப் பாடல்கள் காட்டும் தமிழர்வாழ்வியல் - முனைவர் ஆறு. அழகப்பன்
4. தமிழகநாட்டுப்புறக் கலைகள் ஓர் ஆய்வு - முனைவர்அ.ம.சத்தியமூர்த்தி

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UG III YEAR	தகவல் தொடர்பியல் - முனைவர் கி. இராசா மூன்றாம் ஆண்டு (B.A., Tamil)	19ETA513
SEMESTER – V		HRS/WEEK – 6
Elective- II Main - IV		CREDIT – 4

அலகு 1 :கொள்கைகளும் கோட்பாடுகளும்

அலகு2 :தகவல் தொடர்புச் சாதனங்கள்

அலகு3 :வானொலி

அலகு4 :தொலைக்காட்சி,திரைப்படம்

அலகு5 :விளம்பரம், இணையம்

பாடநூல் : முனைவர் கி. இராசா—மக்கள் தகவல் தொடர்பியல் அறிமுகம்,
பாவையப்ளிகேஷன்ஸ், 142, ஜானிஜான்கான் சாலை, இராயப்பேட்டை,சென்னை—600 014.

பார்வை நூல்கள் :

1. வே. தயாளன், வ. ஜெயா,மக்கள் தகவல் தொடர்பியல், ஜெயா பதிப்பகம்,
கோயம்புத்தூர் - 1998.
- 2.முனைவர் மு. கோமதி,தகவல் தொடர்புஊடகங்களில் இலக்கியச் செல்வாக்கு, மோகன்
முகில் பதிப்பகம், 10,தண்டபாணிநகர், கோண்டூர், கடலூர்-2.
3. வெ. கிருஷ்ணமூர்த்தி,தகவல் தொடர்பியல், மணிவாசகர் பதிப்பகம், சென்னை, 1991.
4. வெ. நல்லதம்பி,தொலைக்காட்சியும் பிறதகவல் துறைகளும், வள்ளுவன் வெளியீட்டகம்,
திருவான்மியூர், சென்னை- 41, 1990.

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UG III YEAR	படைப்பிலக்கியம்- முனைவர் மு. சுதந்திரமுத்து முன்றாம் ஆண்டு (B.A., Tamil)	19ETA617
SEMESTER – VI		HRS/WEEK – 6
Elective- I		CREDIT – 5

அலகு1 :படைப்பிலக்கியம்

அலகு2 :மரபுக்கவிதை

அலகு3 :புதுக்கவிதை

அலகு4 :சிறுகதை

அலகு5 :ஓரங்கநாடகம்

பாடநூல் :

1. முனைவர் மு. சுதந்திரமுத்துஅறிவுப் பதிப்பகம், 142 17 , ஜானிஜான்கான் ரோடு
இராயப்பேட்டைசென்னை— 600 014.

பார்வை நூல்கள்:

1. அ.கி. பரந்தாமனார் - 'நல்லதமிழ் எழுதவேண்டுமா? பாரிநிலையம், 184,பிரகாசம்
சாலை,
சென்னை— 600 108.
2. கா. பட்டாபிராமன் -'மொழிபயன்பாடு' நியூசெஞ்சுரி புக் ஹவுஸ், அம்பத்தூர், சென்னை—90.
3. கோ. இளையபெருமாள் - 'தமிழில் பிழையின்றிஎழுதுவதுஎப்படி?' வானதிப் பதிப்பகம்,
23,தீனதயாளுதெரு, தி. நகர்,சென்னை - 17.

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UG III YEAR	PROJECT (ஆய்வேடு- கள ஆய்வு,நூல் ஆய்வு) முன்றாம் ஆண்டு (B.A., Tamil)	19JTA601
SEMESTER – VI		HRS/WEEK – 6
Elective- II		CREDIT – 4

- குழுவாக ஆய்வுத் திட்டம் மேற்கொள்ளப்படும்.
- ஒரு குழுவிற்கு நேரடி மாணவர்களின் அதிகபட்ச எண்ணிக்கை 5
- ஆய்வுத் திட்டப்பணி ஆய்வு செய்யும் இடத்திற்கு நேரில் சென்று செய்யப்பட வேண்டும் (முன்னுரிமை) அல்லது இணைய வழியாக செய்யப்பட வேண்டும்.
- ஆய்வுத் திட்ட அறிக்கையானது கையால் எழுதப்பட்ட தாளும், மென் தகடும் (soft copy) துறையில் சமர்ப்பிக்கப்பட வேண்டும்.

UG III YEAR	இலக்கணம் IV நம்பியகப்பொருள் முன்றாம் ஆண்டு (B.A., Tamil)	19TA509
SEMESTER – V		HRS/WEEK – 6
Main– I		CREDIT – 5

அலகு1 :அகத்திணையியல்

அலகு2 :களவியல் - பாங்கியற்கூட்டம் முடிய

அலகு3 :களவியல் - பகற்குறிமுதல் வரைவிடைவைத்துப் பொருள்வயிற் பிரிவு முடிய

அலகு4 :வரைவியல்

அலகு5 :கற்பியல்

பாடநூல்:1.நாற்கவிராசநம்பி இயற்றியநம்பியகப்பொருள் (தெளிவுரை)

பார்வைநூல்: முனைவர் ச. திருஞானசம்பந்தம்,கதிர் பதிப்பகம்,தெற்குவீதி,திருவையாறு.613 204.

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UG III YEAR	காப்பியங்கள் முன்றாம் ஆண்டு (B.A., Tamil)	19TA510
SEMESTER – V		HRS/WEEK – 6
Main – I		CREDIT – 5

அலகு 1 : சிலப்பதிகாரம் - மதுரைக்காண்டம் (அடைக்கலக்காதை, கொலைக்களக்காதை, ஆய்ச்சியர் குரவை, துன்பமாலை, ஊர்கூழ்வரி, வழக்குரைகாதை)

அலகு 2 : சீவகசிந்தாமணி—குணமாலையார் இலம்பகம்

அலகு 3 : கம்பராமாயணம் - யுத்தகாண்டம் - கும்பகர்ணன் வதைப்படலம்

அலகு 4 : இரட்சண்யயாத்திரிகம் - நிதானிநட்புப்படலம்

அலகு 5 : சீறாப்புராணம் - தசைக் கட்டியபெண்ணுரு அமைத்தபடலம்

பார்வை நூல்கள்:

1. வ.சுப. மாணிக்கம் : இரட்டைக் காப்பியங்கள், செல்லப்பாபதிப்பகம், மீனாட்சிபுத்தக நிலையம்(விற்பனைஉரிமை), மதுரை-625001,2007.
2. மு. வரதராசனார் : இளங்கோ,கண்ணகி, மாதவிபாரிநிலையம், சென்னை-108.
3. தெ.பொ. மீனாட்சிசுந்தரனார் : குடிமக்கள் காப்பியம், மீனாட்சிபுத்தகநிலையம், மதுரை-625001,1974.
4. அ.ச.ஞானசம்பந்தன் : கம்பன் - புதியபார்வை, கம்பன் கழகவெளியீடு, வானதிபதிப்பகம், தி. நகர், சென்னை-17,1984.

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UG III YEAR	கல்வெட்டியலும் சுவடியலும்	19TA511
SEMESTER – V	மூன்றாம் ஆண்டு	HRS/WEEK – 6
Main – III	(B.A., Tamil)	CREDIT – 5

அலகு 1 : சுவடியியல் விளக்கம் - சொற்பொருள் - சுவடிப் பயிற்சியின் இன்றியமையாமையான சுவடிகளின் தோற்றம் வளர்ச்சி, இன்றையநிலை—பாதுகாக்கும் முறை—பதிப்பிக்கும் முறை.

அலகு 2 : சுவடிகள் அமைப்பு—புற அமைப்பு, அக அமைப்பு சுவடிகளின் வகைகள் ஓலைச்சுவடிகள் தாள் சுவடிகள் அரியகையெழுத்துச் சுவடிகள்.

அலகு 3 : சுவடிகளின் எழுத்துமுறை—வரிவடிவம், திரிபுர்ம் தெரிவம் - எழுத்துகள் உயர் மெய் எழுத்துகளின் வரி வடிவ அமைப்பு—அவற்றுக்காக காரணங்கள்.

அலகு 4 : சுவடிகளைத் திரட்டுதல் - சுவடிப்பதிப்பு முறைகளின் மூல பாடம் - நடை அய்வு—படி எடுத்தல் - ஒப்பிடுமீட்டுருவாக்கம் செய்தல் - பதிப்பித்தல்.

அலகு 5 : கல்வெட்டுதோற்றம் வளர்ச்சி-அமைப்பு-கல்வெட்டின் வகைகள் - கல்வெட்டும் அரசர்களும் தொல் எழுத்தியல் - மெய்க்கீர்த்திகள் நடுகற்கள் - கோயிறு கலைகள் - செப்போடுகள் களப்பணிஆய்வு.

பாடநூல்கள் :

1. சுவடியியல் பூ. சுப்பிரமணியம், உலகத் தமிழராய்ச்சிநிறுவனம் சென்னை.
2. இரா. நாகசாமி, நடனகாசிநாதன், கு. தாமோதரன், ச. ஹரிஹரன் - கல்வெட்டியல்கட்டுரைகள் - 3,7 முதல் 15 முடிய தமிழ்நாடு அரசு தொல்பொருள் ஆய்வுத் துறைசென்னை . இரண்டாம்பதிப்பு- 1980.

பார்வை நூல்கள் :

1. சுவடிப்பதிப்பநெறிமுறைகள் த.கோ. பரமசிவம், தமிழ்ப் பல்கலைக்கழகம், தஞ்சாவூர்.
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UG III YEAR	இலக்கணம் V புறப்பொருள் வெண்பாமாலை முன்றாம் ஆண்டு (B.A., Tamil)	19TA614
SEMESTER – VI		HRS/WEEK – 6
Main – II		CREDIT – 5

- 1.1. வெட்சிப் படலம், கரந்தைப் படலம்
- 1.2. வஞ்சிப் படலம், காஞ்சிப் படலம்
- 1.3. நொச்சிப் படலம், ஊழிஞைப் படலம்
- 1.4. தும்பைப் படலம், வாகைப் படலம்
- 1.5. பாடாண் படலம், பொதுவியல் படலம்

பாடநூல் : ஐயனாரிதனார் இயற்றிய புறப்பொருள் வெண்பாமாலை (தெளிவுரை)

பார்வைநூல்: முனைவர் ச. திருஞானசம்பந்தம், கதிர் பதிப்பகம், தெற்குவீதி, திருவையாறு. 613 204.

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UG III YEAR	சங்க இலக்கியம் முன்றாம் ஆண்டு (B.A., Tamil)	19TA615
SEMESTER – VI		HRS/WEEK – 6
Main – I		CREDIT – 5

அலகு1 :நற்றிணை- 21லிருந்து 30 வரை 51 லிருந்து 55 வரை
குறுந்தொகை-1,2,3,7,8,9,10,17,23,25,38,
40,43,49,57,64,90,94,100,110

அலகு2 :ஐங்குறுநூறு-அன்னாய் வாழிபத்து
கலித்தொகை - முல்லைக்கவி 100லிருந்து 115
அகநானூறு-மணிமிடைப்பவளம்

அலகு3 :புறநானூறு - 212லிருந்து 223 வரை
கோப்பெருஞ்சோழன்,பிசிராந்தையார்,பொத்தியார்
பதிற்றுப்பத்து - 2ஆம் பத்து
பரிபாடல் - 10வது பாடல் வையை

அலகு4 :பொருநர் ஆற்றுப்படை- 129-190
பெரும்பாணாற்றுப்படை- 411-480

அலகு5 :குறிஞ்சிப்பாட்டு - 101-250

பார்வை நூல்கள்:

1. எஸ்.வையாபுரிப்பிள்ளை : சங்க இலக்கியம்,பாரிநிலையம்,சென்னை, 2-ஆம் பதிப்பு,1967.
2. வ.சுப. மாணிக்கனார் : தமிழ்க் காதல்,பாரிநிலையம்,சென்னை,3-ஆம் பதிப்பு, 1980.
3. அரங்க. இராமலிங்கம் : சங்க இலக்கியத்தில் வேந்தர்,பாரிபுத்தகநிலையம், சென்னை-17, 3-ஆம் பதிப்பு, 2003.

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UG III YEAR	தமிழ் மொழிவரலாறு- சு. சக்திவேல் மூன்றாம் ஆண்டு (B.A., Tamil)	19TA616
SEMESTER – VI		HRS/WEEK – 6
Main- III		CREDIT – 5

அலகு1 :மொழிஅமைப்பும் வரலாறும் - வரலாற்றுச் சான்றுகள் - தொல் திராவிடமொழியும் தமிழும்.

அலகு2 :தமிழ்ப் பிராமிக் கல்வெட்டுக்களின் மொழி-தொல்காப்பியத் தமிழ் - சங்ககாலத் தமிழ் - சங்கம் மருவியகாலத் தமிழ்.

அலகு3 :பல்லவர் காலத் தமிழ் - சோழர் காலத் தமிழ் - நாயக்கர் காலத் தமிழ் - மராட்டியர் காலத் தமிழ்.

அலகு4 :பத்தொன்பது இருபதாம் நூற்றாண்டுத் தமிழ் - கல்வெட்டுத் தமிழ்.

அலகு5 :தமிழில் பிறமொழிகலப்பு-தமிழின் கிளைமொழிகள் - தமிழ்ச் சொற்றொடர் அமைப்பு-வரலாறு-தமிழ் வரிவடிவவரலாறு..

பாடநூல்: டாக்டர். சு. சக்திவேல் - தமிழ் மொழிவரலாறு மணிவாசகர் பதிப்பகம் 31, சிங்கர் தெரு, பாரிமுனை, சென்னை- 600 108.

பார்வைநூல்கள் :

1.டாக்டர்.தெ.பொ.மீ-தமிழ் மொழிவரலாறு, சர்வோதய இலக்கியப் பண்ணை,மதுரை.

2.டாக்டர் மு. வரதராசன் - மொழிவரலாறு கழகவெளியீடு, 154 டி.டி.கே.சாலை,சென்னை- 18.

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UG I YEAR	TAMIL (Language) முதலாமாண்டு (B.A., B.Sc.,)	21LT01
SEMESTER - I		HRS/WEEK - 4
Tamil - I		CREDIT - 3

அலகு- 1 (மரபுகவிதைகள்)

1.1. பாரதியார் - காணிநிலம்

1.2. பாரதிதாசன் - நாட்டியல் நாட்டுவோம்

1.3. நாமக்கல் வெ.இராமலிங்கம் பிள்ளை-தமிழன் இதயம் (பிராத்தனை)

1.4. பாவலரேறுபெருஞ்சித்திரனார் - கனிச்சாறு

1.5. கண்ணதாசன் - தவறு-மன்னிப்பு

அலகு- 2 (புதுக்கவிதை)

2.1. அறிவுமதி- பூத்தநெருப்பு

2.2. மீரா -பிள்ளைத்தமிழ்

2.3. ஈரோடுதமிழன்பன் - வெற்றிமுகம்

2.4. வைரமுத்து-சுதந்திரம்

2.5. சிற்பி-அப்துல் கலாமின் வீணை

2.6. (அ)ஹைக்குகவிதை-அமுதபாரதி (காற்றின் கைகள்) பூபதி ராஜா (ராஜாங்கம்)

நந்தவனம்-சந்திரசேகரன் (நத்தைக் கூடுகள்) கே.ஜெகதீஷ் (சிந்தாரம்),துறவி

(சிறுகுகளின் சுவடுகள்)

(ஆ) சென்றியுகவிதைகள் - கவிபுயல் இனியவன் (விளம்பர இடைவேளை), நகைப்பா

(மரவண்டுரிங்காரம்),கோபிநாத் பச்சையப்பன் (சென்றியுமுயற்சி),ஈரோடு

தமிழன்பன் (ஒருவண்டிசென்றியு),ஈரோடுதமிழன்பன் (ஒருவண்டிசென்றியு)

அலகு- 3 (இலக்கியவரலாறு)

3.1. இருபதாம் நூற்றாண்டுகவிஞர்கள்

3.2. புதுக்கவிதை-தோற்றமும் வளர்ச்சியும்

3.3. சிறுகதை-தோற்றமும் வளர்ச்சியும்

அலகு- 4 (சிறுகதைகள்) புதுமைப்பித்தன் கதைகள்

4.1. கடவுளும் கந்தசாமிபிள்ளையும்

4.2. ஒருநாள் கழிந்தது

4.3. காலனும் கிழவியும்

4.4. அகல்யை

அலகு- 5 (இலக்கணம்)

5.1. முதலெழுத்துகள்,சார்பெழுத்துக்கள்

5.2. வல்லொற்றுமிகும் இடம்

5.3. வல்லொற்றுமிகா இடம்

பாடநூல் : 1. தமிழ்த்துறைவெளியீடு

பார்வைநூல் : 1. தமிழ் இலக்கியவரலாறு,முனைவர். அ. ஜெயம், ஜனகாபதிப்பகம்.

2. இரா. வல்லிக்கண்ணன் : புதுக்கவிதைதோற்றமும் வளர்ச்சியும்,எழுத்துபிரசுரம்,திருவல்லிக்கேணி,சென்னை-5.

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UG I YEAR	TAMIL (Language)	21LT02
SEMESTER - II	முதலாமாண்டு	HRS/WEEK – 4
Tamil – II	(B.A., B.Sc.,)	CREDIT – 3

அலகு- 1பக்திஇலக்கியம்

1.1. வள்ளலார் - திருவருட்கொடை

1.2. திருஞானசம்பந்தர் - முதல் திருமுறை-திருஆலவாயும் (வினாஉரை)

நட்டபாடை (65,66,67)

1.3. பெரியாழ்வார் - திருப்பல்லாண்டு

1.4. நம்மாழ்வார் - 10-ஆம் திருவாய்மொழி (1-5)

1.5. வண்ணக்களஞ்சியப்புலவர் - குத்புநாயகபுராணம்,தீன்விளக்கம்

1.6. வேதநாயம்பிள்ளை-நீதிநூல்

அலகு- 2 சிற்றிலக்கியம்,சித்தர் இலக்கியம்

- 2.1. பலபட்டடைச் சொக்கநாதப் புலவர் - அழகர் கிள்ளைவிடு தூது
- 2.2. பகழிக்கூத்தர் - திருச்செந்தூர் முருகன் பிள்ளைத்தமிழ்
- 2.3. குமரகுருபரர் - மதுரைமீனாட்சியம்மை இரட்டைமணிமாலை
- 2.4. அருணகிரிநாதர் - திருப்புகழ்
- 2.5. பட்டினத்ததார் - திருதில்லை
- 2.6. சிவவாக்கியார் - பாடல் 9,10,11

அலகு- 3 உரைநடை

- 3.1. பாவணார் படைப்புகள் - பாவணார் நோக்கில் பெருமக்கள்
(16 தலைப்புகள் 68 பக்கம்)

அலகு-4 இலக்கியவரலாறு

- 4.1. பல்லவர் காலம் - தோற்றமும் வளர்ச்சியும்
- 4.2. நாயக்கர் காலம் - தோற்றமும் வளர்ச்சியும்
- 4.3. சித்தர் இலக்கியம் - தோற்றமும் வளர்ச்சியும்
- 4.4. உரைநடை-தோற்றமும் வளர்ச்சியும்

அலகு-5 இலக்கணம்

- 5.1. யாப்பிலக்கணம் (எழுத்து, அசை, சீர் அடி)
- 5.2. வேற்றுப்பொருள் வைப்பு அணி

பாடநூல் : 1. தமிழ்த்துறை வெளியீடு

பார்வைநூல் : 1. தமிழ் இலக்கியவரலாறு, முனைவர். அ. ஜெயம், ஜனகாபதிப்பகம்.

2. டாக்டர் ப. அருணாசலம் : பக்தி இலக்கியம் - ஓர் அறிமுகம், தமிழ்ப் புத்தகாலயம், பைகிராப்ட்ஸ் ரோடு, சென்னை-5, 1973.

3. முனைவர் சோ.ந. கந்தசாமி : திருமுறை இலக்கியம், உலகத் தமிழாராய்ச்சி நிறுவனம், சென்னை - 113, 1995.

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ALL UG I YEAR	TAMIL (Language)	21LTC01
SEMESTER - I	முதலாமாண்டு	HRS/WEEK – 5
Tamil -1	(B.Com./B.B.M./B.C.A./BBACA)	CREDIT – 3

அலகுபாடங்கள்

1. மரபுக் கவிதையும்,புதுக்கவிதையும்

- 1.1. பாரதியார்- செந்தமிழ் நாடு (தமிழ் நாடு)
- 1.2. பாரதிதாசன் -தமிழியக்கம் (நெஞ்சுபதைக்கும் நிலை 5 பாடல்கள்)
- 1.3. ஈரோடுதமிழ்ப்பன்- வள்ளுவரின் தாய் இறந்தநாளில்
- 1.4. அறிவுமதி- பசுமை
- 1.5. சுரதா- சிக்கனம்(துறைமுகம்)

2. காப்பியங்கள்,சமயப்பாடல்கள்,சிறுநிலக்கியம்

- 2.1 சிலப்பதிகாரம் - வாழ்த்துரைகாதை
- 2.2 மணிமேகலை -சிறைக்கோட்டம் அறக்கோட்டம்ஆக்கியகாதை
- 2.3 கம்பராமாயணம் - ஜடாயுகாண்படலம்
- 2.4 திருநாவுக்கரசர் - திருஅங்கமாலை (திருமுறை...4 ஒன்பதாவதுபதிகம்)
- 2.5 வள்ளலார் - பரசிவநிலை (3,6 பாடல்கள்)
- 2.6 குற்றாலக் குறவஞ்சி-நாட்டுவளம் கூறல் (3,5,7)

3. சிறுகதைகள்

- 3.1 புதுமைப்பித்தன் - காலனும் கிழவியும்
- 3.2 ஜெயகாந்தன் - சுமைதாங்கி
- 3.3 சுஜாதா-நகரம்

4 உரைநடை

- 4.1 திரு.வி.க- சிலமுறைகள்
- 4.2 எஸ்.இராமகிருஷ்ணன் - கோடுகள் இல்லாவரைபடம் (9, 10, 11)
- 4.3 நடையால் வென்றஉலகம் (9)
- 4.4 ஒடோவிக் ஹப்ளர் சாலை திறந்து கிடக்கிறது (10)
- 4.5 கப்பல் ஏறிய ஒட்டகச்சிவிங்கி (11)

5 இலக்கணம்

5.1 முதல் எழுத்து

5.2 சார்பெழுத்து

5.3 வல்லொற்று மிகும் இடம், மிகா இடம்

பாடநூல் : 1. தமிழ்த்துறைவெளியீடு

பார்வைநூல்கள் : 1. தமிழ் இலக்கியவரலாறு,முனைவர். அ. ஜெயம், ஜனகாபதிப்பகம்.

2. இரா. வல்லிக்கண்ணன் : புதுக்கவிதைதோற்றமும்
வளர்ச்சியும்,எழுத்துபிரசாரம்,திருவல்லிக்கேணி, சென்னை-5.

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UG I YEAR	Tamil (Language)	21LTC02
SEMESTER - II	முதலாமாண்டு (B.Com.,/B.B.M.,/B.C.A.,/BBACA)	HRS/WEEK – 5
Tamil-2		CREDIT – 3

அலகுபாடங்கள்

1 எட்டுத்தொகை

1.1. புறநானூறு - 50, 182

1.2. அகநானூறு - 105, 154

1.3. குறுந்தொகை— 25,53

1.4. நற்றிணை—01, 172

1.5. கலித்தொகை - 111, 133

2 பத்துப்பாட்டு

2.1. நெடுநல் வாடை 1 - 63

2.2. பொருநராற்றுப்படை 42 - 78

2.3. முல்லைப்பாட்டு 24 - 79

2.4. மதுரைக்காஞ்சி 500 - 526

3 திருக்குறள்

3.1. கூடாஓழுக்கம்

3.2. அவையறிதல்

3.3. பழைமை

4 இலக்கியவரலாறு

4.1. எட்டுத்தொகை

4.2. பத்துப்பாட்டு

4.3. பதினெண்கீழ்க் கணக்கில் நீதிநூல்கள்

5 மொழித்திறன்

5.1. கடிதங்கள்

5.2. நேர்காணல்

5.3. பண்பலைவானொலிநிகழ்ச்சித் தொகுப்பு

5.4. வாடிக்கையாளர் சேவைமையம்

பாடநூல் : 1. தமிழ்த்துறைவெளியீடு

பார்வைநூல் : 1. தமிழ் இலக்கியவரலாறு, முனைவர். அ. ஜெயம், ஜனகாபதிப்பகம்.

2. ச.வே. சுப்பிரமணியன் (ப.ஆ) : பதினெண்கீழ்க்கணக்கு நூல்கள், மெய்யப்பன் பதிப்பகம், சிதம்பரம், 2007.

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Year - III B.A., HISTORY	HISTORY MODERN TAMILNADU (1600 TO 2000A.D.)	Code:19HI616
Semester - VI		Hours: 6
Core : XVII		Credit: 5

Objectives

- 1: To make the students aware about the various administration help in understanding the history of modern Tamilnadu
- 2: To be aware of the modern Tamils and their social and religious reforms, political and economic conditions that existed during the period
- 3: To understand the origin and development of modern art history of the Tamilnadu

Course Outcomes(CO)

CO1: Know the Anglo, French Rivalry in Tamil Nadu and Treaty of Carnatic in 1801.

CO2: Study more about Kattabomman, Pulidhevan, Maruthu Brothers and Vellore Mutiny 1806.

CO3: Learn about the Zamindari Systems, Adminsitration of Munroe and the Ryotwari System.

CO4: Getting the knowledge about Impact of Christianity and Justice Party.

SEMESTER VI	COURSE CODE: 19HI616				COURSE TITLE: HISTORY MODERN TAMILNADU (1600 TO 2000A.D.)					HOURS:6
COURSE OUTCOME (COs)	PROGRAMME OUTCOMES (POs)				PROGRAMME SPECIFIC OUTCOMES (PSOs)					CREDIT:5
CO	PO1	PO2	PO3	PO4	PS01	PS02	PS03	PS04	PS05	MEAN SCORE OF CO'S
CO1	3	3	2	3	2	2	3	2	3	2.33
CO2	2		3	2	3	3	3	3	3	2.33
CO3		3	3		3	2	3	3	2	2.22

Association	1%-20%		21%-40%		41%-60%		61%-80%		81%-100%	
Scale	1		2		3		4		5	
Interval	0<=rating<=1		1.1<=rating<=2		2.1<=rating<=3		3.1<=rating<=4		4.1<=rating<=5	
Rating	Very Poor		Poor		Moderate		High		Very High	
CO4	3	3	2	3	2	3	3	3	3	2.33
MEAN OVERALL SCORE										2.30

Result: The score of this course is 2.30 (Moderate)

This Course is having **Moderate** association with Programme Outcome and Programme Specific Outcome.

Unit-I

Advent of Europeans: European settlements in Tamil Nadu – Anglo – French Rivalry in Tamil Nadu – Establishment of the Poligars – Treaty of Carnatic in 1801.

Unit-II

Revolt of Poligars - Kattabomman –Pulidhevan-Maruthu Brothers –Vellore- Mutiny 1806.

Unit-III

Revenue Administration under British – Land revenues – Zamindari Systems – Adminsitration of Munroe and theRyotwari System.

Unit-IV

Social Awakening in Tamil Nadu: Western Education – Impact of Christianity – Contribution to education, Socio - Religious movements- Temple entry movements – The Justice party – Self Respect Movement of E.V.R.

Unit-V

National Movements in Tamil Nadu –Swadeshi movement – Home Rule

League – Vedaranyam March- Attainment of Independence-Kamaraj Administration-Emergence of Dravidian movement –K-Plan and after Anti- Hindi Struggle and election of 1967. Fall of Congress and Emergence of Dravidian Power.

TEXT BOOKS:

1. Arockiasamy.T. 1958, History of Tamil Nadu, Madurai: Kudal Publication.
2. Balasmb Bramanian. 1978. A Political and Cultural History of Cholas. Chennai: Tamil Nadu TEXT BOOKS. Society.
3. Chellam V.T. 1981. A new light in the early history of Tamil Nadu, Vijayalakshmi Publications.

REFERENCE BOOKS:

1. David Arnold. 1977. The Congress in Tamil Nadu – 1919-37, NewDelhi.
2. Arroran, Nambi, 1958. Tamil Renaissance and Dravidian Nationalism 1905-1944, Madura: Kudal Publications.
3. Hardgrave, 1969. The Madras of Tamil Nadu: California.
4. Nilamani Mukerji. 1962. The Ryotwari System in Madura. Culcutta.
5. K.Rajayyan. 1977. History of Tamil Nadu. (1565-1965) Madurai: Madurai Publishing House.

YEAR -II B.A., HISTORY	HISTORY OF TAMIL NADU (FROM 850 AD TO 1565 AD)	CODE:20HI408
SEMESTER – IV		HRS/WK-6
CORE – X		CREDIT – 4

Objectives

- 1: To enable the students to know about the sources, Political history of Tamilnadu under the Cholas, Second Pandyan Empire, Muslim Invasion, Vijayanagar Kingdom and the Nayaks till 1565 C.E.
- 2: To be aware of the contribution of the cholas to the local self-government, revenue Administration and to Art and Architectures, and to learn about the contribution of Later Pandyas and Foreign Trade
- 3: To understand the Muslim Invasion, the role of the Vijayanagar Kingdom in the Religious Revivalism, Provincial governance and Contacts with Europeans

Course Outcomes (CO)

- CO1:** To visualize the political history of Tamilnadu from 9th Century C.E to 16th century C.E.
- CO2:** To improve their knowledge on various achievements from later Cholas to the Nayaks till 1565 C.E Tamil Country
- CO3:** To know about the achievements of Second Pandyan Empire Art, Architecture, Trade
- CO4:** To understand the invasion of Muslims, how vijayanagar empire played a vital role in expanding their rule in Tamil Country, Hindu revivalism and how it filled the vacuum in the polity of South India.

SEMESTER IV	COURSE CODE: 20HI408					COURSE TITLE: HISTORY OF TAMIL NADU (FROM 850 AD TO 1565 AD)					HOURS:6
COURSE OUTCOME (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)					CREDIT:4
CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	MEAN SCORE OF CO'S
CO1	1	3	2	3	2	3	2	3	3	3	2.50
CO2	3	2	3	2	1	3	3	2	3	3	2.80
CO3	3	3	3	2	2	2	2	3	2	3	2.50
CO4	2	3	3	3	3	1	3	3	2	3	2.60
	MEAN OVERALL SCORE										2.60

Result: The score of this course is 2.60 (Moderate)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **Moderate** association with Programme Outcome and Programme Specific Outcome.

Unit-I

Sources for the History of the Later Cholas -Vijayalaya - Aditya I - Parantaka I Their achievements - Rajaraja I - Rajendra I - Kulottunga I and their Successors - Decline of the Imperial Cholas.

Unit-II

Chola administration -Central Administration - Village administration - Kudavolai system - Religious condition - Contribution to Art and Architecture

Unit-III

Sources for the history of the Second Pandyan Empire- Kulasekhara I – Maravarma
Sundara Pandya I –Maravarman Kulasekhara I - Their achievements - Decline of the Second Pandyan Empire

Unit -IV

Marco Polo's Visit - Invasion of Muslims - The Sultanate of Madurai

Unit-V

Foundation of Vijayanagar Empire – Harihara – Bhukka – Venkata I
Krishnadevarayar and their successors – Nayaks of Madurai, Tanjore and Gingee - Vijayanagar Administration – Growth of Literature – Battle of Talaikotta

TEXT BOOKS:

- 1) Rajamanickanar M., *Cholar Varalaru*, Chennai: Puram Pathippagam, 1999.
- 2) Pillai K.K., *CholarVaralaru*, Chennai: *Government Press*, 1977.
- 3) Raman K.V., *PandyaVaralaru*, Madras: Tamilnadu TEXT BOOKS Society, 1977.
- 4) NilakantaSastri K.A., *The Colas*, Madras: University of Madras, 1975
- 5) SadasivaPandarathar T.V., *PirkalaCholarVaralaru*, Annamalai Nagar: Annamalai University Publication,1974.

REFERNCE BOOKS:

- 1) Burten, Stein Peasant, *State and Society in Medieval South India*, Delhi: *Oxford University Press*, University of California, 1994.
- 2) Karashima N., *South Indian History and Society Studies from Inscriptions AD 850 - 1800*, Madras: Oxford University Press, 1984.
- 3) Hall Kenneth R., *Trade and Statecraft in the Age of the Colas*, New Delhi: Abhi- Nav Publications, 1980.
- 4) Govindasamy M.S., *The Role of Feudatories in Later Chola History*, Annamalainagar: Annamalai University Publication, 1979.
- 5) Balasubramanian S.R., *Early Chola Art*, London: Asian Publishing House, 1971

I-B.Sc.(MATHS)	ALGEBRA AND TRIGONOMETRY	21MT101
SEMESTER-I	For the students admitted from the year 2021	HRS/WK – 5
CORE-I		CREDIT – 4

OBJECTIVES

The course aim is to introduce the concepts of Theory of Equations, Summation of Series, Matrices and Elementary Number theory.

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Find the solutions of cubic and polynomial equations.

CO2: Find the summation of various types of series.

CO3: Find the rank, Eigen values of matrices.

CO4: Solve system of linear congruence's and apply Euler-Fermat's, Wilson's theorem to Prove relations involving prime numbers.

CO5: Find expansions of trigonometric values and solutions of trigonometric equations.

SEMESTER I	COURSE CODE: 21MT101	COURSE TITLE: ALGEBRA AND TRIGONOMETRY														HOURS 5	CREDITS 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)										MEAN SCORE OF CO'S	
	P O 1	P O 2	P O 3	P O 4	P O 5	P S O 1	P S O 2	P S O 3	P S O 4	P S O 5	P S O 6	P S O 7	P S O 8	P S O 9	P S O 10		
CO1	3	4	4	3	3	4	5	5	2	4	3	5	2	3	4	3.6	
CO2	3	4	3	3	3	4	5	5	2	4	3	5	2	2	4	3.46	
CO3	3	4	4	3	3	4	4	5	2	4	3	5	2	2	4	3.46	
CO4	3	4	4	3	3	4	5	5	2	4	3	5	3	2	4	3.6	
CO5	3	4	3	3	3	4	5	5	2	4	3	5	2	2	4	3.46	
Mean Overall Score																3.5	

Result: This Score of this course is 3.5 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	$0 \leq \text{rating} \leq 1$	$1.1 \leq \text{rating} \leq 2$	$2.1 \leq \text{rating} \leq 3$	$3.1 \leq \text{rating} \leq 4$	$4.1 \leq \text{rating} \leq 5$
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes

UNIT - I: THEORY OF EQUATIONS

Polynomial Equations - Imaginary and Irrational roots – Symmetric Functions of roots in terms of Coefficients – Transformation of Equations- Approximate Solutions of Polynomials by Horner’s method – Newton’s method of Solution of a cubic polynomial.

UNIT -II: SUMMATION OF SERIES AND MATRICES

Exponential and Logarithmic series [Theorems without proofs]. MATRICES: Inverse of a matrix using Cayley Hamilton Theorem [without proof] – Eigen Values – Eigen Vectors – Diagonalisation of matrix.

UNIT - III: ELEMENTARY NUMBER THEORY

Prime Number – Composite Number – Decomposition of a Composite Number as a Product of Primes uniquely [without proof] – Divisors of a Positive Integer – Congruence Modulo n – Euler Function [without proof] – Highest Power of a Prime Number p contained in $n!$ – Fermat’s and Wilson’s Theorems (without proof)

UNIT-IV: TRIGONOMETRY

Expansion of $\cos n\theta$, $\sin n\theta$ - Expansion of $\tan n\theta$ in terms of $\tan\theta$ - Expansion of $\tan[A+B+C+\dots]$ -solution of trigonometric equations. Powers of sines and cosines of θ in terms of functions of multiples of θ - Expansions of $\sin\theta$, $\cos\theta$ and $\tan\theta$ in a series of ascending powers of θ .

UNIT -V: TRIGONOMETRY (Continued)

Hyperbolic functions – Relations between hyperbolic functions and circular trigonometry functions – Inverse hyperbolic functions – Logarithm of complex numbers- Real and Imaginary parts.

TEXT BOOKS:

1. T.K.Manicavachagom Pillay, T.Natarajan and K.S.Ganapathy [2004], “Algebra”, Volume I &II. S.Viswanathans Printers Pvt. Ltd. Chennai.
Unit I: Chapter 6 (Sec 9 – 13, 15, 16, 25, 26)
Unit II: Series- Chapter 4 (Sec 2, 3, 5 - 9), Matrices -Chapter 2 (16)
2. T.K.Manicavachagom Pillay, T.Natarajan and K.S.Ganapathy [2004], “Trigonometry”, Volume I & II. S.Viswanathans Printers Pvt. Ltd. Chennai.
Unit IV: Chapter 3
Unit V: Chapter 4 & Chapter 5 (Sec-5)

REFERENCE BOOKS:

1. P. Kandasamy, K.Thilagavathy [2004], “Mathematics for B.Sc.”, Volume- I, II, III & IV, S.Chand & Company Ltd., New Delhi-55.
- 2.S.Arumugam [2003], “Algebra”, New Gamma Publishing House, Palayamkottai.
- 3.A.Singaravelu [2003], “Algebra and Trigonometry”, Volume – I &II, Meenakshi Agency, Chennai.
- 4.S.Sudha [1998], “Algebra and Trigonometry”, Emerald Publishes, Chennai.

I – B.Sc. (Maths)	CALCULUS For the students admitted from the year2021	21MT203
SEMESTER – II		HRS/WK – 6
CORE – IV		CREDIT – 4

OBJECTIVES:

The course aims to introduce the concepts of Differential Calculus, Curvature,P-R equations, Linear asymptotes, Double integrals, changing the order of Integration, Triple Integrals, Beta & Gamma functions between a, Integration using Beta & Gamma functions

COURSE OUTCOMES:

At the end of the Course the students should be able to exhibit

CO1: Knowing the basics of differential calculus

CO2: Getting the knowledge of coordinates in differential calculus

CO3: Knowing the asymptotes of differential calculus

CO4: Knowing the basics of integral calculus

CO5: Receiving the knowledge of applications of integrals

SEMESTER II	COURSE CODE: 21MT203		COURSE TITLE: CALCULUS													HRS 6	CREDITS 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(P O)					PROGRAMME SPECIFIC OUTCOMES(PSO)										MEAN SCORE OF CO'S	
	P O 1	P O 2	P O 3	P O 4	P O 5	P S O 1	P S O 2	P S O 3	P S O 4	P S O 5	P S O 6	P S O 7	P S O 8	P S O 9	PS O1 0		
CO1	4	4	3	4	3	2	5	4	3	4	3	4	2	2	4	3.3	
CO2	3	4	3	3	2	2	5	3	2	3	3	4	2	3	4	3.1	
CO3	4	3	2	3	2	3	4	5	2	4	4	5	3	2	3	3.3	
CO4	3	4	2	2	3	2	5	3	2	3	2	4	2	3	2	2.8	
CO5	4	5	3	2	2	3	5	3	3	3	4	5	2	3	3	3.5	
Mean Overall Score															3.2		

Result: This Score of this course is 3.2 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	$0 \leq \text{rating} \leq 1$	$1.1 \leq \text{rating} \leq 2$	$2.1 \leq \text{rating} \leq 3$	$3.1 \leq \text{rating} \leq 4$	$4.1 \leq \text{rating} \leq 5$
Rating	Very poor	Poor	Moderate	High	Very High

This course is having **HIGH** association with programme outcomes and programme specific outcomes.

UNIT I – DIFFERENTIAL CALCULUS

Homogeneous functions – Partial derivatives of a function of two functions – Maxima and minima of function of two variables - Lagrange’s method of undetermined Multipliers.

UNIT II – DIFFERENTIAL CALCULUS (Continued)

Curvature: Radius and Center of Curvature- Cartesian Formula for the Radius of Curvature – Coordinates of the Centre of Curvature

UNIT III- DIFFERENTIAL CALCULUS (Continued)

Radius of Curvature when the curve is given in Polar coordinates, P-R equations, Linear asymptotes.

UNIT IV- INTEGRAL CALCULUS

Double integrals – changing the order of Integration – Triple Integrals

UNIT V- INTEGRAL CALCULUS (Continued)

Beta & Gamma functions and the relation between them –Integration using Beta & Gamma functions

TEXT BOOKS:

1. S. Narayanan and T.K.Manicavachagom Pillai, Differential Calculus Volume - I, S.Viswanathan (Printers & Publishers) Pvt. Limited, Chennai, Reprint -2011

UNIT - I: Chapter 8:Sec 1.6, 1.7 Sec 4, 5

UNIT - II: Chapter 9: Sec 2.7- 2.8, Chapter 10 Sec 2.1- 2.6

UNIT – III - Chapter 11: Sections 1-7,12 & 13

2. S. Narayanan and T. K. Manicavachagom Pillai, Integral Calculus Volume I, S.Viswanathan. (Printers & Publishers) Pvt. Limited, Chennai, Reprint- 2011

UNIT – IV - Chapter 5 Sections 2.1, 2.2 & Section 4

UNIT – V - Chapter 7 Sections 2.1 to 5

REFERNECE BOOKS:

1. P.Kandasamy, K.Thilagavathy [2004], “Mathematics for B.Sc.”, Vol-I &II, S.Chand & Company Ltd., New Delhi-55.

2. Shanti Narayan [2001], “Differential Calculus”,Shyamlal Charitable Trust, New Delhi.

3. Shanti Narayan [2001], “Integral Calculus”, S.Chand & Co. New Delhi.

3. S.Sudha [1998], “Calculus”, Emerald publishers, Chennai.

4. G.B.Thomas and R.L.Finney[1998], “Calculus and Analytic Geometry”, Addison Wesley [9th Ed], Mass.[Indian Print].

5. P.R.Vittal [2004], “Calculus”, Margham Publication, Chennai.

I – B.Sc. (Maths)	NUMERICAL METHODS For the students admitted from the year 2021	21MT204
SEMESTER – II		HRS/WK – 5
CORE – V		CREDIT – 4

OBJECTIVES

The course aims to introduce the concepts of Finite differences, Central differences, Interpolation for unequal intervals, Inverse interpolation and Solutions of simultaneous linear equations.

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Students able to solve the problems in Newton’s forward and backward method.

CO2: Students able to solve analyze the difference between Gauss forward and backward,Stirling’s method and Bessel’s method.

CO3: Students able to certain equal intervals and unequal intervals.

CO4: Students able to determine the solutions for lineal algebraic equations.

CO5: Students able to determine the solutions for Numerical differential equations andintegration.

SEMESTER II	COURSE CODE 21MT204	COURSE TITLE: NUMERICAL METHODS														HOURS 5	CREDITS 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)	PROGRAMME SPECIFIC OUTCOMES(PSO)														MEAN SCORE OF CO’S	
	P O 1	P O 2	P O 3	P O 4	P O 5	P S O 1	P S O 2	P S O 3	P S O 4	P S O 5	P S O 6	P S O 7	P S O 8	P S O 9	PS O1 0		
CO1	3	4	4	3	3	4	5	5	2	4	3	5	2	3	4	3.6	
CO2	3	4	3	3	3	4	5	5	2	4	3	5	2	2	4	3.46	
CO3	3	4	4	3	3	4	4	5	2	4	3	5	2	2	4	3.46	
CO4	3	4	4	3	3	4	5	5	2	4	3	5	3	2	4	3.6	
CO5	3	4	3	3	3	4	5	5	2	4	3	5	2	2	4	3.46	
Mean Overall Score																3.5	

Result: The Score of this Course is 3.5 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very poor	Poor	Moderate	High	Very High

This course is having **HIGH** association with programme outcomes and programme specific outcomes

UNIT- I: FINITE DIFFERENCES

First and higher order differences-forward differences and Backward differences -Operators, Relation between Δ and E – Interpolation –Gregory- Newton’s forward & backward formulae for interpolation.

UNIT-II: CENTRAL DIFFERENCES

Central difference operators – Central differences formulae- Gauss Forward and Backward formulae – Stirling’s formula – Bessel’s formula.

UNIT-III: INTERPOLATING FOR UNEQUAL INTERVALS AND INVERSE INTERPOLATION

Divided differences – Newton’s divided differences formula and Lagrange’s interpolation formula – Estimating the Missing terms [with one or more missing values] – Inverse Lagrange’s method.

UNIT – IV: LINEAR ALGEBRAIC EQUATIONS

Gauss Elimination Method – Gauss Jordan Method- Gauss Seidal Method – Crout’s Method [Three unknowns only]- Inverse of a Matrix-Gaussian Method.

UNIT – V: NUMERICAL DIFFERENTIAL EQUATIONS AND INTEGRATION

Euler’s method: Improved Euler’s method, Modified Euler’s method- The Runge Kutta Method of first order differential equations-Adam’s Method-Trapezoidal rule-Simpson’s 1/3rd rule (Simple problems only)

TEXT BOOKS:

1. A. Singaravelu [2004], “Numerical Methods”, Meenakshi Agency, Chennai
- 2.M.K. Venkataraman (1992), “Numerical Methods for Science and Engineering”, National Publishing Company, Chennai.

UNIT-I: Chapter 3: 3.1, 3.2,3.3,3.4,3.5,3.12,3.13,3.15

UNIT II: Chapter 3: 3.6,3.7,3.8,3.9,3.10

UNIT III: Chapter 4: 4.1,4.2,4.4,4.9,4.15

UNIT IV: Chapter 2: 2.41,2.47,2.52,2.61,2.77

UNIT V: Chapter 5: 5.12,5.13,5.14,5.19,5.54, Chapter 4: 4.31

REFERENCE BOOKS:

1. S.Arumugham[2003], “Numerical Methods”, New Gamma Publishing, Palayamkottai.
2. H.C.Saxena[1991], “Finite Differences and Numerical Analysis”,S.Chand & Co. Delhi.
3. B.D.Gupta(2001), “Numerical Analysis”, Konark Pub. Ltd., Delhi.
4. P.Kandasamy, K.Thilagavathy [2003], “Calculus of Finite difference & Numerical Analysis”,S.Chand & Company Ltd., New Delhi-55.

II – B.Sc. (Maths)	DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORM For the students admitted from the year 2020	20MT305
SEMESTER – III		HRS/WK – 5
CORE – VI		CREDIT – 4

OBJECTIVES

The course aims to introduce the concepts of Equations of the First Order and Higher Degree, Euler's homogeneous linear equations, Legendre's Linear Equations, Simultaneous Equations, Laplace Transform and Formation of PDF.

COURSE OUTCOMES:

CO1: Students able to know the basics in Equations of the First Order and Higher Degree

CO2: Students able to understand Euler's homogeneous linear equations

CO3: Students able to do the problems in Different Methods in Differential Equations.

CO4: Students able to study the basics to know the Format of Partial Differential Equation

CO5: Students able to know the Laplace and inverse Transform and Formation of PDF

SEMESTER III	COURSE CODE: 20MT305		COURSE TITLE: DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORM														HOURS: 5	CREDITS 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(P O)					PROGRAMME SPECIFIC OUTCOMES(PSO)										MEAN SCORE OF CO'S		
	P O 1	P O 2	P O 3	P O 4	P O 5	P S O 1	P S O 2	P S O 3	P S O 4	P S O 5	P S O 6	P S O 7	P S O 8	PS O 9	PS O 10			
CO1	3	4	3	4	4	2	3	4	3	4	3	5	2	3	4	3.5		
CO2	3	3	3	4	2	2	5	4	2	3	3	4	2	3	4	3.1		
CO3	4	3	2	3	2	3	4	5	2	3	4	5	3	2	3	3.2		
CO4	3	4	4	2	3	2	5	3	4	3	2	4	3	3	2	3.0		
CO5	4	5	3	2	2	3	5	3	3	3	5	5	2	3	3	3.4		
Mean Overall Score																3.24		

Result: The Score of this Course is 3.24 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	$0 \leq \text{rating} \leq 1$	$1.1 \leq \text{rating} \leq 2$	$2.1 \leq \text{rating} \leq 3$	$3.1 \leq \text{rating} \leq 4$	$4.1 \leq \text{rating} \leq 5$
Rating	Very poor	Poor	Moderate	High	Very High

This course is having **HIGH** association with programme outcomes and programme specific outcomes.

UNIT-I: ORDINARY LINEAR DIFFERENTIAL EQUATIONS:

Equations of the First Order and Higher Degree- Equations Solvable for p- Equations Solvable for x - Equations Solvable for y – Clairaut's Equation- Equations of second and higher order with constant coefficients.

UNIT – II: ORDINARY LINEAR DIFFERENTIAL EQUATIONS (Continued)

Euler's homogeneous linear equations – Legendre's Linear Equations- Method of Variation of Parameters- Method of undetermined Coefficients.

UNIT -III:PARTIAL DIFFERENTIAL EQUATIONS

Formation of PDE – Complete Integral – Particular Integral – Singular Integral – Equation's Solvable

by direct Integration – Solving equations of the types: $f(p, q) = 0$, $f(x, p, q) = 0$, $f(y, p, q) = 0$, $f(z, p, q) = 0$, $f(x, p) = f(y, p)$, $Z = p x + q y + f(p, q)$ - Lagrange's equations.

UNIT – IV: LAPLACE TRANSFORM

Laplace Transform of Standard functions – Properties of Laplace Transforms – First Shifting Theorem and Problems

UNIT – V: INVERSE LAPLACE TRANSFORM

Inverse Laplace Transform – Application of Laplace Transform to solution of first and second order linear Differential equations [with constant coefficients]

TEXT BOOK:

1. P.Kandasamy, K.Thilagavathy [2004], "Mathematics for B.Sc." Vol-III, Chand & Company Ltd., New Delhi-55.

Unit-I: Chapters: 1,2,3 (PP: 1 – 47)

Unit-II: Chapters: 4,5 (PP: 48 -87)

Unit-III: Chapter: 1 (PP: 117 – 162)

Unit-IV: Chapters: 1 (PP: 187 – 202)

Unit-V: Chapter: 1 (PP:202 – 244)

REFERENCE BOOKS:

1.M.D.Raisighanian, [2001], "Ordinary and Partial Differential Equations", S.Chand and Co., New Delhi

2. S.Sudha [1998], "Differential Equations and Integral Transforms", Emerald publishers, Chennai.

3. P.R.Vittal [2004], "Differential Equations and Laplace Transform", Margham Publication, Chennai.

4. M.K.Venkataraman(1992)," Higher Engineering Mathematics",National Publishing Company, Chennai.

II – B.Sc. (Maths)	VECTOR AND FOURIER ANALYSIS For the students admitted from the year 2020	20MT306
SEMESTER – III		HRS/WK – 6
CORE – VIII		CREDIT – 4

OBJECTIVES:

The course aims to introduce the concepts of Differentiation of a Vector, Vector Differential Operator, Solenoidal and Irrotational, The Line Integral, Divergence Theorem and Green’s Theorem, Stoke’s Theorem, Fourier Expansion and Parseval’s Identity for Fourier Transforms.

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: learns to solve problems on gradient and divergence and curl

CO2: knows the difference in line, surface and volume integral and their interpretation

CO3: enables to understand the concepts on Fourier series expansions and familiarizes with half range Fourier series along with periodic functions

CO4: analyze sine and cosine transforms

CO5: enables to understand the properties of Fourier transform, Convolution and Parseval’s theorem

SEMESTER III	COURSE CODE: 20MT306					COURSE TITLE: VECTOR AND FOURIER ANALYSIS										HOURS 6	CREDITS 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(P O)					PROGRAMME SPECIFIC OUTCOMES(PSO)										MEAN SCORE OF CO’S	
	P O 1	P O 2	P O 3	P O 4	P O 5	P S O 1	P S O 2	P S O 3	P S O 4	P S O 5	P S O 6	P S O 7	P S O 8	P S O 9	PS O10		
CO1	3	4	3	3	4	4	3	3	3	3	4	3	4	3	4	3.4	
CO2	3	3	3	4	3	3	4	4	3	4	3	4	3	3	3	3.3	
CO3	3	3	3	4	3	4	3	3	3	3	3	4	3	4	3	3.3	
CO4	3	3	4	4	3	3	4	4	3	3	3	4	3	4	3	3.4	
CO5	3	4	3	3	3	4	3	4	3	3	3	4	4	3	3	3.3	
Mean Overall Score															3.3		

Result: The Score of this Course is 3.3 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	$0 \leq \text{rating} \leq 1$	$1.1 \leq \text{rating} \leq 2$	$2.1 \leq \text{rating} \leq 3$	$3.1 \leq \text{rating} \leq 4$	$4.1 \leq \text{rating} \leq 5$
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

UNIT– I: GRADIENT, DIVERGENCE AND CURL

Gradient of a Scalar Function – Directional Derivative – Geometric Interpretation – Operations involving Del – Divergence of a Vector and its Physical Interpretation – Curl of a Vector and its Physical Interpretation – Solenoidal and Irrotational – Vector Identities.

UNIT– II: VECTOR INTEGRATION

The Line Integral – Surface Integral – Volume Integral – Theorem of Gauss Divergence, Stoke's Theorem and Green's Theorem [Without proof].

UNIT– III: FOURIER SERIES

Conditions for Fourier Expansion – Generalized Fourier Series in $(-\pi, \pi)$ and $(0, 2\pi)$ Odd and Even Functions – Half range series – Typical Wave Forms – Parseval's Formula.

UNIT – IV: FOURIER TRANSFORM

Definition – Fourier Integrals – Fourier Sine and Cosine Integral – Complex Form of Fourier Integral – Fourier Transform: Fourier Sine and Cosine Transforms – Finite Fourier Sine and Cosine Transforms [without proof]-Simple Problems

UNIT-V: FOURIER TRANSFORM (Continued)

Properties of Fourier Transforms – Convolution Theorem for Fourier Transforms – Parseval's Identity for Fourier Transforms – [without derivation]-Simple Problems

TEXT BOOKS:

1. P.R.Vittal [2004], "Vector Analysis, Analytical Solid Geometry & Sequences & Series", Margham Publication, Chennai.
Unit-I: Chapter-1, Unit-II: Chapter-2.
2. P.R.Vittal [2002], "Differential equations, Fourier & Laplace Transforms and Probability". Margham Publication, Chennai.
Unit-III, IV & V: Chapter- 6 & 8.

REFERENCE BOOKS:

1. B.S.Grewal, "Higher Engineering Mathematics" [2002], Khanna Publishers, New Delhi.
2. M.K.Venkataraman(1992), "Higher Engineering Mathematics", National Publishing Company, Chennai.

III B.Sc (MATHS)	PROJECT (For the students admitted from the year 2019)	19JMT51
SEMESTER -V		HRS/WK - 2
PROJECT		CREDIT- 2

COURSE OBJECTIVES:

1. To enhance a deeper understanding of mathematical concepts and methodologies through independent research with data.
2. To involve in practical application of the basic concept.
3. To foster innovation and creativity in the field of mathematics.
4. To improve the analytical thinking and problem-solving skills

COURSE OUTCOMES:

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

1. Identify the suitable theme
2. Explore new areas of mathematical concepts
3. Apply the mathematical models in real-world problem.
4. Solve the critical problem in different methodology.
5. Demonstrate the project outcome.

COURSE CONTENT:

1. Introduction of the project
2. Project design and planning
3. Data collection and Analyses
4. Computational tools and software
5. Presentation

CONTENT AREA:

Students may choose to focus on one of the following areas:

1. Fuzzy set theory
2. Probability and Statistics
3. Graph theory
4. MatLab
5. Numerical methods
6. Algebra and analysis
7. Differential equations
8. Discrete and Applied Mathematics
9. Mathematical finance
10. Analytical geometry

PROJECT REPORT SPECIFICATIONS:

Arrangement of contents

1. Title Page
2. Bonafide Certificate
3. Acknowledgement
4. Table of contents
5. Abstract
6. Chapters of the Report
7. References
8. Appendices

BINDING SPECIFICATION

- Report should be bound using flexible cover of thick white art paper.
- The Spine for the bound volume should be 2cms width.
- The Cover should be printed in block letters.

MARGIN SPECIFICATION

Top	: 4 cms
Bottom	: 3 cms
Left	: 4.5 cms
Right	: 2.5 cms

PAGE NUMBERING

All Page numbers should be typed without punctuation at the center on the bottom of the page. The Preliminary pages (table of contents and abstract) should be numbered in lowercase roman literals.

YEAR – I	ALLIED MATHEMATICS – I For the students admitted from the year 2021	21AMCS11
SEMESTER – I		HRS/WK –8
ALLIED – I		CREDIT –6

(For B.Sc. Computer Science)

OBJECTIVES

This subject covers the topics Theory of equations, matrices, differential calculus, Integral calculus and vector analysis, to explore the fundamental concepts of Mathematics.

COURSE OUTCOMES:

The students after undergoing this course will be able to

CO1: Knowledge pertaining to polynomials equations in varies field.

CO2: Able to find solutions of transformation of equation by increasing or decreasing roots.

CO3: Knowledge pertaining to consistency of equations of matrices and Eigen roots and Eigen vectors.

CO4: Knowledge pertaining to expansions of $\sin\theta$, $\cos\theta$, $\tan\theta$ and Hyperbolic functions.

CO5: Knowledge pertaining to find solutions of nth- derivatives and radius of curvature.

SEMESTER I	COURSE CODE: 21AMCS11					COURSE TITLE: ALLIED MATHEMATICS – I										Hours 8	Credits 6
COURSE OUTCOMES	PROGRAMME OUTCOMES(P O)					PROGRAMME SPECIFIC OUTCOMES(PSO)										MEAN SCORE OF CO'S	
	P O 1	P O 2	P O 3	P O 4	P O 5	P S O 1	P S O 2	P S O 3	P S O 4	P S O 5	P S O 6	P S O 7	P S O 8	P S O 9	PSO 10		
CO1	4	4	3	4	3	3	4	4	3	4	4	5	3	3	4	3.7	
CO2	3	5	3	3	3	4	5	4	3	4	4	5	3	3	4	3.7	
CO3	5	4	3	3	4	5	4	3	4	5	4	4	3	4	5	4.0	
CO4	4	3	4	3	4	3	5	4	4	5	4	3	4	4	4	3.9	
CO5	3	5	4	2	5	3	5	4	4	5	4	4	3	4	5	4.0	
Mean Overall Score															3.9		

Result: The Score of this Course is 3.9 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	$0 \leq \text{rating} \leq 1$	$1.1 \leq \text{rating} \leq 2$	$2.1 \leq \text{rating} \leq 3$	$3.1 \leq \text{rating} \leq 4$	$4.1 \leq \text{rating} \leq 5$
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

UNIT-I: LOGIC

Symbolic logic –Arguments Test of Validity of the (using truth table),-Quantifiers (Without truth table)

UNIT-II: THEORY OF EQUATIONS

Transformation of equations by increasing or decreasing roots by a constant –Horner’s Method to find a root approximately.(without proof)– Newton’s method to find a root approximately two decimals places(without proof) .

UNIT-III: MATRICES

Eigen values and Eigen vectors – Cayley – Hamilton’s theorem [without proof] – Verification and computation of inverse matrix using Cayley Hamilton theorem

UNIT-IV: TRIGONOMETRY

Expansions of $\sin n\theta$, $\cos n\theta$, $\sin n\theta$, $\cos n\theta$, $\tan n\theta$ – Expansions of $\sin \theta$, $\cos \theta$, $\tan \theta$ in terms of θ – Hyperbolic and inverse hyperbolic functions – Logarithms of complex numbers.

UNIT-V: DIFFERENTIAL CALCULUS

n th derivatives – Leibnitz theorem [without proof] and its applications – Jacobians – Concepts of polar co-ordinates – Curvature and radius curvature in Cartesian and polar co-ordinates.

TEXT BOOKS:

1. “Mathematical Foundations” P.R.Vittal, Margham publications, Chennai.
2. Discrete Mathematics-Venkatraman M.K, Sridharan.N, Chandrasekaran.N, The National Publishing Company, Chennai, 2000
3. P. Duraipandian and S. Udayabaskaran. 2005, “Allied Mathematics”, Vol I & II. Chennai: Muhil Publishers.
Unit-I: chap1 (Pg:1.1-1.50) Chap:9(15 Pg:9.72-9.79)
Unit-II: Chap:3(3.2.2,3.4.1,3.4.2), Unit-III: Chap:4(4.5,4.5.2,4.5.3),
Unit-IV: Chap:6 (6.1,6.1.1-6.1.3,6.2,6.2.1-6.2.3,6.3,6.4),
Unit-V: Chap:1(1.1.1,1.1.2,1.2,1.4.3,1.4).

REFERENCE BOOKS:

1. P. Balasubramanian and K. G. Subramanian. 1997, “Ancillary Mathematics”, Vol I & II. New Delhi: Tata McGraw Hill.
2. S.P.Rajagopalan and R.Sattanathan 2005, “Allied Mathematics”, Vol I & II. New Delhi: Vikas Publications.
3. P. R. Vittal(2003), “Allied Mathematics”, Chennai: Margham Publications.
4. P.Kandhasamy, K. Thilagavathy(2003), “Allied Mathematics”, Vol I & II. New Delhi: S. Chand & Co Ltd.

YEAR – I	ALLIED MATHEMATICS – I For the students admitted from the year 2021	21AMT11
SEMESTER – I		HRS/WK –8
ALLIED- I		CREDIT –6

(For B.Sc. Physics & Chemistry)

Objectives:

1. To acquire knowledge on finding roots of the complex equation.
2. To improve their ability on applications of matrices and calculus.

COURSE OUTCOMES:

The students after undergoing this course will be able to

CO1: Attains knowledge on finding roots for polynomial, irrational, complex equations.

CO2: develops the skill of transformation, approximation and reciprocal on equations.

CO3: adopts techniques in solving problem involving Matrices

CO4: provides skills on finding curvature and radius of curvature in Cartesian and polar co-ordinates.

CO5: enables to understand the applications of integration in real life situation.

SEMESTER I	COURSE CODE: 21AMT11					COURSE TITLE ALLIED MATHEMATICS – I										HOURS 8	CREDITS 6
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)										MEAN SCORE OF CO'S	
	P O 1	P O 2	P O 3	P O 4	P O 5	P S 1	P S 2	P S 3	P S 4	P S 5	P S 6	P S 7	P S 8	P S 9	P S 10		
CO1	4	4	4	3	3	3	4	4	4	4	3	3	3	3	4	3.5	
CO2	3	3	3	3	3	4	3	4	4	3	3	4	3	3	3	3.3	
CO3	3	3	4	3	4	3	3	3	4	3	4	3	4	3	3	3.3	
CO4	4	4	3	4	4	3	3	3	3	3	4	3	3	3	4	3.4	
CO5	3	3	3	4	4	4	4	4	3	4	3	3	3	3	3	3.4	
Mean Overall Score															3.4		

Result: The Score of this Course is 3.4 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	$0 \leq \text{rating} \leq 1$	$1.1 \leq \text{rating} \leq 2$	$2.1 \leq \text{rating} \leq 3$	$3.1 \leq \text{rating} \leq 4$	$4.1 \leq \text{rating} \leq 5$
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

UNIT-I: SOLUTIONS OF TRANSCENDENTAL AND ALGEBRAIC EQUATIONS

Iteration method, Bisection method, Newton's method - Regula Falsi method, Horner's method (without proof) (Simple problems only)

Unit-II: SOLUTIONS OF SIMULTANEOUS EQUATIONS

Gauss Elimination method- Gauss Jordan method-Gauss Seidel Iterative method-Gauss Jacobi method (Restricted to three variables only) (Simple problems only)

UNIT-III: MATRICES

Characteristic equation of a square matrix- Eigen values and eigen vectors - Cayley - Hamilton theorem [without proof] - Verification and computation of inverse matrix-

UNIT-IV: DIFFERENTIAL CALCULUS

n-th derivatives - Leibnitz theorem [without proof] and applications - Jacobians- Curvature and radius of curvature in Cartesian co-ordinates and polar co-ordinates.

UNIT-V: APPLICATION OF INTEGRATION

Evaluation of double, triple integrals - Simple applications to area, volume and centroid.

TEXT BOOKS:

1. A.Singaravelu "Numerical Methods" Meenakshi Publications
Unit-I: Chapter 2
Unit-II: Chapter 2
2. P. Duraipandian and Dr. S. Udayabaskaran. 1997, "Allied Mathematics", Vol I & II. Chennai: Muhil Publishers.
Unit-III: Volume-I- Sec(4.5, 4.5.2),
Unit-IV: Volume-II- Sec(1.1,1.1.1,1.1.2,1.2,1.4.3),
Unit-V: Volume-II-Chap:3 Sec(3.2,3.2.1,3.2.2,3.4,3.4.1,3.4.2,3.5,3.5.1,3.6)

REFERENCE BOOKS:

1. P. Balasubramanian and K. G. Subramanian. 1997, "Ancillary Mathematics", Vol I & II. New Delhi: Tata McGraw Hill.
2. S.P.Rajagopalan and R.Sattanathan(2005), "Allied Mathematics", Vol I & II. New Delhi: Vikas Publications.
3. P. R. Vittal (2003), "Allied Mathematics", Chennai: Marghan Publications.

I – BCA	MATHEMATICAL FOUNDATIONS For the students admitted from the year 2021	21AMCA11
SEMESTER – I		HRS/WK – 5
ALLIED – 1		CREDIT – 5

(For B.C.A. I – Year)

OBJECTIVE:

To learn how to apply fundamental mathematical tools and techniques used in most fields of science and mathematics

COURSE OUTCOMES:

The students after undergoing this course will be able to

CO1: Understand operators and solve problems using operators

CO2: Know the concept of set theory, relation and function

CO3: Solve problems using permutation and combination

CO4: Understand more about matrices and solve problems using matrices

CO5: Learn characteristic roots and characteristic vectors and solve problems

SEMESTER I	COURSE CODE: 21AMCA11					COURSE TITLE: MATHEMATICAL FOUNDATION										HOURS 5	CREDITS 5
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)										MEAN SCORE OF CO'S	
	P O 1	P O 2	P O 3	P O 4	P O 5	P S O 1	P S O 2	P S O 3	P S O 4	P S O 5	P S O 6	P S O 7	P S O 8	P S O 9	PS O1 0		
CO1	4	3	3	3	4	4	4	4	3	3	5	3	3	1	4	3.4	
CO2	3	4	3	4	3	4	5	4	3	4	3	3	3	2	5	3.5	
CO3	4	3	4	3	3	3	4	4	3	3	4	5	3	1	5	3.47	
CO4	5	5	4	5	4	3	4	5	3	3	3	5	3	2	4	3.87	
CO5	4	5	4	3	4	4	5	4	3	3	3	3	3	1	5	3.6	
Mean Overall Score															3.57		

Result: The Score of this Course is 3.57 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

UNIT-I: LOGICAL OPERATORS

Conjunction, disjunction, negation, conditional and bi-conditional operators, converse, inverse, contra-positive, logically equivalent, tautology and contradiction, arguments and validity of arguments.

UNIT-II: SET THEORY

Set theory-Definitions, Types of sets, Operations on set theory, Relations - equivalence relation, partially ordered set, partition of set and Functions(Simple problems without theorems).

UNIT -III: PERMUTATION AND COMBINATION

Binary operations,types of binary operations, Permutation and Combination (simple problems).

UNIT -IV: MATRICES

Types of matrices, operations on matrices, simple problems, singular and non-singular matrices, adjoint of a matrix, inverse of a matrix, symmetric and skew-symmetric, Hermitian and skew-Hermitian, orthogonal and unitary matrices, Consistency of a system of linear equations using Rank method.

UNIT -V: MATRIX THEORY (CONTD....)

Characteristic roots and characteristic vectors, Cayley-Hamilton theorem - finding inverse of a square matrix and verification of Cayley-Hamilton theorem.

TEXT BOOK:

- 1.“Mathematical Foundations”, P.R.Vittal (2003), Margham Publications, Chennai.
Unit-I: Chapter 1 (Pages: 1.1 -1.50),
Unit-II: Chapter 2 &3&4 (Pages: 2.1- 2.38 &3.1 -3.25 & 4.1-4.35),
Unit-III: Chapter 6 & 7(Pages: 6.1 -6.10 & 7.1-7.53),
Unit-IV: Chapter 8 (Pages: 8.1 to 8.97),
Unit-V: Chapter 8 &9 (Pages: 8.97-8.140).

REFERENCE BOOKS:

1. “Discrete Mathematics”, Second edition, Seymour Lipschutz & Marc Lipson, Schaum’s outlines,Tata McGraw-Hill.
2. Discrete Mathematics, B.S. Vatsa, Wishwa Prakashan.

II – BBA(CA)	RESOURCE MANAGEMENT TECHNIQUES For the students admitted from the year 2020	20ABM33
SEMESTER– III		HRS/WK - 5
ALLIED -I		CREDIT – 4

OBJECTIVE:

To expose the students to the basics of LPP, Transportation Problem, Sequencing Problem, Game Theory and Networks

COURSE OUTCOME:

The students after undergoing this course will be able to

CO1: Students able to know the basics in Operation Research and make the Model.

CO2: Students able to understand Transportation Method.

CO3: Students able to understand Assignment Model.

CO4: Students able to do the problems in Job problems.

CO5: Students able to study the basics to solve the Game problem.

SEMESTER III	COURSE CODE: 20ABM33		COURSE TITLE: RESOURCE MANAGEMENT TECHNIQUES										HOURS 5	CREDITS 4			
COURSE OUTCOMES	PROGRAMME OUTCOMES(P O)					PROGRAMME SPECIFIC OUTCOMES(PSO)										MEAN SCORE OF CO'S	
	P O 1	P O 2	P O 3	P O 4	P O 5	P S O 1	P S O 2	P S O 3	P S O 4	P S O 5	P S O 6	P S O 7	P S O 8	P S O 9	P S O 10		
CO1	3	4	3	4	4	2	5	4	3	4	3	4	2	2	4	3.4	
CO2	3	3	3	4	2	2	5	4	2	3	3	4	2	3	4	3.1	
CO3	4	3	2	3	2	3	4	5	2	3	4	5	3	2	3	3.2	
CO4	3	4	4	2	3	2	5	3	4	3	2	4	3	3	2	3.0	
CO5	4	5	3	2	2	3	5	3	3	3	5	5	2	3	3	3.4	
Mean Overall Score															3.22		

Result: The Score of this Course is 3.22 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very poor	Poor	Moderate	High	Very High

This course is having **HIGH** association with programme outcomes and programme specific outcomes.

UNIT –I: BASIC CONCEPT OF OR

Introduction – Linear programming problem: Mathematical Formulation of the problem – Graphical solution – Graphical solution method – Simplex method .

UNIT-II:TRANSPORTATION MODEL

Definition, Formulation of Transportation Problem-North-west corner method –Matrix minima method- Vogel’s Approximation method–Optimal solution of Transportation-modi’s method

UNIT-III: ASSIGNMENT MODEL

Definition of Assignment models- Formulation and solution of Assignment models using Hungarian Method-Unbalanced Assignment problems

UNIT-IV: SEQUENCING PROBLEM

Basic term used in sequencing-Processing of n jobs through two machines-Processing of n jobs through three machines- Processing two jobs through k machines-Johnson’s Algorithm

UNIT –V:GAME THEORY

Two person zero sum game-Basic terms –Maximin and Minimax principle-Games without saddle point –Mixed strategies– graphical solution of $2 \times n$ and $m \times 2$ games -Dominance property.

TEXT BOOK:

1. Kanti Swaru, Gupta P. K. and Manmohan[1999], “Operations Research”, Sulthan Chand & Sons., New Delhi.

UNIT - I Chapter 1 : 1.1,1.5, 1.7, Chapter2: 2.2, Chapter 3: 3.2,3.3, Chapter 4: 4.1, 4.2, 4.

UNIT – II Chapter 10: 10.1, to 10.15

UNIT – III Chapter 11: 11.1 to 10.5

UNIT – IV Chapter 12: 12.1 to 12.6

UNIT – V Chapter 17: 17.1 to 17.7

REFERENCE BOOKS:

1. Gupta P. K and Hira D. S. [2000], “Problems in Operations Research”, Sulthan Chand & Sons., Delhi.
2. J. K. Sharma, [2001], “Operations Research Theory and Applications”, Macmillan, Delhi
3. Taha H. A.[2003], “Operations Research” , Macmillan Publishing Company, New York.
4. P.R. Vittal [2003], “Operations Research” , Margham Publications, Chennai.

II – BCA	RESOURCE MANAGEMENT TECHNIQUES For the students admitted from the year 2020	20AMCA43
SEMESTER – IV		HRS/WK – 5
ALLIED -III		CREDIT – 4

OBJECTIVE:

To expose the students to the basics of LPP, Transportation Problem, Sequencing Problem, Game Theory and Networks

COURSE OUTCOME:

The students after undergoing this course will be able to

CO1: Students able to know the basics in Operation Research and make the Model.

CO2: Students able to understand Transportation Method.

CO3: Students able to understand Assignment Model.

CO4: Students able to do the problems in Job problems.

CO5: Students able to study the basics to solve the Game problem.

SEMESTER IV	COURSE CODE: 20AMCA43					COURSE TITLE: RESOURCE MANAGEMENT TECHNIQUES											HOURS: 5	CREDITS 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)											MEAN SCORE OF CO'S	
	P O 1	P O 2	P O 3	P O 4	P O 5	P S O 1	P S O 2	P S O 3	P S O 4	P S O 5	P S O 6	P S O 7	P S O 8	P S O 9	PS O1 0			
CO1	3	4	4	3	4	3	3	4	4	3	3	3	4	3	3	3.4		
CO2	3	3	4	3	4	3	4	4	4	3	4	3	4	3	4	3.5		
CO3	3	3	4	3	4	3	4	3	3	3	4	3	4	4	3	3.4		
CO4	3	3	3	4	4	3	4	3	3	3	3	3	4	3	3	3.3		
CO5	3	3	4	4	4	3	3	3	4	4	3	3	3	4	4	3.5		
Mean Overall Score																3.4		

Result: The Score of this Course is 3.4 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

UNIT –I: BASIC CONCEPT OF OR

Introduction – Linear programming problem: Mathematical Formulation of the problem – Graphical solution – Graphical solution method – -Simplex method.

UNIT-II:TRANSPORTATION MODEL

Definition, Formulation of Transportation problem-North-west corner method –Matrix minima method- Vogel’s Approximation method –Optimal solution of Transportation- Modi’s method

UNIT-III: ASSIGNMENT MODEL

Definition of Assignment models- Formulation and solution of Assignment models using Hungarian Method-Unbalanced Assignment problems

UNIT-IV: SEQUENCING PROBLEM

Basic term used in sequencing-Processing of n jobs through two machines-Processing of n- jobs through k- machines- Processing two jobs through k machines-Johnson’s Algorithm

UNIT –V:GAME THEORY

Two person zero sum game-Basic terms –Maximin and Minimax principle-Games without saddle point –Mixed strategies– graphical solution of $2 \times n$ and $m \times 2$ games -Dominance property.

TEXT BOOK:

1.Kanti Swaru, Gupta P. K. and Manmohan[1999], “Operations Research”, Sulthan Chand & Sons., Delhi.

UNIT – I: Chapter2: 2.1, 2.2, Chapter 3: 3.1,3.2, Chapter 4: 4.1, 4.2, 4.

UNIT – II Chapter 10: 10.1, to 10.15

UNIT – III Chapter 11: 11.1 to 10.5

UNIT – IV Chapter 12: 12.1 to 12.6

UNIT – V Chapter 17: 17.1 to 17.7

REFERENCE BOOKS:

1. Gupta P. K and Hira D. S. [2000], “Problems in Operations Research”, Sulthan Chand & Sons., Delhi.
2. J. K. Sharma, [2001], “Operations Research Theory and Applications”, Macmillan, Delhi
3. Taha H. A.[2003], “Operations Research” , Macmillan Publishing Company, New York.
4. P.R. Vittal [2003], “Operations Research” , Margham Publications, Chennai.

SEMESTER – VI								
Part		Hours/ Week	Credit	Course Code	Course Title	Maximum Marks		
						CIA	ESE	TOTAL
III	Core Theory - 12	5	5	21PH612	Relativity & Quantum Mechanics	25	75	100

III B.Sc (PH)	RELATIVITY & QUANTUM MECHANICS	21PH612
SEMESTER - VI		HRS/WK-5
CORE - XII		CREDIT- 5

OBJECTIVE:

Understand the basics of relativity, waves and matters, solving Schrödinger equation and its applications.

COURSE OUTCOMES:

At the end of the Course the students should be able to exhibit

CO1: To understand the concept of Relativity

CO2: To Learn the principles & properties of waves and matter

CO3: To know about the Schrodinger equations and its applications

CO4: To study the mathematical functions in physics

CO5: To Gain the knowledge about the special functions

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER - VI	COURSE CODE: 21PH612					COURSE TITLE: RELATIVITY & QUANTUM MECHANICS						Hours: 5	Credits: 5
Course Outcomes COs	Programme Outcomes POs					Programme Specific Outcomes PSOs						Mean Score of CO's	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6		
CO1	3.3	4.6	3.1	4.6	3.2	4.6	4.7	4.4	4.7	4.5	3.4	4.10	
CO2	3.0	4.7	3.5	4.6	3.1	4.1	4.8	4.8	4.6	4.3	3.1	4.03	
CO3	3.1	4.6	3.6	4.7	3.2	4.2	4.6	4.7	4.8	4.8	3.1	4.12	
CO4	3.0	3.8	3.4	4.6	3.1	4.3	4.7	4.6	4.5	4.5	3.3	3.98	
CO5	3.0	4.1	3.6	4.8	3.0	4.7	4.4	4.9	4.1	4.7	3.5	4.07	
Mean Overall Score												4.06	

Result: The Score for this course is 4.07 (High)

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very Poor	Poor	Moderate	High	Very High

Value Scaling	
Mean Score of COs= $\frac{\text{Total Values}}{\text{Total No. of POs \& PSOs}}$	Mean Overall Score of COs= $\frac{\text{Total Mean Scores}}{\text{Total No. of COs}}$

This course is having **High association** with Programme Outcome and Programme Specific Outcome

UNIT - I **(15 hours)**

General Relativity: Frames of references - Newtonian relativity-Galilean invariance and conservation laws- postulates of general theory of relativity - propagation of light- Michelson-Morley experiment - significance of negative result - search for ether

UNIT - II **(15 hours)**

Special Relativity: Postulates of special theory of relativity - Lorentz transformation equations - Length contraction - Time dilation - Relativity of simultaneity - Law of addition of velocities - variation of mass with velocity - relativistic kinetic energy equations Minkowski's four dimensional spaces -time continuum.

UNIT - III **(15 hours)**

Wave Mechanics: Dual Nature of Matter-Matter waves - de Broglie wavelength De Broglie's Hypothesis of Matter Wave-Conservation of Energy-Expression for wave velocity and group velocity - Heisenberg's Uncertainty principle-Mathematical proof of uncertainty Experimental study of matter waves-proof of Uncertainty principle for one dimensional wave packet

UNIT - IV **(15 hours)**

Schrödinger Equations: Wave function-properties of wave functions- Postulates of wave mechanics -Probability Current density- Equality of Continuity theorem- Eigen functions - Eigen values - expectation values - Time dependent and time independent Schrödinger equation.

UNIT - V **(15 hours)**

Application Of Schrödinger Equations: Particle in a one dimensional box - barrier penetration and tunneling effect - linear harmonic oscillator - zero point energy - rigid rotator - hydrogen atom.

TEXTBOOKS:

1. Quantum Mechanics by V. Devanathan, Narosa, Chennai, 2005.
2. Modern physics by R Murugesan, Kiruthiga, Sivaprasath S Chand & Co.(2007)
3. Quantum Mechanics by V K Thangappan, Wiley Eastern

REFERENCE BOOKS:

1. A Text Book of Quantum Mechanics by P M Mathews and Venkatesan,, McGraw Hill
2. Quantum mechanics by Ghatak and Loganathan, McMillan
3. Basic quantum mechanics by A Ghatak, McMillan India (2002)

I B.Sc. (CH)	INORGANIC CHEMISTRY – I	CH203A
SEMESTER – II		HRS/WK – 4
CORE - 3		CREDIT – 3

OBJECTIVES:

To know the arrangement of elements in the periodic table and identify the nature of chemical bond and also the shapes of various inorganic molecules.

COURSE OUTCOMES (COs):

CO 1: students acquire the knowledge about unit atoms and accommodation of electrons and their periodic trends.

CO 2: Students learn the comparative account of alkali and alkaline earth metals.

CO 3: Students learn the elements of boron and their applications.

CO 4: A knowledge on ionic, covalent bonds and nature solvents.

CO 5: Understanding on molecular orbital theory.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER II	COURSE CODE: CH203A	COURSE TITLE: INORGANIC CHEMISTRY – I												HOURS: 4	CREDITS: 3
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	2	3	3	3	3	3	3	3	3	4	3	3	3	3.0	
CO2	2	3	3	3	3	3	3	3	4	3	3	4	2	3.0	
CO3	2	3	3	3	3	2	3	3	3	3	4	4	4	3.07	
CO4	3	3	3	3	2	2	3	4	3	3	3	4	3	3.0	
CO5	3	3	3	2	3	3	2	3	3	4	2	4	4	3.0	
Mean Overall Score															3.01

Result: The Score of this Course is 3.01 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome.

UNIT-I: ATOMIC ORBITALS AND GENERAL PERIODIC PROPERTIES OF ELEMENTS [12 Hrs]

Atomic orbitals - Shapes of s, p, d, f orbital. Hund's rule of maximum multiplicity applications of Hund's rule- Aufbau principle - Pauli's exclusion principle – electronic configuration of elements - Stability of half-filled and completely filled orbitals - classification of s, p, d and f block elements.

General periodic properties of elements - Periodic table- IUPAC - nomenclature of Inorganic compounds - Atomic radii and ionic radii – size - ionization energies – electron affinity - oxidation states and variable valencies - Inert pair effect. Electronegativity - Pauling's and Mulliken scale- Alfred Rochow's scale. Applications of electronegativities.

UNIT – II: CHEMISTRY OF ALKALI AND ALKALINE EARTH METALS [12 Hrs]

Chemistry of Alkali metals: Occurrence, comparative study of elements - oxides, halides, hydroxides and carbonates. Exceptional properties of Li. diagonal-relationship of Li with Mg. Chemistry of Alkaline earth metals: Comparative study of elements – oxides - hydroxides, halides, sulphates and carbonates. Exceptional properties of Be. Diagonal relationship of Be and Al. Comparison of alkali metals with alkaline earth metals. Mg acting as bridging element between II A & II B groups resemblance of Mg with Zn. Hydrogen bonding – Intra and Intermolecular hydrogen bonding – properties of hydrogen-bonded Nitrogen, Oxygen, Fluorine and sulphur compounds.

UNIT – III: CHEMISTRY OF P – BLOCK ELEMENTS - BORON FAMILY [12 Hrs]

Chemistry of p – block elements – Boron family- semi metals - group discussion – anomalous behavior of B - diagonal relationship between B & Si - electron deficiency & electron acceptor behavior of BX_3 .

Boron hydrides - VBT & MOT approaches of diborane and tetraborane. Structure of Borax, sodium borate, sodium tetraborate, or disodium tetraborate and Boric acid. Compounds of Boron with Nitrogen - preparation and structure of Borazole and Boron nitrides

UNIT – IV: IONIC, COVALENT BONDING AND ACID-BASE CONCEPTS [12 Hrs]

Ionic Bond: Conditions for the formation of ionic bond – formation of NaCl – Hydration energy – Lattice energy and their applications – Born Haber cycle– General properties of ionic compounds.

Covalent bonding: Polarization and Fajan's rule, Effects of polarization, VBT conditions for the formation of covalent bond – hybridization- sigma and pi bonds - Characteristics of Covalent Compounds. Hannay smith equation.

Acid-Base concepts – Lewis, Lowry-Bronsted, Luxflood, Usanovich concepts & HSAB approach.

UNIT – V: VSEPR THEORY AND MOLECULAR ORBITAL THEORY [12 Hrs]

VSEPR Theory: Molecular shapes predicted by Sidgwick's Powell theory – Effect of lone pairs and Electronegativity – Effects of bonding and lone pairs on bond angles. Geometries of ClF_3 , IF_7 , BF_4^- , BO_3^{3-} , NH_4^+ , I_3^- .

Molecular Orbital Theory: LCAO method, criteria of orbital overlap – types of molecular orbitals - sigma and pi molecular orbitals, combination of atomic orbital to give sigma and pi molecular orbitals and their schematic illustration. Qualitative molecular energy level diagram of homo and hetero diatomic molecules – H_2 , N_2 , O_2 , CO , NO & HCl – bond order and stability of molecules.

TEXT BOOKS:

1. J.D. Lee, A New Concise Inorganic Chemistry, 3rd Edn, ELBS, 1987.
2. R.D. Madan, Modern Inorganic Chemistry, 3rd Edn, Sulthan Chand Publications, 1988.

REFERENCE BOOKS:

1. F.A. Cotton, G. Wilkinson, Advanced Inorganic Chemistry, 5th Edn. John Wiley. 1985.
2. B. Douglas, D. McDaniel, J. Alexander, Concepts and Models of Inorganic Chemistry, 3rd Edn, John Wiley, 2001.
3. J.E. Huheey, Inorganic Chemistry, 5th Edn, Harper International. 1993.
4. D.F. Shriver, P.W. Atkins, C.H. Langford, 3rd Edn. Inorganic Chemistry, ELBS. 1999.
5. W.V. Mallik, G.D. Tuli, R.D. Madan, Selected Topics in Inorganic Chemistry, 4th Edn. Sulthan Chan Publications, 1992.

II B.Sc. (CH)	INORGANIC CHEMISTRY - II	CH305A
SEMESTER – III		HRS/WK – 4
CORE - V		CREDIT – 3

OBJECTIVES:

To know the arrangement of elements in the periodic table. To identify the nature of chemical bond in a given inorganic compound. To learn the shapes of various inorganic molecules.

COURSE OUTCOMES (COs):

CO1: Students acquire the knowledge about the theory behind the practicals and solvents.

CO2: Students learn the comparative study of carbon group elements and their applications.

CO3: Students learn the elements of nitrogen and oxygen group elements.

CO4: A knowledge on halogen family and its applications.

CO5: Students acquire the knowledge about halogens and their reactivity.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: CH305A					COURSE TITLE: INORGANIC CHEMISTRY - II								HOURS: 4	CREDITS: 3
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	2	3	3	4	4	2	3	3	3	4	4	3	3	3.15	
CO2	2	3	2	3	3	2	3	3	4	4	3	3	2	2.85	
CO3	3	3	3	4	3	4	3	4	3	3	4	3	4	3.38	
CO4	3	3	3	2	3	3	3	3	3	3	3	4	3	3.00	
CO5	3	3	3	2	3	2	3	3	3	4	3	3	3	2.92	
Mean Overall Score														3.06	

Result: The Score of this Course is 3.06 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome.

UNIT-I: PRINCIPLES OF INORGANIC QUALITATIVE ANALYSIS AND TYPES OF SOLVENT [12 Hrs]

Principles of acid-base equilibria - Common ion effect, solubility product and their applications in qualitative analysis. Reactions involved in the separation and identification of cations and anions in qualitative analysis – Spot reagents – aluminon, Cupferon, DMG, Thiourea, magneson, alizarin and Nessler's reagent.

Types of solvents- protic and aprotic solvents, amphiprotic and amphoteric solvents – aqueous and non-aqueous solvents and Physical properties of solvents– Liquid NH_3 as a solvent - HF as a solvent - solvation number – medium effect - Vander Waal's forces - ion-dipole, dipole-dipole interactions.

UNIT-II: CARBON FAMILY AND TYPES OF CHEMICAL REACTIONS [12 Hrs]

Carbon family: Group discussion - valencies, oxides, halides, hydrides of C and Si - catenation and hetero catenation – allotropy of carbon, comparison of properties of C & Si. Carbides: salt-like carbides – Interstitial carbides – covalent carbides – applications of carbides in Industry. Types of chemical reactions: Acid-Base, oxidation-reduction, electron transfer, double decomposition reaction – balancing chemical reactions by oxidation number and ion electron method.

UNIT-III: NITROGEN AND OXYGEN FAMILY [12 Hrs]

Nitrogen family - Comparative study of N, P, As, Sb, Bi oxides – preparation and structure of N_2O_3 , P_4O_6 , N_2O_5 and P_4O_{10} . Oxy-acids: HNO_2 , HNO_3 , H_3PO_2 , H_3PO_3 and H_3PO_4 – properties and structure. Halides – PCl_3 , PCl_5 – properties and structure. Hydrides – NH_3 , PH_3 , AsH_3 and BiH_3 – structure, trends in boiling point, basic character and hydrogen bonding. Properties, structure and uses of hydrazine and hydroxylamine.

Oxygen family: Comparative study of O, S, Se, Te elements – anomalous behaviour of Oxygen, oxides of sulphur – SO_2 and SO_3 , properties and structure. Oxoacids of sulphur – H_2SO_3 , H_2SO_4 and $\text{H}_2\text{S}_2\text{O}_7$, properties and structure. Peroxosulphuric acids- Caro's acid, Marshall's acid - structure and comparison – Structure of Dithionic and Polythionic acids. Chemistry of ozone.

UNIT-IV: HALOGENS [12 Hrs]

Halogens – Comparative study of F, Cl, Br, I, At elements – reactivities – comparison of fluorine with oxygen - hydrogen halides – preparation and properties of HF, HCl, HBr and HI – estimation of available of chlorine in bleaching powder. Oxyacids of halogens – Sodiumhypochloride and Sodium chlorite (structure and properties) – Poly halides - interhalogen compounds (ClF_3 , ICl , BrF_3 , ClF_5 , BrF_5 , IF_5 structure and properties) – Pseudo halogens (CN^- , SCN^- , N_3^- structure and properties). Basic properties of halogens - positive iodine – exceptional properties of fluorine, similarities between H_2O & HF.

UNIT-V: NOBLE GASES [12 Hrs]

Noble gases: electronic configuration – reasons for placing in zero group – position in the periodic table - chemical inertness of noble gases – reasons – applications – clathrates – hybridization and geometries of XeF_2 , XeF_4 , XeF_6 , XeOF_4 . Uses of noble gases.

TEXT BOOKS:

1. Vogels, Textbook of quantitative chemical analysis, 6th Ed, Prentice-Hall, 2000.
2. J.D. Lee, A New Concise Inorganic Chemistry, 3rd Edn. ELBS, 1987.
3. R.D. Madan, Modern Inorganic Chemistry, 3rd Edn. Sulthan Chand Publications, 1988.
4. R. Gopalan, Inorganic Chemistry for Undergraduates, University Press Pvt ltd, 1st Ed, 2009.

5. B.R. Puri, L.R.Sharma, K.C.Kalia, Principles of Inorganic Chemistry, Lal Nagin chand and co. Delhi 1996.

REFERENCE BOOKS:

1. F.A. Cotton, G. Wilkinson, Advanced Inorganic Chemistry, 5th Edn. John Wiley.1985.
2. B. Douglas, D. McDaniel, J. Alexander, Concepts and Models of Inorganic Chemistry, 3rd Edn. John Wiley, 2001.
3. J.E. Huheey, Inorganic Chemistry, 5th Edn. Harper International.1993.
4. W.V. Mallik, G.D. Tuli, R.D. Madan, Selected Topics in Inorganic Chemistry, 4rd Edn. Sulthan Chand Publications, 1992.

III B.Sc. (CH)	CHEMISTRY OF INDUSTRIAL PRODUCTS	ECH513A
SEMESTER - V		HRS/WK – 4
ELECTIVE - II		CREDIT- 3

Objectives:

To provide the basic knowledge in Industrial Product Chemistry and modern trends in the industry

COURSE OUTCOMES (COs)

CO1: Students learn about the preparation and applications of soaps and detergents.

CO2: Students acquire the knowledge of shampoos and dyes.

CO3: Students learn about preparation of face powder and nail polish

CO4: Students learn about leather, sugar and agricultural chemistry

CO5: Students get to know the chemical aspects of lubricants and explosives

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER V	COURSE CODE: ECH513A	COURSE TITLE: CHEMISTRY OF INDUSTRIAL PRODUCTS												HOURS: 4	CREDITS: 3
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	3	3	4	2	4	3	3	3	4	5	4	4	3.46	
CO2	3	4	4	4	2	4	3	3	3	4	5	4	4	3.62	
CO3	3	3	3	4	3	2	3	3	3	4	5	4	4	3.38	
CO4	3	4	3	4	3	4	4	3	4	4	5	5	4	3.85	
CO5	4	4	3	4	4	4	4	3	4	4	4	4	4	3.85	
Mean Overall Score														3.63	

Result: The Score of this Course is 3.63 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome.

UNIT-I: SOAPS AND DETERGENTS**[12 Hrs]**

Saponification of oils and fats – Manufacture of soaps – Formulation of Toilet soaps–Different ingredients used–Their functions. Mechanism of action of soaps –Soft soaps–Shaving soaps and creams - Testing procedures and limits. Anionic detergents: Manufacture of LAB (Linear Alkyl Benzene) – Sulphonation of LAB – preparation of acid slurry–Different ingredients in the formulation of detergent powders and soaps–Liquid detergents–Foam boosters–AOS (alpha-olefin sulphonates). Cationic detergents: Examples– Manufacture and applications. Non-ionic detergents: Examples–Manufacture of ethylene oxide condensate.

UNIT-II: SHAMPOOS AND DYES.**[12 Hrs]**

Manufacture of Sodium lauryl sulphate and Sodium Laureth sulphate: Ingredients–Functions–Different kinds of shampoos – anti-dandruff–anti-lice–herbal and baby shampoos.

Hair dye: Manufacture of conditioners – Coco betaines or coco diethanolamides – ISI specifications – Testing procedures and limits. Introduction: Methods of dying – Classifications of dyes – Methods of application of dyes – Fluorescent brightening agent – non-textile uses of dyes.

UNIT-III: SKIN PREPARATIONS.**[12 Hrs]**

Face and skin powders: Ingredients – functions – Different types – Snows and face creams – A chemical ingredients used – Antiperspirants.

Sunscreen preparation: UV absorbers – Skin bleaching agents – Depilatories – Turmeric and neem preparations – Vitamin oil.

Nail polishes: Nail polish preparation – Nail polish removers – Article removers – Lipsticks – rougns, eyebrow pencils – Ingredients and functions – hazards.

UNIT-IV: LEATHER & SUGAR CHEMISTRY, AGRICULTURAL CHEMISTRY**[12 Hrs]**

Leather: Introduction - Manufacture of leather–Preparation of hides for tanning– Vegetable–chrome and oil tanning–tannery effluents.

Sugar: Introduction – manufacture of cane sugar– recovery of sugar from molasses–manufacture of sucrose from beetroot–testing and estimation of sugar.

Agricultural chemistry: Classification and examples for insecticides, fungicides and herbicides –fluorine compounds, boron compounds, arsenic compounds, mercuric compounds, pyridine compounds – ill effects of the use of chemical pesticides, fertilizers and insecticides.

UNIT-V: LUBRICANTS, EXPLOSIVES AND PROPELLANTS.**[12 Hrs]**

Mechanism of lubrication: Classification of lubricants–lubricating oils– greases or semi-solid lubricants– solid lubricants and synthetic lubricants.

Explosives: Classification of explosives, primary explosives–high explosive and low explosive. Blasting fuses–manufacture of important explosives–propellants and rocket fuels–classification of propellants and uses.

Text Books:

1. Bahl and Arun Bahl, Organic chemistry, S. Chand and Sons, New Delhi, 2005
2. B.K. Sharma, Industrial Chemistry, Goel Publishing House, 2004
3. Gobala Rao. S, Outlines of chemical technology, Affiliated East-West Press, 1998.

Reference Books:

1. Kafaro, Wasteless chemical processing, Mir Publishers, 1995.
2. Sawyer. W, Experimental cosmetics, Dover Publishers, New York, 2000.

III B.Sc. (CH)	POLYMER CHEMISTRY	ECH618A
SEMESTER – VI		HRS/WK - 4
ELECTIVE – IV		CREDIT- 3

Objective:

To study the importance of polymers. To emphasize the applications of polymers.

COURSE OUTCOMES (COs)

CO1: To know the concept of polymerization and types of polymers.

CO2: To understand the characteristics of polymers.

CO3: To acquire knowledge about the polymerization techniques and polymer processing.

CO4: To know the chemistry of individual polymers.

CO5: To have an idea about the recent advances in polymer sciences.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER VI	COURSE CODE: ECH618A	COURSE TITLE: POLYMER CHEMISTRY												HOURS: 4	CREDITS: 3
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	3	4	3	4	2	3	4	3	3	3	4	4	3.30	
CO2	2	3	4	3	3	2	2	3	4	3	3	4	4	3.07	
CO3	2	3	4	3	3	2	3	4	4	4	4	4	4	3.38	
CO4	3	3	3	3	2	2	3	4	4	3	4	4	4	3.23	
CO5	3	3	3	4	3	2	2	3	3	4	4	4	4	3.23	
Mean Overall Score															3.24

Result: The Score of this Course is 3.24 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome.

UNIT-I: BASICS**[12 Hrs]**

Importance of polymers. Basic concepts: Monomers–repeating units – degree of polymerization–Linear, branched and network polymers. Classification of polymers: Polymerisation – condensation, addition, radical chain-ionic, and coordination and copolymerization. Polymerization conditions and polymer reactions. Polymerization in homogeneous and heterogeneous systems.

UNIT-II: STRUCTURE AND PROPERTIES**[12 Hrs]**

Morphology and order in crystalline and amorphous polymers – differences between them – configurations of polymer chains Crystal structures of polymers. Crystallinity of the polymers: strain-induced morphology, crystallization, and melting–Crystalline melting point T_m . The glass transition temperature, T_g relationship between T_m and T_g .

UNIT-III: POLYMER PROCESSING**[12Hrs]**

Plastics, elastomers, and fibres: Compounding–Processing techniques: Calendering–die casting–rotational casting–film casting–injection moulding–blow moulding–extrusion moulding–thermoforming–foaming–reinforcing and fibre spinning.

UNIT-IV: POLYMER CHARACTERIZATION**[12 Hrs]**

Polydispersion: Average molecular weight concept–Number, weight and viscosity average molecular weights–Polydispersity and molecular weight distribution – The practical significance of molecular weight. Analysis and testing of polymers: Chemical analysis of polymers– spectroscopic methods–X-ray diffraction study–Thermal analysis and physical testing – tensile strength–Fatigue, impact–Tear resistance–Hardness and abrasion resistance.

UNIT-V: PROPERTIES OF COMMERCIAL POLYMERS**[12 Hrs]**

Polyethene, Polyvinylchloride, polyamides, phenolic resins, epoxy resins and silicone polymers. Functional polymers – fire retarding polymers and electrically conducting polymers. Biomedical polymers – contact lens, dental polymers, artificial heart, kidney, skin and blood cells.

Text Books:

1. F.W. Billmeyer Jr, Wiley Textbook of Polymer Science,
2. V.R. Gowariker, N. V. Viswanathan, and J. Sreedhar, Polymer Science, New Age International(P) Ltd., 2005

Reference Books:

1. K. Takemoto, Y, Inaki, and R. M. Ottanbrite. Functional monomers and polymers,
2. Physics and chemistry of polymers, J. M. G. Cowie, Blackie Academic, and Professional.

I-B.Sc. (ZO)	ALLIED CHEMISTRY FOR ZOOLOGY	21ACH201
SEMESTER – II		HRS/WK - 4
ALLIED CHEMISTRY		CREDIT - 4

OBJECTIVES:

To introduce basic concepts of chemical bonding, co-ordination chemistry & physical chemistry. To learn basic concepts of water quality parameter, purification and separation techniques. To learn various Spectroscopic techniques and their uses.

COURSE OUTCOMES (COs):

CO1: Students will learn the fundamental aspects of basic chemistry which will be useful for their study.

CO2: Students will learn the purification techniques for the solid and liquid compounds.

CO3: Students will learn the basic Chromatographic techniques for separation and extraction of chemical compounds.

CO4: Students acquire the knowledge about basic spectroscopic techniques.

CO5: Students learn about the technology of water and various water treatment processes.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER II	COURSE CODE: 21ACH201					COURSE TITLE: ALLIED CHEMISTRY FOR ZOOLOGY								HOURS: 4	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	3	3	4	3	3	4	3	4	3	4	4	3.54	
CO2	3	3	4	3	3	2	3	3	4	4	3	4	4	3.31	
CO3	3	3	4	3	4	2	3	4	4	4	4	4	4	3.54	
CO4	3	4	3	3	4	2	3	4	3	3	4	4	4	3.38	
CO5	3	3	3	4	3	3	3	3	4	4	4	4	4	3.46	
Mean Overall Score													3.45		

Result: The Score of this Course is 3.45 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome.

UNIT-I: BASIC CHEMISTRY**[12 Hrs]**

Chemical bonding –Types of Bonding - Structure of Amino acids - Zwitterion - Isoelectric Point - Structure of Proteins. Co-Ordination Chemistry: Definition of terms used - classification of ligands - Werner's theory. Ionic Equilibria - pH scale - Buffer solution - Types of Buffer Solution-Calculation of pH values of Buffer mixtures - Henderson equation.

UNIT-II: PURIFICATION TECHNIQUES**[12 Hrs]**

Purification of solid compounds – Crystallisation - Fractional crystallization- Sublimation- Purification of liquids- Experimental techniques of distillation- Fractional distillation- Vacuum distillation- Steam distillation.

UNIT-III: SEPARATION AND EXTRACTION TECHNIQUES**[12 Hrs]**

Chromatography - Principles- Types - Principle and applications of Thin Layer Chromatography - Rf Value - Column chromatography - Ion Exchange Chromatography. Soxhlet Extraction - Principle and applications.

UNIT-IV: SPECTROSCOPY**[12 Hrs]**

General features of spectroscopy – terms and units - IR Spectroscopy – the vibrations of molecules and types of vibrations - UV-Visible Spectroscopy - Absorption Laws - Selection Rules - Types of Electronic transitions – Chromophore – Auxochrome - Absorption bands and Intensity. Woodward-fiesher rules for calculating λ_{\max} in Dienes and α, β -unsaturated carbonyl compounds.

UNIT-V: TECHNOLOGY OF WATER**[12 Hrs]**

Water quality parameters – COD, BOD, TDS – Hardness of water - Temporary and Permanent hardness - Estimation of hardness (EDTA method) - Water softening (Zeolite Method) - Demineralization of water (Ion Exchange Method) and Desalination (Reverse Osmosis Method).

TEXT BOOKS:

1. P. S. Kalsi, Organic Reaction stereochemistry & Mechanism. 4thedition, New Age International publishers. 2006.
2. J. D. Lee, Concise Inorganic Chemistry, 5th edition, Blackwell Science, London 1996.
3. Puri and Sharma. Principles of physical chemistry. 40th edition.2003.
4. R. Gopalan, P.S. Subramanian & K. Rangarajan, Elements of analytical chemistry, Sultan Chand & Sons, 2003.
5. Y.R. Sharma Elementary Organic Spectroscopy Principles and Chemical Applications S. Chand & Company Ltd; New Delhi 4th Revised Edition (2007)
6. S. S. Dara, "A Text Book of Engineering Chemistry" fifth revised edition (1996) S Chand Company limited New Delhi.

REFERENCE BOOKS:

1. F. A. Cotton, G. Wilkinson, C. Murillo, and M. Bochman, Advanced Inorganic Chemistry, 6th edition. John Wiley, New York 1999.
2. Raj. K. Bansal, Organic Reaction Mechanism, 3rd edition, Tata McGraw Hill, 1998.
3. Skoog and D. M. West, "Fundamentals of Analytical Chemistry", International edition, seventh edition (1996), Saunders College publishing Philadelphia, Halt, London.
4. G.R. Chatwal & S.K. Anand, Instrumental Methods of Chemical Analysis, Sultan Chand & Sons, 1998.
5. C. N. Banwell. 1966, Fundamentals of Molecular Spectroscopy, McGraw Hill.

I B.Sc. (BC)	ANALYTICAL CHEMISTRY	21ACH202
SEMESTER – II		HRS/WK – 4
ALLIED - II		CREDIT – 3

OBJECTIVES:

To introduce basic concepts of purification and separation techniques. To study the important concepts of water technology. To learn various Spectroscopic techniques and their uses.

COURSE OUTCOMES (COs):

CO1: Students learn various crystallization and distillation methods involved in the purification of solid and liquid chemicals.

CO2: Students acquire the knowledge of various chromatographic separation techniques.

CO3: Students learn various analyzing abilities of Polarography, Polarimetry and Cyclic Voltammetry.

CO4: Students learn various Spectroscopic techniques.

CO5: Students learn the concepts of analysis, estimations and purification of water.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER II	COURSE CODE: 21ACH202					COURSE TITLE: ANALYTICAL CHEMISTRY								HOURS: 4	CREDITS: 3
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	4	4	4	3	3	4	4	4	4	5	4	5	3.92	
CO2	4	5	4	5	4	2	4	4	3	4	5	4	5	4.07	
CO3	3	3	4	3	3	3	3	4	3	3	4	4	5	3.46	
CO4	4	5	4	4	4	3	3	4	3	4	4	5	5	4.0	
CO5	4	3	3	4	4	3	4	4	3	4	4	4	5	3.77	
Mean Overall Score													3.84		

Result: The Score of this Course is 3.84 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome.

UNIT-I: PURIFICATION TECHNIQUES**[12 Hrs]**

Purification of solid compounds- Crystallization- Fractional crystallization- Sublimation- Purification of liquids- Experimental techniques of distillation- Fractional distillation- Vacuum distillation- Steam distillation

UNIT-II: SEPARATION TECHNIQUES**[12 Hrs]**

Chromatography – Types - Column chromatography – Thin layer chromatography (TLC) - Ion Exchange Chromatography

UNIT-III: INSTRUMENTAL ANALYSIS**[12 Hrs]**

Polarography – Principle – Instrumentation - Application of Polarography Cyclic voltammetry – Principle – Instrumentation - Application of CV Polarimetry – Principle - Instrumentation- Application –Estimation of Glucose

UNIT-IV: SPECTROSCOPY**[12 Hrs]**

General features of spectroscopy – terms and units. IR Spectroscopy - the vibrations of molecules and types of vibrations. UV-Visible Spectroscopy - Absorption Laws - Selection Rules - Types of Electronic transitions – chromophore – Auxochrome - Absorption bands and Intensity. Woodward-Fieser rules for calculating λ_{\max} in Dienes and α,β -unsaturated carbonyl compounds.

UNIT-V: TECHNOLOGY OF WATER**[12 Hrs]**

Water quality parameters-Temporary and Permanent hardness - Estimation of hardness (EDTA method) - Water softening (Zeolite) - Demineralization (Ion Exchange) and desalination (RO)

TEXT BOOKS:

1. R. Gopalan, P.S. Subramanian & K. Rangarajan, Elements of analytical chemistry, Sultan Chand & Sons, 2003.
2. G.R. Chatwal & S.K. Anand, Instrumental Methods of Chemical Analysis, Sultan Chand & Sons, 1998
3. C. N. Banwell. 1966, Fundamentals of Molecular Spectroscopy, McGraw Hill.
4. S. S. Dara, “A Text Book of Engineering Chemistry” fifth revised edition (1996) S Chand company limited New Delhi.

REFERENCE BOOKS:

1. A. Skoog and D. M. West, “Fundamentals of Analytical Chemistry”, International edition, seventh edition (1996), Saunders College publishing Philadelphia, Halt, London.
2. Y.R. Sharma Elementary Organic Spectroscopy Principles and Chemical Applications S. Chand & Company Ltd; New Delhi 4th Revised Edition (2007)

III B.Sc (BC)	MOLECULAR BIOLOGY	COURSE CODE: 19BC509
SEMESTER-V		HRS/WK-5
CORE-9		CREDIT-5

OBJECTIVES

- ❖ To study the cellular interactions of molecules present in the cell.
- ❖ To provide information about the organization of chromosomes and the various important processes involved in the molecular biology.
- ❖ To acquire knowledge about the significance of replication, transcription, and translation.

Course outcomes

CO1-Students are able to understand the DNA as a genetic material and central dogma of molecular biology

CO2-Students are able to figure out the difference between the prokaryotic and eukaryotic replications.

CO3-Students are able to gain knowledge about the various essential steps involved in the transcription.

CO4-Students are able to acquire knowledge about genetic code and mechanism of the translation.

CO5-Students are able to understand the DNA repair and the recombination process.

SEMESTER V	COURSE CODE: 19BC509					COURSE TITLE: MOLECULAR BIOLOGY								HOURS:5 CREDITS:5
COURSE OUTCOMES	PROGRAMME OUTCOMES (POS)					PROGRAMME SPECIFIC OUTCOMES (PSOS)								MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	
CO1	4	5	4	3	4	4	4	4	3	4	3	4	4	3.5
CO2	3	4	4	4	4	4	3	4	4	4	3	4	4	3.8
CO3	4	4	3	4	4	3	4	4	4	3	4	3	4	3.7
CO4	4	4	4	3	4	3	3	3	5	5	5	5	3	4.3
CO5	4	4	4	4	3	4	3	3	3	4	3	4	3	3.7
Mean Overall Score													3.8	

Result: The Score of this Course is 3.8 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - CHROMOSOMES

[15 hrs]

DNA is the genetic material-Griffith, Avery *et al* and Hershey and Chase experiment, C value paradox, Cot value, organization of chromosomes and nucleosomes, euchromatin, heterochromatin, centromeres and telomeres, central dogma of molecular biology.

UNIT II - REPLICATION

[15 hrs]

Replication-conservative and semi conservative methods, Meselson and Stahl experiment, factors involved in prokaryotic and eukaryotic replication, DNA polymerases in prokaryotes and eukaryotes, inhibitors of replication, repetitive DNA-Highly repetitive, moderately repetitive and unique DNA sequences. Satellite DNA, Transposons.

UNIT III - TRANSCRIPTION

[15 hrs]

Transcription-promoters, RNA polymerase in prokaryotes and eukaryotes, initiation, elongation and termination of transcription process in prokaryotes, inhibitors of transcription, Group I & II introns, post transcriptional modification of mRNA, tRNA and rRNA.

UNIT IV - GENETIC CODE & TRANSLATION

[15 hrs]

Genetic code-features and deciphering of genetic code, Wobble hypothesis, Translation-activation of amino acids, initiation, elongation and termination process in prokaryotes, Inhibitors of protein synthesis, post translational modification. Operon concept- Lac and Trp operon.

UNIT V - DNA REPAIR

[15 hrs]

DNA repair-photo reactivation, Excision repair, recombination, SOS and Mismatch repair. Site specific recombination, serine and tyrosine recombinase.

TEXT BOOKS:

1. Nelson, D. L. & Cox, M. M. 2008, Lehninger Principles of Biochemistry. Freeman, 5th edn,
2. David Freifelder, 2008. Molecular Biology. (Ed: 2). Narosa Publications, New Delhi.
3. Watson J.D., 2006. Molecular Biology of the gene (Ed. 5) Pearson Education, UK

REFERENCE BOOKS:

1. EDP de Robertis and E M F de Robertis, (2001). Cell and . Molecular Biology. 8th Edition, Lippincott W&W.
2. Lodish, H., Berk, A., Zipursky, S. L., Matsudaira, P., Baltimore, D. and James Darnell, J. 2012, Molecular Cell Biology, Freeman, 7th edn
3. Karp, G. 2010, Cell and Molecular Biology: Concepts and Experiments. Wiley, 6th edn
4. Primrose (2001) - Principles of gene manipulation. 6th Edition Blackwell Scientific Publishers. UK
5. Krebs, J.E. 2011. Lewin's Genes IX. (Ed: 9). Jones and Barlett Publishers, US.
6. Twyman. 2003. Advanced Molecular Biology, 3RD edition Bios Scientific Publishers LTD. Oxford, UK.

III B.Sc (BC)	IMMUNOLOGY	COURSE CODE: 19BC510
SEMESTER-V		HRS/WK-5
CORE-10		CREDIT-5

Objectives

To understand the components of immune system and to study the various components of immune system with their functions.

Course outcomes:

CO1: To understand basic concept of immune system and gain insight knowledge about T&Bcell mediated immune response.

CO2: To acquire sufficient knowledge about antigen and its properties apart from structure of antibody and its sub class.

CO3: To gain appropriate knowledge about complement system, structure and functions of MHC molecules and also get clear insight of transplantation.

CO4: To acquire in-depth knowledge about the hypersensitivity and autoimmune diseases.

CO5: To understand and gain insight about antigen – antibody reactions

SEMESTER V	COURSE CODE :19BC510					COURSE TITLE: IMMUNOLOGY								HOURS: 4 CREDIT S:3
COURSE OUTCOMES	PROGRAMME OUTCOMES(POS)					PROGRAMME SPECIFIC OUTCOMES(PSOS)								MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	
CO1	3	5	2	2	2	4	4	4	3	2	4	4	4	3.3
CO2	5	4	2	3	2	5	5	5	5	3	3	4	3	3.8
CO3	4	5	3	2	3	4	4	4	4	3	4	3	4	3.6
CO4	5	4	2	2	2	3	5	5	3	2	3	4	4	3.4
CO5	4	5	2	3	3	5	5	5	5	2	4	4	4	3.4
Mean overall score														3.5

Result: The Score of this Course is 3.5 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - IMMUNE SYSTEM**[15 hrs]**

Immune system: Introduction and characteristics, classification of immunity-innate and acquired immunity. structure and functions of Primary and secondary lymphoid organs. Structure and functions of immune cells [macrophage, T cell, B cell, NK cell, dendritic cell and APC]. Immune response - T and B cell mediated immune response, B & T lymphocytes cooperation. Phagocytosis and pinocytosis.

UNIT II – ANTIGEN & ANTIBODY**[15 hrs]**

Antigen-properties, epitope, paratope, specificity, cross reactivity, antigenicity and immunogenicity, haptens, adjuvants and multivalent binding sites. Antibody -structure, specificity and distribution of antibodies. Different classes and subclasses of immunoglobulins. Clonal selection theory, Antibody diversity.

UNIT III - COMPLEMENT & TRANSPLANTATION**[15 hrs]**

Complement components- complement cascade-classical, alternate and lectin pathway, complement deficiencies. Major Histocompatibility Complex (MHC) - Structure and function of MHC-I, II & III molecules. Role of MHC antigen in immune response. Transplantation – Graft and its types, mechanism of graft rejection in skin, graft versus host reaction and Immunosuppressive drugs.

UNIT IV - HYPERSENSITIVITY**[15hrs]**

Allergy and hypersensitivity- type I, II, III and IV and their clinical manifestations, Autoimmune diseases-myasthenia gravis, rheumatoid arthritis, thyrotoxicosis and SLE. Immuno tolerance.

UNIT V - ANTIGEN & ANTIBODY REACTIONS**[15 hrs]**

Antigen-antibody interaction: Precipitation reaction in gel (double and radial immuno diffusion). Agglutination reaction - Widal, VDRL and pregnancy test. Principle and applications of immuno electrophoresis, sRIA & ELISA.

TEXT BOOKS:

1. Abbas, Lightman and Pober. W.B. Saunders, 1994. Cellular and Molecular Immunology”, 2nd edition,
2. Ananthanarayanan. K and Jayaraman Paniker, 1996. “Textbook of Microbiology”,
3. Judith A. Owen, Jenni Punt, Sharon A. Kuby, 2013. Immunology, W H Freeman & Co (Sd); 7th edition

REFERENCE BOOKS:

1. David Male, Jonathan Brostoff, David Roth Ivan Roitt. 2005. Essential Immunology. 10th edition. Blackwell Science,
2. Tizard. R., “Immunology-An introduction”, 1995 Saunders College Publishing 2nd Revised edition).
3. Weir, D.N. (1997): Immunology (8th edition) (Churchil Livingstone).
4. Ivan M. Roitt, D. Male, 1995. Immunology, Mosby Publishers; 4th Revised edition

III B.Sc (BC)	TOXICOLOGY AND PHYTOMEDICINE	COURSE CODE: 19EBC51A
SEMESTER-V		HRS/WK-5
Elective – I		CREDIT-4

Objectives:

- To study various harmful chemical agents in environment and its impacts.
- To study the basics of medicinal and therapeutic use of plants

Course Outcomes:

CO1: To understand and gain knowledge about the toxic substances, types, mechanism and factors influencing the toxicity .

CO2: Able to understand the toxic substances, sources and routes of exposure and transport of toxicants in environment.

CO3: To gain & understand Bioassay, neurotoxicity & nephrotoxicity.

CO4: To acquire knowledge about the herbs, characterization, usage and active constituents of plants and Preparation of herbal formulations for common ailments.

CO5: To gain insights about the herbal drugs for Dengue fever, urinogenital disorders,

SEMESTER V	COURSE CODE: 19EBC51B					COURSE TITLE: TOXICOLOGY AND PHYTOMEDICINE								HOURS:5 CREDITS:4
COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO8	MEAN SCORE OF CO'S
CO1	5	4	3	2	3	5	5	4	4	3	5	4	3	3.8
CO2	4	3	3	2	3	4	3	3	4	5	4	3	3	3.4
CO3	3	4	3	2	3	3	4	4	3	3	3	4	3	3.2
CO4	4	4	2	2	2	4	4	3	4	3	4	4	3	3.2
CO5	3	3	2	3	3	4	3	4	3	3	4	3	3	3.2
Mean overall score														3.4

memory stimulants, kidney stones, inflammation and cancer.

Result: The Score of this Course is 3.4 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - TOXICOLOGY

[15 hrs]

Introduction to toxicology, Toxic substances: Types-degradable & non-degradable. Factors influencing toxicity. Drug toxicity. Mechanism of toxicity, Acute and chronic toxicity.

UNIT II - TOXIC SUBSTANCES IN ENVIRONMENT [15hrs]

Toxic substances in environment: sources and routes. Transport of toxicants through food chain- bioaccumulation and bio-magnification. Toxicology of major pesticides, Biotransformation, bio-monitoring, bio-indicator and its examples. Environmental impact of pesticides.

UNIT III - BIOASSAY [15 hrs]

Bioassay- Types, characteristics and importance. Microbial bioassay for toxicity testing. LC50, LD50. Hepatotoxicity- examples of hepatotoxicants and its impacts on liver. Nephrotoxicity - examples of nephrotoxicants and its impacts on kidney. Neurotoxicity - examples of neurotoxicants and its impacts on brain.

UNIT IV - INTRODUCTION TO HERBAL SCIENCE [15 hrs]

Herbs, characterization of herbs based on plant properties, usage and active constituents. medicinal uses and health benefits of Ginger, Garlic, Green tea, kabasurakudineer and Herbal tea Preparation of herbal medicine. Bioavailability and bioequivalence. Dosage and formulation.

UNIT V - PHYTOMEDICINE [15 hrs]

Drugs for urinogenital disorders – *Withaniasomnifera*, Memory stimulants – *Centellaasiatica*, Herbal drugs for dissolving kidney stones – *Musa paradistica*, Anti-inflammatory drugs from plants– *Curcuma longa*, *Cardiospermum*. Anticancer drugs from plants - *Catharanthus roseus* and *Azardica indica*. Dengue fever – Papaya leaves.

TEXT BOOKS:

1. David Hoffmann., 2003. Medical Herbalism: The Science Principles and Practices of Herbal Medicine, 1ST edition, Healing Arts Press publishers.
2. Agnes Arbe, 1987. Herbs: Their Origin and Evolution, Cambridge University Press; 3 edition,
3. Kumar, N.C. 1993. An Introduction to Medical botany and Pharmacognosy. Emkay Publications, New Delhi.

REFERENCE BOOKS:

1. Gupta, P.K. and Salunka, D.K. 1985. Modern toxicology. Vol I and II. Metropolitan, New Delhi.
2. Ming-Ho Yu, Humio Tsunoda, Masashi Tsunoda, 2011. Environmental Toxicology: Biological and Health Effects of Pollutants, CRC Press; 3 edition

III B.Sc (BC)	FOOD TECHNOLOGY	COURSE CODE: 19EBC51B
SEMESTER-V		HRS/WK-5
Elective - I		CREDIT-4

OBJECTIVES:

To study the nature of food, spoilage, preservation and its applications

Course Outcomes:

CO1: To study the structure, composition, nutritional quality of milk products and implications of Food Adulteration.

CO2: To acquire knowledge about the important pathogens in food spoilage and the conditions under which they will grow.

CO3: To understand the source and variability of raw food materials and their impact on food processing operations.

CO4: To Emphasis the various properties of the raw materials used in food processing, different processing technologies required in transforming them into quality food products and material handling equipment involved in food processing operations.

Result: The Score of this Course is 3.5 (High)

SEMESTER V	COURSE CODE: 19EBC51B					COURSE TITLE: FOOD TECHNOLOGY								HOURS:5 CREDITS:4
COURSE OUTCOMES	PROGRAMME OUTCOMES(POS)					PROGRAMME SPECIFIC OUTCOMES(PSOS)								MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	
CO1	5	4	2	3	2	5	4	4	3	2	5	5	5	3.7
CO2	4	5	2	2	2	4	4	5	2	2	4	5	3	3.5
CO3	4	4	2	2	2	5	3	4	2	2	3	5	3	3.1
CO4	4	5	2	2	2	4	3	4	3	2	4	4	5	3.3
CO5	5	5	2	4	3	5	5	5	4	2	4	4	5	3.9
Mean overall score													3.5	

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - FOOD CONSTITUENTS AND ADULTERATION

[15 hrs]

Constituents of food: Introduction, water, carbohydrate, fat, oil, vitamins and minerals. Pulses, grains, vegetables and fruits-varieties, composition, nutritive value and cooking. Milk- kinds of milk: whole milk, low-fat & skimmed milk, composition, nutritive value, pasteurization and homogenization. Food Adulteration: types of adulterants, common adulterants in foods, toxicants in foods, impact of food adulteration in humans.

UNIT II - FOOD SPOILAGE

[15 hrs]

Food spoilage: Characteristic features, dynamics and significance of spoilage of different groups of foods - Cereal and cereal products, vegetables and fruits, meat poultry and sea foods, milk and milk products, packed and canned foods. Factors affecting growth & survival of microorganism in food, physical & chemical methods to control microorganism.

UNIT – III FOOD PROCESSING AND PRESERVATION

[15hrs]

Food processing: Principle and methods of food processing and preservation-freezing, high pressure, heating, dehydration, canning and Packaging. fermentation, irradiation and osmotic pressure. Application of enzymes and microorganisms in food processing and preservation. Food Additives - Definition, types and functions, permissible limits and safety aspects.

UNIT IV - INDUSTRIAL PRODUCTIONS OF FOODS

[15 hrs]

Yogurt preparation, Cheese and its classification, cheese making, fermented vegetables, production of oil from soya beans. Fruit and vegetable juices, jams, production of beer, wine and vinegar.

UNIT V - LEGAL ISSUES AND GOVERNMENT NORMS

[15hrs]

Food regulations – History of Indian Food Regulations: BIS, ISI, FPO, PFA and FDA. Food Safety and Standards Act 2011. Food laws and quality control – HACCP, Codex alimentarius, MFPO, BIS, AGMARK and FSSAI. Legal aspects related to storage and disposal.

TEXT BOOKS:

1. Gabriel Virella (1997), Microbiology and infectious disease, 3rd Ed, Ingraham international, New Delhi.
2. John L Ingraham and Catherine A.Ingraham. Microbiology an introduction, 2nd Ed, Cengage learning, New Delhi
3. Rao E. S. (2013). Food Quality Evaluation

REFERENCE BOOKS:

1. Sivasankar,B.(2005),Food processing and preservation,3rd Ed, Prentice Hall India (P) Ltd.
2. VijayaKhader (2009), Text book of food science and technology,5thEd, Indian council of Agricultural research.
3. Avantina Sharma, Text book of food science and technology, 3rd Ed, CBS Publishers.

III B.Sc (BC)	PLANT BIOCHEMISTRY	COURSE CODE: 19EBC52A
SEMESTER-V		HRS/WK-5
Elective – II		CREDIT-4

OBJECTIVES:

- ❖ To make available information about the plant cell wall and the mechanism of absorption.
- ❖ To acquire knowledge about the Physiological significance of various plant hormones, role of pigments in photosynthesis and the importance of secondary metabolites
- ❖ To gain proper information about the role of nitrogen fixing bacteria in the nitrogen assimilation.

Course outcomes

- ❖ **CO1**-Students are able to comprehend the structure and functions of the plant cells and the several processes involved in the exchange of ions.
- ❖ **CO2**-Students are able to figure out the structure, biosynthesis and the biological functions of different hormones.
- ❖ **CO3**-Students are able to gain knowledge about the structure and the physiological effects of pigments in photosynthesis.
- ❖ **CO4**-Students are able to acquire knowledge on the various secondary metabolites and stress metabolism.
- ❖ **CO5**-Students are able to understand about the role of nitrogen fixing bacteria in the nitrogen assimilation.

SEMESTER V	COURSE CODE: 19EBC52A					COURSE TITLE :PLANT BIOCHEMISTRY								HOURS:5 CREDITS :4
COURSE OUTCOMES	PROGRAMME OUTCOMES(POS)					PROGRAMME SPECIFIC OUTCOMES(PSOS)								MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	
CO1	4	5	4	3	4	4	4	4	3	4	3	4	4	3.5
CO2	3	4	4	4	4	4	3	4	4	4	3	4	4	3.8
CO3	4	4	3	4	4	3	4	4	4	3	4	3	4	3.7
CO4	4	4	4	3	4	3	3	3	5	5	5	5	3	4.3
CO5	4	4	4	4	3	4	3	3	3	4	3	4	3	3.7
Mean overall score													3.8	

Result: The Score of this Course is 3.8 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - CELL

[15 hrs]

Discovery and definition of plant cell, cell wall, plasmodesmata, meristematic cells and secretory systems. Mechanism of absorption- Ion exchange, passive absorption & Active absorption. The carrier concept and Donnan membrane equilibrium.

UNIT II - PLANT HORMONES

[15 hrs]

Structure, biosynthesis, mode of action and physiological effects of auxins, gibberellins and cytokinins. Biochemistry of seed dormancy, seed germination, fruit ripening and senescence.

UNIT III - PLANT PIGMENTS & PHOTOSYNTHESIS

[15 hrs]

Structure & synthesis of chlorophyll, phycobilins and carotenoids. Photosynthesis: photosystem I & II, Light absorption, Hill reaction, Red drop & Emerson's enhancement effect. Cyclic and non-cyclic photophosphorylation, Calvin cycle, C3, C4 & CAM. Photosynthesis-factors and regulation. Glyoxalate cycle.

UNIT IV - SECONDARY METABOLITES & STRESS METABOLISM

[15 hrs]

Secondary metabolites in plants – classification & function of alkaloids, terpenoids, tannins, lignin and pectin. Stress metabolism in plants - Environmental stresses, salinity, water stress, heat, chilling and their impact on plant growth, criteria of stress tolerance.

UNIT V - NITROGEN FIXING ORGANISMS

[15 hrs]

Nitrogen fixing organisms: Structure and mechanism of action of nitrogenase: *Rhizobium* symbiosis. Leghaemoglobin, strategies for protection of nitrogenase against the inhibitory effect of oxygen, nif genes of *Klebsiella pneumoniae* and their regulation. Ammonia assimilation by glutamine synthetase, glutamine oxoglutarate amino transferase (GS-GOGAT). Nitrite and nitrate reductase.

TEXT BOOKS:

1. Jain.V.K., 2005. 'Fundamentals of Plant Physiology', Revised 1st edition, S.Chand & Company Ltd
2. Pandey.S.N., and Sinha.B.K. 1999. Plant Physiology, Vikas Publishing House.
3. Verma, S.K. 2005, Text Book of Plant Physiology, 7th Revised edition, Emkay Publications 2001, S. Chand & Co Ltd., New Delhi.

REFERENCE BOOKS:

1. Solisbury and Ross, Plant Physiology, 3rd edition, CBS Publishers and Distributors.
2. Hans-Walter Held, Plant Biochemistry, 3rd edition, Elsevier India Pvt.Ltd.
3. Bonner and Varner, Plant Biochemistry, 3rd edition, Academic Press.
Heldt, HW. (2005), Plant Biochemistry. 3rd edition, Elsevier Academic Press Publication, USA

III B.Sc (BC)	PHARMACEUTICAL BIOCHEMISTRY	COURSE CODE: 19EBC52B
SEMESTER-V		HRS/WK-5
ELECTIVE-II		CREDIT-4

Objectives:

- ❖ To gain essential knowledge about drugs and their metabolism.
- ❖ To understand the various drug formulations and the drugs used in practice

Course Outcomes:

CO1: To acquire basic knowledge of drug design and its sources.

CO2: Able to understand drug absorption, Disposition, Elimination using pharmacokinetics, important pharmacokinetic parameters in defining drug disposition

CO3: To gain knowledge of antioxidant defense system and mode of action of different enzymes

CO4: To understand the different types of drug formulations and its uses

CO5: To gain knowledge about the common drugs used in different ailments.

SEMESTER V	COURSE CODE: 19EBC52B					COURSE TITLE :PHARMACEUTICAL BIOCHEMISTRY								HOURS:5 CREDITS:4
COURSE OUTCOMES	PROGRAMME OUTCOMES(POS)					PROGRAMME SPECIFIC OUTCOMES(PSOS)								MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	
CO1	4	4	3	3	4	4	4	4	3	4	3	3	3	3.5
CO2	3	4	4	4	3	3	3	2	3	3	3	3	4	3.5
CO3	4	4	3	4	4	3	4	4	4	3	4	3	4	3.7
CO4	4	4	4	3	4	3	3	3	5	5	5	5	3	4.3
CO5	4	4	4	4	3	4	3	3	3	4	3	4	3	3.7
Mean overall score													3.7	

Result: The Score of this Course is 3.8 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - INTRODUCTION TO PHARMACOGNOSY [15 hrs]

Definition, history, scope and development of Pharmacognosy. Sources of Drugs – Plants, Animals, Marine & Tissue culture .Organized drugs, unorganized drugs (dried latex, dried juices, dried extracts, gums and mucilage's, oleoresins and oleo- gum -resins).

UNIT II - PHARMACOKINETICS [20 hrs]

Basic principles of pharmacokinetics, Drug metabolism and Concepts of Prodrugs. Factors affecting metabolism, site of metabolism, routes of elimination (kidney, biliary excretion) Phase-I: oxidation, microsomal oxidation, microsomal reduction, non-microsomal metabolism, hydrolysis, Phase-II: Conjugation-glucuronide conjugation, acylation, methylation, mercapturic acid formation and sulphate conjugation.

UNIT III - ANTIOXIDANT DEFENSE [10hrs]

Antioxidant defense system-oxygen dependent and independent. Antioxidant defense enzymes -SOD, Catalase, Glutathione peroxidase, Glutathione reductase and lipid peroxidase.

UNIT IV - DRUG FORMULATION [15 hrs]

Drug formulation:Types-solid,semi-solid,liquid and gas. Tablets- types and uses, Capsules-Hard and soft, Cream, gel, ointment, syrup, suspension- advantages and disadvantages.

UNIT V - COMMON DRUGS [15hrs]

Definition, source and Nature of common drugs, Antimalarial drugs: Chloroquine, quinine, Hydroxychloroquine, Amodiquine. Antifungal drugs: Chlorophenesin, Griesofulvin and Candicidin. Antiviral agents: Idoxuridine, Acyclovir, Methisazone, Amantadine hydrochloride and Remedisivir for COVID 19 (structure not required).

TEXT BOOKS:

1. Tripathi KD, 2013. Essentials Of Medical Pharmacology, 7th edition. Jaypee Brothers Medical Publishers
2. Karen Whalen, 2014. Lippincott Illustrated Reviews: 6th edition. Pharmacology – Publisher: Wolter Kluwer

REFERENCE BOOKS:

1. Lubert Styryer, Biochemistry ,4th editon, W.H.Freeman and Company, New York.
2. G.R.Chatwal, Pharmaceutical chemistry, Himalayaa Publishing House.
3. Joseph R.Dipalma,,G.Johndi Gregorio, Basic Pharmacology in Medicine,3th edition.
4. Katzung Bertram, 2015. Basic and Clinical Pharmacology 13th ed., McGraw Hill,

III B.Sc (BC)	HISTOPATHOLOGICAL TECHNIQUES	COURSE CODE: 19SBC51A
SEMESTER-V		HRS/WK-2
SKILL PAPER-I		CREDIT-2

Objectives

To study and acquire knowledge about the various steps involved in the histopathological techniques.

Course outcomes

CO1-Students are able to understand the general organization of histopathological laboratory.

CO2-Students are able to acquire the information about the basic steps in tissue processing fixation, embedding, microtome, staining and mounting.

CO3-Students are able to gain knowledge about the various essential steps involved in the fixation and decalcification processes.

CO4-Students are able to acquire knowledge about steps involved in tissue processing

CO5-Students are able to understand the mounting methods and the different steps involved in the staining process.

SEMESTER I	COURSE CODE: 19SBC51A					COURSE TITLE: HISTOPATHOLOGICAL TECHNIQUES								HOURS:2
	PROGRAMME OUTCOMES(POS)					PROGRAMME SPECIFIC OUTCOMES(PSOS)								CREDITS:2
COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO8	MEAN SCORE OF CO'S
CO1	4	4	4	3	4	4	4	4	3	4	3	4	4	3.5
CO2	3	4	4	4	4	4	3	4	4	4	3	4	4	3.8
CO3	4	4	4	4	4	3	4	4	4	3	4	3	4	3.7
CO4	4	4	4	3	4	3	3	3	5	5	5	5	3	4.3
CO5	4	4	4	4	3	4	3	3	3	4	3	4	3	3.7
Mean Overall Score														3.8

Result: The Score of this Course is 3.8 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - INTRODUCTION

[12 hrs]

General understanding of the terms – Histology, histopathology and histopathological techniques. General organization of histopathological laboratory and basic requirements of histopathology laboratory. (Glass wares, chemical and Reagent, Equipment and Instruments). Responsibilities of a histotechnologist.

UNIT II - GENERAL EXAMINATIONS OF TISSUES

[8 hrs]

General introduction, Basic steps in tissue processing fixation, embedding, microtomy, staining, mounting. In vitro processing of Membrane protein, nuclear protein and cytoplasmic protein.

UNIT III - FIXATION AND DECALCIFICATION

[12 hrs]

Fixation and fixatives- Aim of fixation, classification of fixation, different types of fixatives, advantages and disadvantages. Decalcification- Aim of decalcification, selection of tissue, fixation, decalcifying agents used, Decalcification techniques. Difference between fixative and preservatives.

UNIT IV - TISSUE PROCESSING

[10 hrs]

Tissue processing- Technique of dehydration, clearing (Aim of cleaning, different cleaning agents), Impregnation, Embedding, techniques of casting Blocking. Section cutting- Different types of microtomes, microtome knives. Cryopreservation- Principles, methods used, freezing sections.

UNIT V STAINING AND MOUNTING

[8 hrs]

Staining- Principles of staining Basic staining techniques, special stains in histological studies. Mounting: Different mounting media and mounting techniques.

TEXT BOOKS:

1. J Ochei and Kolhatkar, 2002. Medical laboratory science theory and practice, Tata McGraw-Hill, New Delhi.
2. Kanai L. Mukherjee, 2007, Medical laboratory technology Vol.I& III Tata McGraw Hill, New Delhi.

REFERENCE BOOKS:

1. Ramadas Nayak, Histopathology techniques & its management, 1st Edition, 2018, Jaypee Brothers Medical publishers.
2. Neelam vasudeva, Sabita Mishra, Text book of Human Histology, Kote, 8th Edition, 2015, Jaypee Brothers Medical publishers.
3. Darhanp.Godkarpraful B. Godkar, Text book of Medical Laboratory Technology Vol 1&2 3rd Edition 2014, Bhalani Publishing House.
4. Sood R, Medical Laboratory Methods and interpretation, 2005, Jaypee Brothers Medical Publications, Newdelhi.

III B.Sc (BC)	FISHERIES BIOLOGY	COURSE CODE: 19SBC51B
SEMESTER- V		HRS/WK-2
SKILL PAPER II		CREDIT-2

Objectives

To understand and learn the concept of fish culture and preservation

Course Outcomes:

CO1: To gain appropriate knowledge about classification of fisheries

CO2: To understand the basic concepts of fisheries management and also gain knowledge about diseases of fishes.

CO3: To acquire in-depth knowledge about physiology and ecology of fishes

CO4: To acquire sufficient knowledge and skill about different types of fish culture

CO5: To understand and gain significant knowledge about fish processing and preservation

SEMESTER V	COURSE CODE: 19SBC51B					COURSE TITLE: FISHERIES BIOLOGY								HOURS:2
	PROGRAMME OUTCOMES					PROGRAMME SPECIFIC OUTCOMES (PSOS)								CREDITS:2
COURSE OUTCOMES	PROGRAMME (POS)					PROGRAMME SPECIFIC OUTCOMES (PSOS)								MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	
CO1	5	4	4	3	5	5	5	5	4	3	4	5	5	4.38
CO2	5	4	3	3	4	5	4	4	3	3	5	3	4	3.84
CO3	5	5	3	4	4	5	4	4	4	3	4	5	3	4.07
CO4	5	5	3	4	4	5	4	5	5	5	3	5	3	3.92
CO5	5	5	3	5	4	4	4	4	3	4	4	5	4	4.15
Mean Overall Score													4.07	

Result: The Score of this Course is 4.1 (Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **Very High** association with Programme Outcome and Programme Specific Outcome

UNIT I - CLASSIFICATION OF FISHERIES [6hrs]

Classification of fisheries: Marine fisheries (Coastal, Offshore and deep sea fisheries), inland fisheries, Crustacean fisheries (Prawn, shrimp, lobster and crab fisheries); Molluscan fisheries (Edible Oyster, pearl oyster, Cephalopod and lime fisheries).

UNIT II FISHERIES AND ITS MANAGEMENT [6hrs]

Fishing craft and gear in India, Fisheries Management. Parasites and diseases of fishes, Fish in relation to public health.

UNIT III PHYSIOLOGY AND ECOLOGY OF FISHES [6hrs]

Food and feeding habits – locomotion by fins and Body form – Respiration – Accessory respiratory organs – Airbladder – reproduction – Ecological factors influencing spawning in carps, parental care and migration.

UNIT IV - FISH CULTURE [6hrs]

Fish culture: Types – Hybridization, Induced spawning of Indian carps, Paddy cum fish culture, Monoculture, Composite fish culture, sewage – fed fisheries, cage fish culture – culture of Prawn, pearl – Oyster and Catla (Common carp).

UNIT V - FISH PROCESSING AND PRESERVATION [6hrs]

Drying, Salting, Smoking, Canning, Prawns and Fishery by products. Preservation and processing – chilling method. Drying – conventional methods. Salt curing, pickling and smoking. Freezing and cold storage, Canning procedures.

TEXT BOOKS

1. Kreuzer, , Fishery Products, 1974, FAO Fishing News (Books) Ltd., England.
2. Anon, Handling, Processing and Marketing of Tropical Fish. 1979, Tropical Products Institute, London.
3. Miller, M.D, Ciguatera Seafood Toxins, 1990, CRC Press New York.

REFERENCE BOOKS

1. Carison, V.R. and R.H. Graves, A Food Industry Perspective, Aseptic Processing and Packing of Food, CRC Press, 1996, New York.
2. Gopakumar, K., Tropical Fishery Products, 1997, Oxford & IBH Publications, New Delhi.
3. V.G.Jhingran, Fish and Fisheries of India, 1975, Hindustan Publishing Corp., Delhi.
4. J.R. Norman, A History of Fishes, 2018, Earnest Benn Limited, London.
5. N.B. Marshall, The life of Fishes, 2013, Weidnefeld& Nicholson, London.

III B.Sc (BC)	LIFE STYLE DISEASES	COURSE CODE: 19SSBC52A
SEMESTER-V		CREDIT-2
SSC-I		

OBJECTIVES

To gain knowledge about the basis of various lifestyle diseases and their complications.

COURSE OUTCOMES

- CO1:** To understand the Pathophysiology of Diabetes mellites and its complication.
CO2: To gain in depth insights about the lifestyle disease like obesity and asthma.
CO3: To understand the several complications and management of Genitourinary diseases.
CO4: To gain the knowledge about the cancer and its complications
CO5: To acquire knowledge about the Neuro-psychiatric disorders

SEMESTER V	COURSE CODE: 19SSBC52A					COURSE TITLE: LIFE STYLE DISEASES								CREDITS:2
COURSE OUTCOMES	PROGRAMME OUTCOMES (POS)					PROGRAMME SPECIFIC OUTCOMES (PSOS)								MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	
CO1	3	3	4	4	4	4	3	4	3	5	4	3	4	3.69
CO2	5	3	4	5	3	3	3	5	4	5	3	3	4	3.84
CO3	4	4	3	4	4	4	4	3	2	3	3	4	3	3.46
CO4	4	5	2	4	3	3	3	4	3	4	4	2	5	3.53
CO5	3	4	3	3	2	3	4	3	3	3	4	3	4	3.23
Mean Overall Score													3.55	

Result: The Score of this Course is 3.6 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - DIABETES MELLITUS

[6hrs]

Diabetes Mellitus- Type I and type II diabetes, risk factors, metabolic changes, acute and chronic complications, diagnosis, treatment and prevention. Gallstones and kidney stones - causes, symptoms, diagnosis and treatment.

UNIT II - ASTHMA & OBESITY

[6hrs]

Asthma- symptoms, risk factors, complications, diagnosis, prevention, and treatment.
 Obesity- causes, complications, prevention and treatment.

UNIT III - GENITOURINARY DISEASES [6hrs]

Genitourinary diseases- causes, signs and symptoms, diagnosis and treatment of glomerulonephritis, hemolytic uremic syndrome, polycystic kidney disease, hydronephrosis, urinary tract infections and disorders of the genitourinary system

UNIT IV - CANCER AND CARDIO VASCULAR DISEASES [6hrs]

Cancer- types of cancer, causes, signs and symptoms of cancer, diagnosis and treatment of cancer. Cardiovascular disease- causes, signs and symptoms and treatment of coronary artery diseases, heart attack, heart failure, congenital heart disease.

UNIT V: NEURO-PSYCHIATRIC DISORDERS [6hrs]

Depression, Anxiety and Stress - causes, signs and symptoms and treatment. Antidepressant medicines, Cognitive Behavior Therapy (CBT). Arthritis - causes, signs and symptoms, management and therapy.

TEXT BOOKS:

1. RA Agarwal, Anil. K. Srivastav, Kaushal Kumar, Animal Physiology and biochemistry, 1986, S.Chand& Co.
2. Ganong W. E..Review of Medical Physiology, 21stedition, 2003, McGraw Hill.
3. A.K.Jain, Textbook of Physiology Vol - I & II, 6th Edition, 2016, Avichal Publishing Company.

REFERENCE BOOKS:

1. BJ Meyer, HsMeij, AC Meyer, Human Physiology, 2nd Edition, 2014, AITBS Publishers and distributon.
2. Giese, Cell Physiology, 5th Edition, 1968, W. B. Saunders company, Tokyo, Japan.
3. LANGE medical book - Current Essentials of Medicine, 2010, 4th Edition, 2011, The McGraw Hill Companies, New York.

III B.Sc (BC)	FUNDAMENTALS OF PUBLIC HEALTH AND EPIDEMIOLOGY	COURSE CODE: 19SSBC52B
SEMESTER-V		
SSC- II		CREDIT-2

Objectives

- ❖ To introduce students to the discipline of public health.
- ❖ To give an overview of the methods of prevention and health promotion.
- ❖ To understand the determinants and measures of vector borne disease and health.

Course Outcomes:

- CO1:** Students able to learn about the public health diseases and its criteria.
CO2: Students acquire knowledge about the parasite infections.
CO3: Students understand about the integrated vector management.
CO4: Students learn about the controlling and preventing vector borne diseases.
CO5: Students gain knowledge about the survey on epidemiology of vector-borne diseases.

SEMESTER V	COURSE CODE: 19SSBC52B					COURSE TITLE: FUNDAMENTALS OF PUBLIC HEALTH AND EPIDEMIOLOGY								CREDITS: 2
COURSE OUTCOMES	PROGRAMME OUTCOMES(POS)					PROGRAMME SPECIFIC OUTCOMES(PSOS)								MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO8	
CO1	3	3	4	3	3	2	4	4	3	3	4	4	5	3.5
CO2	4	2	2	3	3	3	4	3	4	5	3	3	4	3.3
CO3	3	2	4	3	2	3	4	4	4	3	4	3	4	3.3
CO4	4	4	3	5	2	2	4	3	5	3	2	4	4	3.5
CO5	4	3	2	5	2	3	4	2	3	3	4	2	3	3.1
Mean Overall Score													3.3	

Result: The Score of this Course is 3.3 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - ENVIRONMENT AND PUBLIC HEALTH [8hrs]

Introduction to Environment and Public Health, Definition, Role of Vectors, Communicable and Non -Communicable Diseases. Pollution: Allergy and allergens.

UNIT II - VECTOR BORNE DISEASES [8hrs]

History and geographic distribution of human malaria -Taxonomic position of different species - Distinguishing characters of different species of human malarial parasites - Life cycle and host-parasite interactions.

UNIT III - VECTOR CONTROL [8hrs]

History and background. Aim, objectives, goals, importance and advantages of vector control.. Recent trends - Alternatives to the use of insecticides (chemical & microbial) - Vector control at individual or at community or at both levels.

UNIT IV- INTEGRATED VECTOR MANAGEMENT [8hrs]

Concept and definition of IVM, merits and limitations. Aspects of IVM - role of vector in controlling/preventing vector borne diseases.Malaria control programmes and strategies - NVBDCP.

UNIT V - EPIDEMIOLOGY [8hrs]

Definition, aim and scope of epidemiology - Epidemiological Survey: Development & application of questionnaires. Case studies on epidemiology of vector-borne diseases: (i) incidence and prevalence, (ii) relative risk, (iii) odds ratio. Determinations of sample size for cross sectional, prospective, case-control studies.

TEXT BOOKS

1. Oxford textbook of Public Health Ed. Roger Detels, James Mcewen, Robert Beaglehole and Heizo Tanaka Oxford University press 4th edition: 2002.
2. Public health at the crossroads-Achievements and prospects. Robert Beaglehole and Ryth Binita 2nd Edition, 2004, Cambridge University Press.
3. Dona Schneider and David E. Lillienfeld. Lillienfeld's Foundations of epidemiology, 4th Edition, 2015, Oxford University Press.

REFERENCE BOOKS

1. Rozendaal, J. A. 1997. Vector Control. Methods for use by individuals and communities. World Health Organization, Geneva.
2. World Health Organization. 1986. Epidemiology and control of African trypanosomiasis. Report of a WHO Expert Committee, Geneva, (WHO Technical Report Series, No. 739).
3. Bruce-Chwatt, L.J. 1985. Essential Malariology, The Alden Press, Oxford.
4. Warnsdorfer, W.H. and Sri..Mc Gregor, I. 1988. Malaria: Principles and Practice of Malariology. Vol. I and II, Churchill Livingstone, New York

III B.Sc (BC)	FUNCTIONAL FOODS ON HUMAN HEALTH	COURSE CODE: 19SSBC52C
SEMESTER-V		
SSC-III		CREDIT-2

OBJECTIVES

- ❖ To impart the concept of nutraceuticals and functional ingredients in foods, and to determine their role in health and disease prevention.
- ❖ To learn about the various phytochemicals-their sources, functions and usefulness.
- ❖ To know about the usefulness of nutraceuticals supplementation in day to day life.

COURSE OUTCOMES

- CO1:** To understand the basics, importance and applications of nutraceuticals
CO2: To acquire the knowledge about the concepts of functional foods with examples.
CO3: To understand the importance of Nutraceuticals and types of supplementation.
CO4: To gain knowledge about the common nutraceuticals used in day to day life
CO5: To acquire knowledge about the role of nutraceuticals in disease prevention.

SEMESTER V	COURSE CODE: 19SSBC52C					COURSE TITLE: FUNCTIONAL FOODS AND HUMAN HEALTH								CREDITS:2
COURSE OUTCOMES	PROGRAMME OUTCOMES(POS)					PROGRAMME SPECIFIC OUTCOMES(PSOS)								MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	
CO1	3	3	4	4	3	4	3	4	3	4	4	3	3	3.46
CO2	5	3	4	5	3	3	3	3	4	5	3	3	4	3.69
CO3	4	4	3	3	4	4	4	3	2	3	3	4	3	3.38
CO4	3	5	2	4	3	3	3	4	3	2	4	2	4	3.23
CO5	3	4	3	3	2	3	4	3	4	3	4	3	4	3.30
Mean Overall Score														3.41

Result: The Score of this Course is 3.4 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - INTRODUCTION TO NUTRACEUTICALS

[4hrs]

Nutraceuticals: Definitions and Limitations, Relevance of Functional Foods, Functional Food versus Pharmaceuticals, Impact on Health Care and Society. Functional Food: Sources and Classification

UNIT II - INTRODUCTION TO FUNCTIONAL FOODS

[4hrs]

Functional foods- Fortified food, Protein enriched diet, cereals, milk and dairy products, fruits and vegetables as functional foods. Health effects of common beans, spices and condiments, fish oils, and sea foods. Concept of prebiotics and probiotics

UNIT III - NUTRITIONAL SUPPLEMENTATION

[4hrs]

Nutritional importance, supplementation and requirements of carbohydrates, proteins, fats, vitamins and mineral.

Supplementation of essential- fatty acids, aminoacids, vitamins and minerals requirements and health benefits.

UNIT IV - NUTRACEUTICALS FOR HEALTHY LIFE

[4hrs]

Antioxidant activity- Onion, garlic, turmeric, beta-carotene, Renal and excretory function- Magnesium and potassium citrate, lycopene, Gastrointestinal - Ginger, flavonoids, polyphenol, prebiotics. Reproductive- Biotin, coenzyme Q10 or ubiquinone, isoflavone, Omega-3 fatty acids, vitamin-C, vitamin-E and Zinc.

UNIT V - NUTRACEUTICALS FOR DISEASE PREVENTION

[4hrs]

Cardiovascular diseases, Diabetic mellitus, obesity, cancer, osteoarthritis, oral diseases, eye disorder and stress management.

Brief outline on food safety management systems by Food Safety and Standards Authority of India (FSSAI)

TEXT BOOKS:

1. Taylor C, Wallace Robert E.C, Wildman, Robert Wildman, Hand book of Nutraceuticals and Functional Foods. 2nd Edition, 2016, CRC press.
2. MandalikaSubhadra, Functional Foods And Nutrition, 2014, Daya Publishing House.
3. Israel Goldberg, Functional foods, designer foods, pharma foods, Nutraceuticals, 1999, Aspen publishers, USA .

REFERENCE BOOKS :

1. L. Rapport, B. Lockwood, Nutraceuticals, 2nd Edition, 2002, Pharmaceutical Press.
2. M. Maffei, Dietary Supplements of Plant Origin, 2003, Taylor & Francis.
3. Shahidi and Weerasinghe, Nutraceutical beverages Chemistry, Nutrition and health Effects, 2004, American Chemical Society.
4. Young, J. Functional Foods: Strategies for successful product development. FT Management Report, 1996, Pearson Professional Publishers, London.

III B.Sc (BC)	MEDICAL BIOCHEMISTRY	COURSE CODE: 19BC611
SEMESTER-VI		HRS/WK-5
CORE XI		CREDIT-5

OBJECTIVES

To understand biochemical basis of various diseases and disorders.

COURSE OUTCOMES:

CO1: Able to gain knowledge about the Diabetes mellitus and its complications.

CO2: To comprehend underlying factors involved in various lifestyle diseases.

CO3: To understand types and pathophysiology of inborn errors of aminoacid metabolism and lipid transport.

CO4: To understand the principle and importance of gastric and liver functional test.

CO5: To understand the principle and importance of renal functional test and diagnostic enzymes.

SEMESTR VI	COURSE CODE: 19BC611					COURSE TITLE: MEDICAL BIOCHEMISTRY								HOURS5 CREDITS:5
COURSE OUTCOMES	PROGRAMME OUTCOMES(POS)					PROGRAMME SPECIFIC OUTCOMES(PSOS)								MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	
CO1	3	4	3	3	3	4	4	4	3	3	3	3	3	3.3
CO2	3	4	4	4	4	3	3	4	3	3	3	3	4	3.4
CO3	4	4	3	4	3	3	4	4	3	5	4	3	4	3.7
CO4	4	4	4	3	4	3	3	3	5	5	5	5	3	4.3
CO5	4	4	4	4	3	4	3	3	3	4	3	4	3	3.7
Mean overall score													3.7	

Result: The Score of this Course is 3.7 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - LIFE STYLE DISEASES I

[15 hrs]

Diabetes mellitus- definition, WHO criteria, classification of diabetes mellitus-signs, symptoms and complications, regulation of blood glucose level, Impaired glucose tolerance, Impaired fasting glycemia, Gestational diabetes mellitus, Alimentary glucosuria, Renal glucosuria, Hyperosmolar nonketotic coma, Lactic acidosis, Glycated hemoglobin. Insulin resistance.

UNIT II - LIFE STYLE DISEASES II

[15 hrs]

Cardiovascular diseases: Atherosclerosis, Coronary artery disease, Relation of cholesterol with myocardial infarction, Risk factors of atherosclerosis, Prevention of atherosclerosis, Hypolipoproteinemias, hyperlipoproteinemias. Obesity- factors leads to Obesity and its treatment.

Cancer: Etiology, Chemical carcinogens, Antimutagens, Oncogenic viruses, Oncogenes, Proto oncogene, Characteristics of cancer cells.

UNIT III - INBORN ERRORS & LIPID TRANSPORT

[15 hrs]

Inborn errors of metabolism- phenylketonuria, alkaptonuria, albinism, cystinuria and fanconisyndrome. Exogenous and endogenous transport of lipids- chylomicron transport, VLDL transport-reverse cholesterol transport.

UNIT IV - LIVER & GASTRIC FUNCTION TEST

[15hrs]

Liver function test-Heme catabolism- Jaundice- classification- biochemical findings-liver function test based on bile pigments- Vanden bergh test, Detoxification-Hippuric acid excretion and BSP dye test, metabolism-galactose tolerance test, Prothrombin time, Gastric function test-gastric contents, resting stage gastric analysis-stimulation test (histamine, pentagastrin) - FTM-AZURE-A test. Hypo and hyperacidity.

UNIT V - RENAL FUNCTION TEST & DIAGNOSTIC ENZYMES

[15 hrs]

Renal function test-renal concentration test-PSP dye test-urea, creatinine and inulin clearance test. Plasma enzymes-functional and non-functional enzymes, isoenzymes, enzyme patterns in acute pancreatitis, liver diseases and myocardial infarction.

TEXT BOOKS:

1. Textbook of Biochemistry for medical students-DM.Vasudevan, 5th edition, Jaypee publishers, 2008.
2. Textbook of Medical Biochemistry, Chatterjee, M.N. and Rana Shinde, 5th ed. Jaypee Medical Publishers, 2002.

REFERENCE BOOKS:

1. Robert K. Murray, Daryl K. Grammer "Harper's Biochemistry", (25th Edition) McGraw Hill, Lange Medical Books.
2. Sathya Narayana U, 1999, "Biochemistry", (2nd Edition), Kolkata, Allied Publishers.
3. Devlin, T.M, Textbook of Biochemistry with Clinical Correlations. John Wiley and sons, INC. New York, 2002.

III B.Sc (BC)	BIOTECHNOLOGY AND GENETIC ENGINEERING	COURSE CODE: 19BC612
SEMESTER-VI		HRS/WK-5
CORE-XII		CREDIT-5

OBJECTIVES

To provide an insight into the basic concepts of biotechnology.

Course Outcomes:

CO1: Able to gain in-depth knowledge about the importance of Biotechnology and the molecular tools used in biotechnology and genetic engineering

CO2: To acquire the knowledge about the principle, importance of media and plant growth regulators used in plant cell culture

CO3: To acquire the knowledge about the principle, importance of media used in animal cell culture, cell culture maintenance and its applications

CO4: To exhibit the vaccine production method, differentiate the traditional and recombinant vaccines and acquire knowledge about the transgenic animals and plants.

CO5: Able to exhibit their knowledge in fermentation technology, types of fermentation and the nature of media used in fermentation and IPR

SEMESTER VI	COURSE CODE: 19BC612					COURSE TITLE : BIOTECHNOLOGY AND GENETIC ENGINEERING								HOURS:5 CREDITS:5
COURSE OUTCOMES	PROGRAMME OUTCOMES(POS)					PROGRAMME SPECIFIC OUTCOMES(PSOS)								MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	
CO1	4	3	4	5	4	5	5	3	5	3	4	3	4	3.92
CO2	4	3	5	4	3	4	4	3	4	5	3	4	4	3.85
CO3	3	4	5	3	4	3	3	4	4	4	4	4	3	3.69
CO4	4	3	4	5	3	4	5	3	4	3	4	3	4	3.76
CO5	3	5	5	4	5	3	4	3	3	5	4	3	4	3.92
Mean Overall Score													3.83	

Result: The Score of this Course is 3.8 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - INTRODUCTION

[15 hrs]

Introduction to Biotechnology: Scope & its importance. Enzymes involved in rDNA technology. Restriction and modification enzymes, vectors- plasmids, pBR322, Ti plasmid, bacteriophages-lambda, phage M13, cosmids, BAC, YAC, shuttle vectors. Gene transfer methods- Microinjection and Electroporation.

UNIT II - PLANT TISSUE CULTURE

[15 hrs]

Totipotency, tissue culture: media, composition, nutrients, growth regulators, regeneration of plants-organogenesis and somatic embryogenesis, callus and cell suspension culture, micropropagation, production of haploid plants, protoplast isolation, fusion and regeneration.

UNIT III - ANIMAL CELL CULTURE

[15 hrs]

Animal cell culture: requirements, sterilization & applications. Culture media: natural and artificial, properties & use of serum and serum-free media, cell adhesion molecules. Primary cell culture: mechanical disaggregation, enzymatic disaggregation and primary explants technique. Cell lines: finite and continuous. Subculture: mono layer and suspension cultures.

UNIT IV - VACCINES & TRANSGENESIS

[15 hrs]

Production of vaccines in animal cells: traditional and recombinant vaccines -subunit vaccines-Hepatitis B, Vaccinia virus (Vector recombinant vaccine), DNA and RNA vaccines. Transgenic animals: techniques and applications - transgenic mice and sheep. Stem cells: isolation, identification and uses. Transgenic plants and its applications.

UNIT V – FERMENTATION & IPR

[15 hrs]

Fermentation, Fermentor: common features and operation for a conventional bioreactor, classification of fermentation process – batch, continuous and fed-batch fermentation. Fermentation process-factors affecting fermentation process, media for fermentation – synthetic and crude media. PCR, RT PCR, IPR & Patents.

TEXT BOOKS:

1. SathyaNarayana U, 1999, "Biotechnology", (2nd Edition), Kolkata, Allied Publishers.
2. P.K.Gupta, "Biotechnology and Genomics", 2004, Rastogi Publications.
3. Dubey.R.C., A Textbook of Biotechnology, S.Chand & Company Ltds.

REFERENCE BOOKS:

1. Bernard, Glick Jack.R, Pasternak.J, Molecular Biotechnology-Principle and Application of Recombinant DNA, 3rd edition, 2003, Library of Congress Cataloging in Publication Data.
2. Primrose (2001) - Principles of gene manipulation. 6th Edition Blackwell Scientific Publishers. UK
3. Zubay, 1998, Biochemistry 4th Edition, WMC Brown Publishers, USA.

III B.Sc (BC)	CLINICAL ENDOCRINOLOGY	COURSE CODE: 19EBC63A
SEMESTER-VI		HRS/WK-5
ELECTIVE-III		CREDIT-4

OBJECTIVES

To provide an insight into the structure and functions of hormones.

COURSE OUTCOMES:

CO1:Able to gain indepth knowledge about the importance of hormone and their effect on target cells.

CO2:To gain knowledge about the functions of pituitary, hypothalamus and pineal gland hormones and its regulations.

CO3:To learn and understand the structure and functions of thyroid, parathyroid hormones and its regulations.

CO4:To acquire knowledge about the structure and functions of adrenal hormones and its regulation.

CO5:To understand the structure and functions of gastrointestinal, male and female sex hormones and its regulation.

SEMESTER VI	COURSE CODE: : 19EBC63A					COURSE TITLE: CLINICAL ENDOCRINOLOGY								HOURS:5 CREDITS:4
COURSE OUTCOMES	PROGRAMME OUTCOMES(POS)					PROGRAMME SPECIFIC OUTCOMES(PSOS)								MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	
CO1	4	4	3	4	4	4	4	3	5	4	5	3	4	3.9
CO2	3	3	4	4	3	3	4	3	4	4	5	2	4	3.5
CO3	4	4	5	3	3	4	3	4	3	4	3	4	3	3.6
CO4	4	5	4	3	3	3	4	3	4	4	4	3	4	3.7
CO5	3	4	4	3	3	5	4	4	4	3	4	3	3	3.6
Mean overall score													3.7	

Result: The Score of this Course is 3.7 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - INTRODUCTION TO HORMONES [15 hrs]

Hormones: types, feedback regulation. Different mechanisms of signal transduction, secondary messengers : cAMP mediation, calcium and DAG mediation, cGMP mediation, G-proteins and nuclear receptors.

UNIT II - PITUITARY & HYPOTHALAMUS HORMONES [15 hrs]

Structure of pituitary gland, Hormones of anterior pituitary: FSH, LH, TSH and its functions. Posterior pituitary - oxytocin and vasopressin with its functions. Hormones of hypothalamus.

UNIT III - THYROID, PARATHYROID & PANCREATIC HORMONES [15 hrs]

Thyroid hormones: structure and functions. Hypothyroidism-cretinism, myxedema, simple Goiter, Grave's disease. Parathyroid hormones- regulation of calcium homeostasis by PTH and calcitonin. Hormones of pancreas- insulin & glucagon.

UNIT IV - ADRENAL HORMONES [15 hrs]

Hormones of adrenal cortex - cortisol biosynthesis (structure not required) and its functions, Cushing's syndrome, Addison's disease - Aldosterone biosynthesis and its functions – renin - angiotensin mechanism, Conn's syndrome. Medullary hormones -biosynthesis of epinephrine and nor-epinephrine. Dopamine and its metabolic functions, pheochromocytoma.

UNIT V - GASTROINTESTINAL HORMONES & SEX HORMONES [15 hrs]

Gastrointestinal hormones: chemical nature, functions of gastrin, enterogastrone, secretin, and cholecystokinin. Sex steroids: male sex hormones - biosynthesis and its metabolic functions, Female sex hormones - biosynthesis and its metabolic functions.

TEXT BOOKS:

1. Chatterjee, M.N. and Rana Shinde. Textbook of Medical. Biochemistry, 2002. 5th edition. Ja, pee Medical Publishers.
2. DM.Vasudevan. Textbook of Biochemistry for medical students. 5th edition, Jaypee Publishers, 2008.

REFERENCE BOOKS:

1. U.Sathayanarayana, (2006). Biochemistry. 3rd Edition by Books and Allied (P) Ltd., India.
2. Mallikarjuna Rao N, 2002, " Medical Biochemistry", 2nd edition, New Delhi, New Age International Publishers.
3. Devlin, T.M. (2002) Textbook of Biochemistry with Clinical Correlations. John Wiley and sons, INC. New York.
4. Ramakrishnan S, Prasanna K.G. and Rajan R, 1980, " Textbook of Medical Biochemistry", 3rd edition, Chennai, Orient Longman.
5. Bhagavan.N.V (2004), "Medical Biochemistry", 4th edition, Noida, Academic Press.

III B.Sc (BC)	HUMAN PHYSIOLOGY	COURSE CODE: 19EBC63B
SEMESTER-VI		HRS/WK-5
ELECTIVE-III		CREDIT-4

OBJECTIVES

To learn the structure and functions of the different organs present in the human body

COURSE OUTCOMES

CO1: To gain knowledge about the various types of RBC and WBC cells, different types of blood groups and basic structure and functions of heart.

CO2: To learn about the various types of digestion and absorption of macromolecules.

CO3: To understand about the respiration and its types, mechanism of exchange of gases, and structure and functions of nephrons.

CO4: To gain knowledge about the structure, types and functions of neurons, different parts of brain, spinal cord and its functions.

CO5: To acquire knowledge about the structure, types of skeletal muscle and its muscle proteins and also steps involved in molecular basis of muscle contraction.

SEMESTER VI	COURSE CODE: 19EBC63B					COURSE TITLE: HUMAN PHYSIOLOGY								HOURS:5 CREDITS 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(POS)					PROGRAMME SPECIFIC OUTCOMES(PSOS)								MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	
CO1	4	5	3	5	4	3	5	4	4	5	5	3	4	4.2
CO2	4	4	5	4	3	5	3	5	4	3	4	3	4	3.9
CO3	4	3	4	3	4	4	5	4	3	5	3	3	4	3.8
CO4	4	5	3	4	3	4	4	3	3	5	4	5	4	3.9
CO5	5	3	4	4	3	4	4	5	4	5	4	5	3	4.2
Mean overall score													4.0	

Result: The Score of this Course is 3.4 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I BLOOD AND CIRCULATORY SYSTEM [15 hrs]

Composition of blood – types of blood cells, morphology and its functions, Blood groups - ABO group and Rh type. Composition of lymph, circulatory system: Heart - basic anatomy, cardiac cycle, cardiac output and pace maker.

UNIT II DIGESTION [15 hrs]

Definition, digestive system: chemical process of digestion. Salivary digestion, gastric digestion - Mechanism of Hcl secretion in stomach, pancreatic digestion, intestinal digestion, Role of bile salt in Digestion, Digestion and absorption of carbohydrates, proteins, and lipids.

UNIT III RESPIRATORY SYSTEM AND EXCRETORY SYSTEM [15 hrs]

Respiration, types of Respiration, Respiratory system of human, Transport of O₂ and CO₂, Role of Hemoglobin in of O₂ and CO₂ transport. Oxygen Dissociation curve, Bohr Effect, Chloride shift. Excretory system of man, structure of nephron, Mechanism of urine formation – Ultra filtration, Reabsorption and Secretion.

UNIT IV NERVOUS SYSTEM [15hrs]

Neuron, types of neuron, conduction of nerve impulse, Synapse - types of synapse, synaptic transmission, Neurotransmitter, Neuromuscular junction.
Human brain: Anatomy of brain - meninges, cerebrum, brain stem, cerebellum and functions. Spinal cord and its function. Blood brain barrier and CSF.

UNIT V MUSCLE & BONES [15hrs]

Introduction, types of muscle, Ultra structure of skeletal muscle - light band, dark band, Sarcomere, thick filament-myosin, thin filament - actin, tropomyosin and troponin. Muscle contraction – types of muscle contraction and theories of muscle contraction, Molecular basis of skeletal muscle contraction. Bone structure and formation. Ligaments and tendons.

TEXT BOOKS:

1. KA Goel, KV Sastri, A Text book of Animal Physiology, Rastogi publications, Meerut.
2. Arthur C. Guyton and John E. Hall, 2016. Textbook of Medical Physiology , Harcourt Asia Pvt. Ltd, 10th edition.
3. Sembulingam, Premasembulingam, 2012. Essentials of medical Physiology-K 6th edition, Jaypee Brothers Medical Publishers (P) Ltd.,
4. A.K.Jain, 2016. Textbook of Physiology Vol - I & II, 6th edition Avichal Publishing Company.

REFERENCE BOOKS:

1. BJ Meyer, HsMeij, AC Meyer, Human Physiology, 2nd edition – AITBS Publishers and distributon.
2. Giese, Cell Physiology, 5th edition, W .B Saunders company, Tokyo, Japan.
3. Animal Physiology and biochemistry – RA Agarval, Anil. K. Srivastav, Kaushal Kumar, S .Chand& CO.,
4. Ganong W. E. 2003. Review of Medical Physiology, 21st edition. McGraw Hill.
5. West, E.S. and Todd, W.R., 1985, Textbook of Biochemistry, MacMillan, Germany.
6. Zubay, 1998, Biochemistry 4th edition, WMC Brown Publishers, USA.

III B.Sc (BC)	BIostatISTICS AND CLINICAL RESEARCH	COURSE CODE: 19EBC64A
SEMESTER-VI		HRS/WK-5
ELECTIVE-IV		CREDIT-4

OBJECTIVES:

- To provide sufficient background to interpret statistical results in research papers.
- To ensure the students with requisite knowledge to pursue a career in the clinical research industry.

COURSE OUTCOMES:

CO1: Students able to study the statistical data's and diagrammatic presentation of bar, pie chart etc.

CO2: Students understand the central concepts of modern statistical theory and their probabilistic foundation.

CO3: Students able to interpret results and principal methods of statistical inference and design.

CO4: Students able to study the origin and history of clinical research, and biochemical investigations.

CO5: Students learn about drug discovery, its development process, Pharmacokinetics, Pharmacodynamics and Pharmacogenomics.

SEMESTER VI	COURSE CODE: 19EBC64A					COURSE TITLE: BIostatISTICS AND CLINICAL RESEARCH								HOURS:5	CREDITS:4
COURSE OUTCOMES	PROGRAMME OUTCOMES(POS)					PROGRAMME SPECIFIC OUTCOMES(PSOS)								MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	3	4	3	3	2	4	4	3	3	4	4	5	3.5	
CO2	4	2	2	3	3	3	4	3	4	5	3	3	4	3.3	
CO3	3	2	4	3	2	3	4	4	4	3	4	3	4	3.3	
CO4	4	4	3	5	2	2	4	3	5	3	2	4	4	3.5	
CO5	4	3	2	5	2	3	4	2	3	3	4	2	3	3.1	
Mean Overall Score													3.3		

Result: The Score of this Course is 3.3 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - DATA COLLECTION AND PRESENTATION [15hrs]

Introduction: Collection of data, primary data, secondary data, methods of data collection. Processing of data- classification and tabulation of statistical data, Frequency Distribution: Simple and Cumulative, Diagrammatic presentation of data - Histogram, Bar chart, Frequency polygon and Pie chart, graphical presentation of data- line graph.

UNIT II - MEASURES OF CENTRAL TENDENCY [15 hrs]

Measurement of Central Value: Mean, Median, Mode, Geometric Mean (G.M) and Harmonic Mean (H.M), Measures of Dispersion: Range, Quartile deviation, Mean deviation, Standard deviation.

UNIT III - STATISTICAL ANALYSIS [15hrs]

Test for correlation and regression coefficients, Chi-square test for goodness of an independence of attributes. F-test for equality of variances, DMRT, ANOVA – one way classification.

UNIT IV - CLINICAL RESEARCH [15hrs]

Introduction to clinical research, origin and history of clinical research, Biochemical investigations in clinical research, difference between clinical research and clinical practice, types of clinical research, phases of clinical research, career in clinical research.

UNIT V- DRUG DEVELOPMENT [15 hrs]

Drug discovery and development process, Preclinical testing, Clinical trials, ethical issues, new drug application and approval. Pharmacokinetics, Pharmacodynamics and Pharmacogenomics.

TEXT BOOKS

1. Green. R. H. 1979. 'Sampling Design and Statistical Methods for Environmental Biologists' .John Wiley & Sons.
2. Gupta.S.C& Kapoor. 1978.V.K. "Fundamental of Applied Statistics" (2nded), MJP Publishers.
3. Satoskar RS, bhandarkar SD, AinapureSS,E.Padmini, 2003.Biochemical calculations and Biostatistics. Books and Allied (P) Ltd.Pharmacology&Pharmacotherapeutics. 18th ed. Mumbai: popular prakashan: 376.

REFERENCE BOOKS:

1. Thomas Glover, Kevin Mitchell.2001.' Introduction to Biostatistics', 1st ed. McGraw Hill Science
2. Dr N .Gurumani,2015. "An Introduction to Biostatistics",MJP Publishers
3. Wilson & Walker, 2000. Principles and Techniques in Practical Biochemistry' 5th ed.. Cambridge Univ. Press.
4. Clinical Research Practice and prospects-T.K.Pal,Sangita Agarwal,1st edition.
5. Essential of Medical Pharmacology, Sixth edition-KD.Thripathi MD, Jaypee brothers medical publishers (P) Ltd. St Louis (USA)

III B.Sc (BC)	MEDICAL LABORATORY TECHNOLOGY	COURSE CODE:19EBC64B
SEMESTER-VI		HRS/WK-5
ELECTIVE IV		CREDIT-4

OBJECTIVES

To provide insights in the basic techniques involved in medical diagnostics.

COURSE OUTCOMES

CO1: To gain the knowledge about the laboratory equipments, role of laboratory technician and the types of specimen collection.

CO2: To acquire the knowledge about the blood grouping and the significance of haematological parameters.

CO3: To gain the knowledge about the various processes involved in the histopathological studies.

CO4: To understand the biochemical significance of marker enzymes.

CO5: To gain the knowledge about the culture of organism, culture media, gramstaining and safety procedure in microbiological techniques

SEMESTER VI	COURSE CODE:19EBC64B					COURSE TITLE":MEDICAL LABORATORY TECHNOLOGY								HOURS:5 CREDITS:4
COURSE OUTCOMES	PROGRAMME OUTCOMES (POS)					PROGRAMME SPECIFIC OUTCOMES (PSOS)								MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	
CO1	4	5	4	4	5	3	4	4	3	4	5	4	3	4.0
CO2	5	4	3	4	3	4	3	3	4	5	3	3	4	3.69
CO3	4	5	4	4	3	4	4	3	3	3	3	4	3	3.61
CO4	4	4	3	2	4	3	3	4	4	2	4	2	4	3.30
CO5	5	3	4	3	4	3	4	4	4	3	3	3	4	3.61
Mean Overall Score													3.64	

Result: The Score of this Course is 3.6 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - INTRODUCTION TO LABORATORY TECHNOLOGY [15 hrs]

Unit of measurement, reagent preparation and laboratory calculation. Code of ethics of laboratory technician, precautions taken to prevent hazards, handling and storage of chemicals. Types of specimen collection and procedure: blood, urine, sputum, throat swab, stool and CSF. Smear preparation and its types, calibration, measurements, quality control & GLP. Basic lab instruments - Centrifuge, incubator, colorimeter, oven and pH meter.

UNIT II - HEMATOLOGY**[15 hrs]**

Blood grouping and Rh factor, cross matching, clotting time, bleeding time, hemoglobin estimation, RBC count and WBC count- total and differential count, Erythrocyte Sedimentation Rate (ESR), Hematocrit value (Packed Cell Volume). Screening test: HIV (ELISA) HBs Ag, TPHA. Platelet and its significance, Coombs test.

UNIT III - CLINICAL PATHOLOGY**[15hrs]**

Histopathology: Tissue cutting, fixation (Cryopreservation and formalin), embedding, tissue slicing by microtome, slide mounting and staining techniques: types – carbohydrates, proteins & lipids.

UNIT IV - CLINICAL BIOCHEMISTRY**[15 hrs]**

Blood glucose, urea, uric acid, triglycerides, SGOT, SGPT, serum alkaline and Acid phosphatase, calcium, phosphorous, total protein, albumin, amylase, lactate dehydrogenase, electrolytes-sodium and potassium -functions and its clinical significance.

UNIT V - MICROBIOLOGY**[15hrs]**

Culturing of organisms from various specimens, culture media and antibiotic sensitivity test (pus, urine, blood, sputum, throat swab). Gram stain & Ziehl-Neelson staining method (TB, Mycobacterium leprae). Safety procedure in microbiological techniques.

TEXT BOOKS:

1. Kanai L. Mukherjee, 1996. Medical Laboratory Technology Vol. I, II & III Tata McGraw Hill New Delhi.
2. Gradwohl, Clinical Laboratory-Methods and Diagnosis, 8th edition, Mosby Year Book publisher, Vol-I.
3. Mukherj, 2000. Medical Laboratory Technology, Tata McGraw Hill Education
4. Darshan P. Godkar Praful B. Godkar, 2014. Textbook of Medical Laboratory Technology Vol 1 & 2, Bhalani Publishing House; 3rd edition

REFERENCE BOOKS:

1. Henry, John Bernard, Todd Sanford and Davidson, 2002. Clinical diagnosis and management by laboratory methods. W.B. Saunders & Co.
2. Fischbach Francis A, 2003. Manual of laboratory and diagnostic tests.
3. Philadelphia, J.B. Lippincott & Co, N.Y.
4. Gradwohls, 2000. Clinical laboratory methods and diagnosis Alex.C.
5. Sonnenwirth & Leonard Jarret. M.D.B.I. Publications, New Delhi,
6. Sood R, 2005, Medical Laboratory methods and interpretation, Jaypee Brothers Medical Publications, New Delhi.
7. Arundhati Kolhatkar, J. Ochei, 2000. Medical Laboratory Science: Theory and Practice, Tata McGraw-Hill Education Pvt. Ltd.

III B.Sc (BC)	HORTICULTURE	COURSE CODE: 19SBC62A
SEMESTER – VI		HRS/WK – 2
Skill paper-I		CREDIT – 2

OBJECTIVES

To gain knowledge and skills in different aspects of Horticulture farming practices.

Course Outcomes:

CO1: To understand the economical importance of Horticulture.

CO2: To study the about the importance of making different types of garden products

CO3: To acquire the knowledge about the importance of organic forming.

CO4: To acquire scientific knowledge on cultivating different types of crops.

CO5: To understand the uses of Bio fertilizers in Nursery practice.

SEMESTER V	COURSE CODE: 19SBC62A					COURSE TITLE: HORTICULTURE								HOURS:2 CREDITS: 2
COURSE OUTCOMES	PROGRAMME OUTCOMES (POS)					PROGRAMME SPECIFIC OUTCOMES (PSOS)								
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	
CO1	5	3	4	4	2	5	2	3	4	2	5	3	4	3.5
CO2	3	5	3	2	5	3	3	5	3	4	3	4	4	3.6
CO3	3	4	4	3	3	5	4	2	4	3	5	4	3	3.7
CO4	5	3	5	2	4	2	3	5	3	3	4	3	2	3.4
CO5	5	2	4	2	4	4	3	4	5	4	5	4	4	3.8
Mean Overall Score													3.6	

Result: The Score of this Course is 3.6 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - FUNDAMENTALS OF HORTICULTURE

[6 hrs]

Definition and scope of horticulture, Importance of horticulture in terms of production, employment generation, environmental protection, economy, and human resource development. Identification of important horticultural crops in India.

UNIT II - GARDENING

[6 hrs]

Preparation of land: layout plan and its methods for gardening. Vegetable gardens, nutrition and kitchen garden, truck garden, Vegetable forcing, market gardens and roof gardens.

NIT III - ORGANIC FARMING**[6 hrs]**

Manures Definition, different methods of application of manures to horticultural crops. Principles of organic farming-importance, procedure and technology of organic farming.

UNIT IV - NURSERY MANAGEMENT**[6 hrs]**

Definition, classification and importance of Nursery. Nutrient deficiency management – use of chemical and bio fertilizers. Growth regulators and its effects in Nursery management.

UNIT V - PRACTICAL APPROACH**[6 hrs]**

Digging of pits for fruit plants. Preparation of nursery beds for sowing of vegetable seeds. Preparation of fertilizer mixtures and field application.

TEXT BOOKS

1. Introduction to Horticulture, Kumar, N. 1990. Rajyalakshmi Publications, Nagarcoil, Tamilnadu.
2. Propagation of Horticulture crops, Principles and Practices; sama R K 2002, Kalyani Publications, New Delhi.
3. Prasad and Kumar, 2014. Principles of Horticulture 2nd Edn. Agrobios (India).
4. Neeraj Pratap Singh, 2005. Basic concepts of Fruit Science 1st Edn. IBDC Publishers.

REFERENCE BOOKS

1. Gardner/Bardford/Hooker. J.R., 1957. Fundamentals of Fruit Production. Mac Graw Hill Book Co., New York.
2. Edmond,J.B, Sen,T.L, Andrews,F.S and Halfacre R.G., 1963. Fundamentals of Horticulture. Tata Mc Graw Hill Publishing Co., New Delhi.
3. Fundamentals of Fruit Production by Gomer V R, Bradford F C and Hooker Jr HD 1957 Mc Graw Hill Book co, New York

III B.Sc (BC)	BIOINFORMATICS	COURSE CODE: 19SBC62B
SEMESTER-VI		HRS/WK-2
Skill paper-II		CREDIT-2

OBJECTIVES

- ❖ To understand the biological database and their alignment.
- ❖ To gain essential knowledge about sequence alignment.

Course Outcomes:

CO1: To acquire knowledge about the applications of bioinformatics.

CO2: Able to understand biological database and its types.

CO3: To gain knowledge about the sequence alignment

CO4: To understand the importance and applications of different database sequences.

CO5: To gain knowledge about the applications of computational methods in Biology

SEMESTER V	COURSE CODE: 19SBC62B					COURSE TITLE: BIOINFORMATICS								HOURS:2 CREDITS:2
COURSE OUTCOMES	PROGRAMME OUTCOMES (POS)					PROGRAMME SPECIFIC OUTCOMES (PSOS)								MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	
CO1	4	4	3	3	4	4	4	4	3	4	3	3	3	3.5
CO2	3	4	4	4	3	3	3	2	3	3	3	3	4	3.5
CO3	4	4	3	4	4	3	4	4	4	3	4	3	4	3.7
CO4	4	4	4	3	4	3	3	3	5	5	5	5	3	4.3
CO5	4	4	4	4	3	4	3	3	3	4	3	4	3	3.7
Mean overall score													3.7	

Result: The Score of this Course is 3.7 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT I - BIOINFORMATICS

[6hrs]

Bioinformatics-definition, application, challenges and opportunities. Internet, www. Database-types, classification, sequence formats, DBMS, RDBMS, SQL (brief description).

UNIT II - BIOLOGICAL DATABASE AND ITS TYPES

[6hrs]

General Introduction of Biological Databases; Nucleic acid databases (NCBI, DDBJ, and EMBL). Protein databases (Primary, Composite, and Secondary). Specialized Genome databases: (SGD, TIGR, and ACeDB). Structure databases (CATH, SCOP, and PDBsum)

UNIT III - SEQUENCE ALIGNMENT

[6hrs]

Sequence alignment-algorithm, global and local alignment, sequence alignment methods, pairwise alignment-dot matrix, dynamic programming, FASTA &BLAST.Basic multiple sequence alignment- HMM &CLUSTAL[brief description]. Homology, orthology, paralogs &xenologs.

UNIT IV - PHYLOGENETIC ANALYSIS

[6hrs]

Softwares used for phylogenetic analysis. Scoring matrices: basic concept of a scoring matrix, Matrices for nucleic acid and proteins sequences, PAM and BLOSUM series. Human Genome Project.

UNIT V - SEQUENCE ALIGNMENTS AND VISUALIZATION

[6hrs]

Introduction to Sequences, alignments and Dynamic Programming; Local alignment and Global alignment (algorithm and example),BLAST and FASTA Algorithm and multiple sequence alignment (Clustal W algorithm)

TEXT BOOKS:

1. S.Ignacimuthu, 2005. 2nd edition, Basic Bioinformatics, Narosa Publishing House Pvt. Ltd., New Delhi.
2. Arthur M.Lesk. 2002. Introduction to Bioinformatics, Oxford University press.
3. Rastogi,S.C.Mendiratta, N. and Rastogi P ,”Bioinformatics-Methods and applications”, Prentice-Hall of IndiaPvt. Ltd, New Delhi.
4. JinXiong. 2006. Essential Bioinformatics, Cambridge University press.

REFERENCE BOOKS:

1. David R.Westhead,J.Howard Parish &Richard, 2003. Instant notes on bioinformatics” ,viva book Pvt ltd
2. K.Mani&N.Vijayaraj,2004 “Bioinformatics- a practical approach”,Aparnapublications,Coimbatore
3. Marketa Zvelebil&Jeremy O. Baum, 1st edition, Understanding Bioinformatics. Garland Science Publications. New Delhi.
4. Attwood, T.K. and Parry-Smith, D.J. 1999. Introduction to bioinformatics. Pearson Education Ltd., Delhi, India.

I B.Sc (BC)	MAIN PRACTICAL I	COURSE CODE: 21BCP201
SEMESTER I & II		HRS/WK-3
Major		CREDIT-4

VOLUMETRIC ANALYSIS

1. Estimation of Glycine by formal titration method
2. Estimation of ascorbic acid using dichlorophenolindophenol dye as link solution
3. Determination of Saponification value of an edible oil
4. Determination of acid number of an edible oil
5. Determination of iodine value of an edible oil
6. Estimation of chloride by Mohr's method.
7. Estimation of reducing sugar from biological fluids by benedict's method

BIOCHEMICAL PREPARATION

8. Preparation of albumin from egg
9. Preparation of albumin from milk
10. To find out the moisture and water content in food stuffs.
11. Preparation of starch from potatoes

QUALITATIVE ANALYSIS

12. Qualitative analysis of carbohydrates - Glucose, fructose, arabinose, maltose, lactose, galactose, dextrin, mannose, sucrose and starch
13. Qualitative analysis of amino acids - Tyrosine, tryptophan, arginine, Histidine, Proline and cysteine

SPOTTERS.

14. Cell division identification (mitosis & meiosis)
15. BMI calculation

Practical-I question pattern(60 marks)

1. Qualitative analysis-20
2. Volumetric/preparation-20
3. Spotters-10
4. Record-10

II B.Sc (BC)	MAIN PRACTICAL II	COURSE CODE: 21BCP402
SEMESTER III &IV		HRS/WK-3
Major		CREDIT-4

1. PREPARATION OF BUFFERS

2. Normality, percentage and molarity solutions
 - Saline
 - Bicarbonate buffer
 - Phosphate buffer
 - Tris buffer
 - Acetate buffer
3. Determination of pH using pH meter.
4. Determination of pKa value of amino acid using pH meter

5. FOOD AND BIOCHEMICAL ANALYSIS

- Carbohydrate content
- Protein content
- Fibre content
- Water content
- Ash content

6. COLORIMETRIC ANALYSIS

- Estimation of proteins by Biuret method
- Estimation of phosphorous –Fiske and Subarrow method
- Estimation of DNA
- Estimation of RNA
- Estimation of proteins by Lowry’s method

7. BIOCHEMICAL ANALYSIS (Demonstration)

- Aminoacids by paper chromatography
- Lipids by thin layer chromatography
- SDS-PAGE electrophoresis

8. VOLUMETRIC ANALYSIS

- Estimation of iron, copper, oxalate, potassium dichromate and calcium

PRACTICAL QUESTION PATTERN TOTAL MARKS: 60

Volumetric analysis	- 24
Biochemical preparation/ Colorimetric analysis	-20
Spotters	- 6
Record	- 10

III B.Sc (BC)	MAIN PRACTICAL III	COURSE CODE: 19BCP603
SEMESTER V & VI		HRS/WK-3
Major		CREDIT-4

1. Calibration of pipette & burette

2. COLORIMETRIC ESTIMATION

- Estimation of creatinine by Jaffe's method
- Estimation of urea by DiacetylMonoxime method.
- Estimation of triglycerides in blood
- Bilirubin in blood
- Uric acid estimation

3. EXPERIMENTS ON ENZYMES BY COLORIMETRY

- Effects of pH, temperature and substrate concentration for amylase and urease.

4. CHROMATOGRAPHY

Thin layer chromatography - Amino Acids & Carbohydrates
Isolation of lipids from egg yolk and separation by TLC.

- Column chromatography – leaf pigments.

5. Food & biochemical analysis

- Estimation of gluten content in wheat flour.
- Gelatinization of starch.
- Determination of pH density of milk & milk products.
- Lipid content in food
- Nutritive value of foods.
- Oxidative rancidity of potato chips
- Fibre in food
- Iron in food
- Food additives/adulterants

PRACTICAL QUESTION PATTERN TOTAL MARKS: 60

Colorimetric analysis I & II - 20

Enzyme assay- 15

Spotters/estimation(food)- 15

Record - 10

III B.Sc (BC)	MAIN PRACTICAL IV	COURSE CODE: 19BCP604
SEMESTER V & VI		HRS/WK-3
Major		CREDIT-4

1. COLORIMETRIC ESTIMATION

- a. Estimation of glucose by Ortho toluidine methods
- b. Estimation of albumin and A/G ratio in serum.
- c. Estimation of cholesterol by Zak's method
- d. Estimation of protein by Lowry method
- e. Protein by Bradford method
- f. Estimation of protein concentration by $A_{280\text{ nm}}$
- g. Extraction & purification of DNA from onion.

2. ENZYME ASSAY

- a. Assay of activity of alkaline phosphatase in serum.
- b. Assay of activity of acid phosphatase in serum.
- c. Assay of SGOT and SGPT in serum

3. URINE ANALYSIS

- a. Collection of urine sample.
- b. Qualitative analysis of urine for normal and pathological conditions.

4. HAEMATOLOGY

- RBC count, ESR, total and differential WBC count, blood grouping, blood pressure measuring, bleeding time, clotting time, estimation of Hb.

5. ELECTROPHORETIC TECHNIQUES

- Separation of protein by SDS-PAGE and DNA by Agarose.

PRACTICAL QUESTION PATTERN TOTAL MARKS: 60

Colorimetric analysis	- 20
Colorimetric analysis/urine analysis	- 15
Spotters/hematology	- 15
Record	- 10

TEXT BOOKS

1. Harold Varley, (1980). Practical Clinical Biochemistry, Volume I and II. 5th Edition. CBS Publishers. New Delhi.
2. Jayaraman, S. (2003). Laboratory Manual in Biochemistry. 2nd Edition. New Age International (P) Limited. New Delhi.

REFERENCE BOOKS

1. David, T. Plummer, (1988). An Introduction to Practical Biochemistry. 3rd Edition. Tata McGraw Hill Publishing Company Ltd. New Delhi.
2. Pattabiraman, T.N. (1998). Laboratory Manual in Biochemistry. 3rd Edition. All India Publishers and Distributors. Chennai

II B.Sc. CHEMISTRY	FOOD PROCESSING TECHNOLOGY (For those students admitted in the year 2020 – 21 and onwards)	20AOFT301
SEMESTER - IV		HRS/WK - 3
NME		CREDITS - 2

Objective: To make the students understand food processing and preservation methods

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Could understand the principles of food preservation and processing

CO2: Could obtain knowledge about preservation of food at various temperatures

CO3: Could acquire knowledge about food preservation by radiation

CO4: Could comprehend government regulations and policies on food control

CO5: Could gain knowledge about processed foods

SEMESTER : III	COURSE CODE: 20AOFT301					TITLE OF THE PAPER: FOOD PROCESSING TECHNOLOGY			HOURS : 3	CREDITS : 2
COURSE OUTCOME S	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF COs	
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3		
CO1	4	3	4	4	3	4	3	3	3.50	
CO2	3	3	4	4	3	4	4	4	3.62	
CO3	4	4	3	4	3	4	4	3	3.62	
CO4	3	4	3	4	3	3	2	3	3.12	
CO5	3	4	4	4	3	4	4	4	3.75	
Mean Overall Score									3.5	

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit-1

(9 Hrs)

Principles of preservation and processing of foods; classification of foods by ease of spoilage; principles of food preservation, methods of food preservation – asepsis, removal of microorganisms, maintenance of anaerobic conditions.

Unit-2

(9 Hrs)

Preservation of food by use of high and low temperature - Factors affecting heat resistance (Thermal death time); heat penetration, heat treatments employed in processing foods, canned foods; low temperature storage, chilling and freezing, freezing of foods and its consequences.

Unit-3**(9 Hrs)**

Preservation of foods by drying - Methods of drying, treatments of foods before drying, procedures after drying, intermediate moisture foods; Preservation of foods by additives - antimicrobial preservatives, added preservatives, developed preservatives; Preservation of foods by radiation - Ultra violet radiation, ionizing radiations, gamma rays and cathode rays; microwave processing.

Unit-4**(9 Hrs)**

Food Adulteration; Food sanitation - Microbiology of the food product, good manufacturing practices, Hazard Analysis Critical Control Points, health of employees; Food control – enforcement and control agencies – international agencies (FAO, WHO, FDA & ISO); national agencies (Agmark, ISI, BIS).

Unit-5**(9 Hrs)**

Processed foods – Jam, canned fruit juices, pickles, Bread, Seafoods, Dairy products - Market milk, Special milk, Cream, Butter, Ice Cream, Cheese, Dried milk products; Packaging of milk and milk products.

Text Book:

- Food Microbiology. 5th Edition, 2013. William C. Frazier, Dennis C. Westhoff, N. M. Vanitha. McGraw-Hill Education (India).
- Food Microbiology, 4th Edition, 2015. Adams, M.R., Moss, M.O and McClure, P. J. RSC Publication, CPI Group (UK) Ltd., Croydon, UK.

Reference Books:

- Outlines of Dairy Technology. 1991. Sukumar De. Oxford University Press.
- A First Course in Food Analysis. 1999. A.Y. Sathe. New Age International (P) Limited, Publishers, New Delhi.
- The Microbiological Safety and Quality of Food. 2000. Barbara M. Lund, Baird-Parker, Gould G.W. An Aspen publication, Maryland, U.S.A.

YEAR – III	ENVIRONMENTAL MICROBIOLOGY (For the students who are admitted in the year 2019 – 2020 and onwards)	19EMB51A
SEMESTER - V		HRS/WK - 4
ELECTIVE		CREDITS - 3

Objective: To make the students understand the role of microbes in ecology.

Course Outcomes:

Upon successful completion of the course, the student:

CO 1: Understands the different kind of microflora present in air and water environments

CO 2: Will be able to know the different process to treat the waste water and drinking water

CO 3: Knows about water pollution, and the process of composting and bioremediation

CO 4: Knows different kinds of microbes present in extreme environments

CO 5: Knows interactions among microorganisms and the study of non-cultivable microbes

SEMESTER : V	COURSE CODE: 19EMB51A					COURSE TITLE: ENVIRONMENTAL MICROBIOLOGY			HOURS : 4	CREDITS : 3
	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF COs	
COURSE OUTCOME S	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3		
CO1	2	5	4	4	3	3	3	4	3.5	
CO2	2	4	4	4	4	3	4	3	3.5	
CO3	2	3	3	3	3	2	3	3	2.7	
CO4	3	5	4	4	4	3	5	4	4.0	
CO5	3	5	4	4	5	4	4	4	4.1	
Mean Overall Score									3.5	

Result: The score of this course is 3.5 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit – 1

(12 Hrs)

Microbiology of air – Droplet, droplet nuclei, aerosols - air sanitation - airborne diseases- Microflora of water - lakes, ponds, rivers, ocean, estuary, ground water - Waterborne diseases - Eutrophication

Unit - 2

(12 Hrs)

Waste water treatment - primary, secondary (anaerobic and aerobic - trickling, activated sludge, oxidation pond) - Sludge digestion - Disposal - Drinking water treatment - chlorination - Microbiological standards of water

Unit - 3**(12 Hrs)**

Water pollution – indicators of water pollution – BOD, COD; techniques for the study of water pollution; Composting; Bioremediation - types, importance, advantages and applications

Unit - 4**(12 Hrs)**

Microorganisms in extreme environment - Applications of extremophiles; bioleaching; Microbial biofilm - Biochemistry of microbial biofilm, beneficial and harmful roles of biofilm.

Unit – 5**(12 Hrs)**

Interaction among microbial populations (Neutralism, commensalisms, parasitism, antagonism); Microbial diversity - recent techniques to study non-cultivable microbes - Applications, advantages and limitations

Text Books

- Microbial Ecology - Fundamental and Applications. 1998. Atlas and Bartha. Benjamin/Cummings Publishing Company, Inc., California
- Environmental Aspects of Microbiology. 1996. Joseph C. Daniel. Brightsun Publications, Chennai.

Reference Books

- Environmental Microbiology. 1992. Mitchell, R. John Wiley, New York.
- Environmental Microbiology. 1981. Grant W. D. and Long P.E. Blackie and Son Ltd., Glasgow
- Environmental Microbiology. 2016. Sharma, P.D. Rastogi Publications, Meerut, India.

YEAR – III	ALGAL TECHNOLOGY (For the students who are admitted in the year 2019 – 2020 and onwards)	19EMB51B
SEMESTER - V		HRS/WK - 4
ELECTIVE		CREDITS - 3

Objective: To make the students understand the role of algae and their cultivation methods

Course Outcomes:

Upon successful completion of the course, the student:

CO 1: Knows the importance of algae and their occurrence

CO 2: Understands the technique of microalgae cultivation

CO 3: Studies mass cultivation of macro algae and different applications of seaweeds

CO 4: Appreciates the economic importance of algae

CO 5: Becomes familiar with the emerging technologies in algal biotechnology

SEMESTER: V	COURSE CODE: 19EMB51B					COURSE TITLE: ALGAL TECHNOLOGY			HOURS: 4	CREDITS: 3
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3		
CO1	3	4	3	3	3	4	4	4	3.50	
CO2	4	3	3	2	3	4	4	4	3.37	
CO3	3	3	3	3	2	4	4	4	3.25	
CO4	3	3	3	2	2	4	4	4	3.12	
CO5	3	4	3	2	3	4	4	4	3.37	
Mean Overall Score									3.29	

Result: The score of this course is 3.29 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit – 1

(12 Hrs)

Introduction to algal technology: Characteristics and classification of Algae - Chemical composition - protein, amino acids, lipids, waxes, glycerol, vitamins, pigments, chlorophyll, carotenoids and phycobiliproteins; Fresh water and marine algae – Macro and Micro algae – Occurrence – distribution.

Unit – 2

(12 Hrs)

Microalgae - biofertilizers – nitrogen fixing forms – free living and symbiotic nitrogen fixers – *Azolla* – Blue-green algal bio-fertilizer - Method of preparation and application, importance and selection of carrier materials - Characteristics, significance and uses of the following algae - *Dunaliella*, *Chlorella*, *Scenedesmus*, *Porphyridium*, *Gracilaria*, *Gelidium*, *Gelidiella*, *Laminaria*, *Porphyra*, and *Ulva*.

Unit – 3**(12 Hrs)**

Macro algae - Mass cultivation, rope cultivation, Harvesting algae, Drying; Applications of seaweeds in biotechnology; liquid seaweed fertilizer; Algal immobilization and its applications.

Unit – 4**(12 Hrs)**

Economic importance of algae - Algae as a source of food and feed; Algae as SCP - *Spirulina* - mass cultivation and its applications; Algae as a source of pigments and fine chemicals; other bioproducts from algae; Biofuel from algae - *Haematococcus* and *Botryococcus*.

Unit – 5**(12 Hrs)**

Emerging Technologies in Algal Biotechnology - Laboratory cultivation of algae; Mass cultivation of algae; Culture media for algae; Methods of control of algae – Algicides - preparation and applications; Algal culture collection centers in India and abroad and their importance.

Text Book

- Algal cultural techniques. 2005 (1st Edition). Robert A. Anderson. Academic Press.

Reference Books

- Algae. 2011. Sharma, O.P. McGraw Hill Education (India) Private Limited.
- Algal biotechnology: Products and processes. 2016. Faizal, B. and Yusuf, C. Springer.
- Handbook of Microalgal culture: Biotechnology and applied phycology. 2004. Amos Richmond. Blackwell Publishing Ltd.
- Algae Energy. 2010. (1st Edition). Demirbas. Newness Publisher.
- Biotechnological Applications of Microalgae: Biodiesel and Value added products. 2013. (1st Edition). FaizulBux. 2013. CRC Press.

YEAR – III	COMPUTER APPLICATIONS IN BIOLOGY (For the students who are admitted in the year 2019 – 2020 and onwards)	19EMB62A
SEMESTER - VI		HRS/WK - 4
ELECTIVE		CREDITS - 3

Objective: To make the students understand the applications of computers in biology

Course Outcomes:

Upon successful completion of the course, the student:

CO 1: Understands basics of computers and importance of internet.

CO 2: Knowledge to access data from various biological databases.

CO 3: Comprehends the concept of sequence alignment using algorithms.

CO 4: Analyzes biological data using softwares and tools.

CO 5: Understands the applications of genomics and proteomics in biology.

SEMESTER : VI	COURSE CODE: 19EMB62A					COURSE TITLE: COMPUTER APPLICATIONS IN BIOLOGY			HOURS : 4	CREDITS : 3
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF COs	
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3		
CO1	4	4	3	4	3.5	4	4	4	3.81	
CO2	3	3.5	3.5	3.5	4	4	3.5	4	3.62	
CO3	4	3.5	3.5	4	4	4	3.5	3.5	3.75	
CO4	3.5	4	3	3.5	3.5	4	4	4	3.68	
CO5	3.5	3.5	3.5	4	3.5	3.5	3.5	4	3.62	
Mean Overall Score									3.69	

Result: The score of this course is 3.69 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit – 1

(12 Hrs)

Introduction to computers – Types of computers – Generation – Applications of computers – Input and Output devices – ROM, RAM- Internet: Types of Network – LAN, WAN & MAN - Web services - World Wide Web, URL - Uses of Internet.

Unit– 2**(12 Hrs)**

Introduction to Bioinformatics – Definition – Biological databases (generalized and specialized) – Literature database (PubMed, BioMed Central)- Nucleic acid sequence databases (EMBL, NCBI, DDBJ) – sequence format (GenBank, FASTA format) – Protein sequence databases (SWISS-PROT, PIR) – Structure databases (PDB).

Unit – 3**(12 Hrs)**

Sequence alignment: Similarity, identity and homology – Pairwise Alignment, gaps, gap-penalties – Basic concepts of scoring matrices – PAM and BLOSUM- Global vs. local alignment – Dot-matrix representation – BLAST – multiple sequence alignment (CLUSTAL W).

Unit – 4**(12 Hrs)**

Phylogenetic analysis (phylogenetic tree, softwares) – Gene finding (methods and tools) – Protein prediction – Molecular visualization (tools, RasMol, Chime) - Automated DNA Sequencing – Human Genome Project

Unit - 5**(12 Hrs)**

Concept of Genomics and Proteomics – Comparative genomics – Functional genomics – DNA micro arrays – Protein arrays - Metagenomics, Cheminformatics – definition, tools used and applications.

Text Books

- Fundamentals of information Technology. 2009 (2nd Edition). Alexis Leon and Mathews Leon. Leon Vikas.
- Bioinformatics - A practical approach.2004. Mani, K. and Vijayaraj, N. Aparna Publications, New Delhi.

Reference Books

- Introduction to Bioinformatics in Microbiology. 2018. Henrick Christensen. Springer Nature Switzerland AG.
- Computational Biology & Bioinformatics – A gentle Overview. 2007. Achuthsankar S. Nair. Communications of Computer Society of India
- Bioinformatics for Dummies. 2007. Jean-michelClaverie Cedric Notredame. Dummies. Wiley Publishing, Inc, Indiana
- Using Information Technology - A Practical Introduction to Computers and Communications. 2015 (11th Edition). Sawyer S. and B. Williams. McGraw-Hill International Editions.
- Bioinformatics - concepts, skills and applications. 2004. Rastogi, S.C., Menderatta, M. and Rastogi, P. CBS Publishers & Distributors, New Delhi.

YEAR – III	CLINICAL MICROBIOLOGY (For the students who are admitted in the year 2019 – 2020 and onwards)	19EMB62B
SEMESTER - VI		HRS/WK - 4
ELECTIVE		CREDITS - 3

Objective: To make the students familiar with clinical diagnosis of various microbial diseases.

Course Outcomes:

Upon successful completion of the course, the student:

CO 1: Will be able to organize a clinical bacteriology lab

CO 2: Will be able to collect and process clinical specimens

CO 3: Will be able to determine antimicrobial sensitivity

CO 4: Will be detail the diseases transmitted by various modes

CO 5: Will be familiar with laboratory animals and hospital acquired infections

SEMESTER : VI	COURSE CODE: 19EMB62B					COURSE TITLE: CLINICAL MICROBIOLOGY			HOURS : 4	CREDITS: 3
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF COs	
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3		
CO1	2	4.5	4	4	3.5	3	3	4	3.5	
CO2	2	4	4	4	4	3	4	3	3.5	
CO3	2	3	3	3	3	2	3	3	2.7	
CO4	3	5	4	4	4	3	5	4	4.0	
CO5	3	5	4	4	5	4	4	4	4.1	
Mean Overall Score									3.5	

Result: The score of this course is 3.5 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit - 1

(12 Hrs)

Organization of the Clinical Bacteriology lab; Quality assurance; Safety in Microbiology laboratory – Safety levels; Good Laboratory Practices

Unit - 2

(12 Hrs)

Collection and transport of clinical specimens for microbiologic examination (urine, pus, CSF, sputum, body fluids) - culture containers – Processing of clinical specimens (Cultural and Non-cultural methods)

Unit - 3

(12 Hrs)

General principles, media and isolation techniques involved for anaerobic bacteria; Antimicrobial sensitivity testing - Determination of MIC; serological techniques in Diagnostic Microbiology; Molecular techniques used in diagnosis

Unit – 4**(12 Hrs)**

Vector borne diseases; Zoonotic diseases; Sexually transmitted diseases; Emerging diseases

Unit - 5**(12 Hrs)**

Laboratory animal management – Animal house; Rabbit, guinea pig, mice; Hospital acquired infections; infection control committee; Hospital waste disposal

Text Book

- Mackie & Mc Cartney Practical Medical Microbiology, 1996 (14th Edition). Colliee, J. G., A.G. Fraser, B.P, Marmion and A. Simmons. Churchill Livingstone ,USA.

Reference Books

- Mims' Pathogenesis of Infectious diseases, 1995 (4th Edition), Mims, C.A. Academic Press, London
- Color Atlas and Textbook of Diagnostic Microbiology. 1990. Koneman. E. W. S D. Allen., V.R Do well and H.M. Sommers (Eds).J.B. Lippincott Co., Philadelphia.
- Bailey and Scott's Diagnostic Microbiology, 1986 (7th Edition). Finegold, S.M. &Ellen Jo Baron. C, V. Mosby Company, USA.

YEAR – III	PROJECT	19JMB603
SEMESTER- VI		HRS/WK - 0
PROJECT		EXTRA CREDIT - 5

Objectives:

- To acquire the knowledge in selection and designing of research projects
- To engage the students themselves to carry out the research independently
- To find the solutions using microbes to the unsolvable problems and to benefit the society from their research
- To make the students familiar with the writing skill from their research findings

Course outcomes:

- Designing of projects focused on the issues can be solved by using of microorganisms
- Impart the knowledge of practical and theoretical in microbiology to benefit the society
- Acquire proficiency in experimental techniques, instrumentation, and data collection methods relevant to the chosen research area
- Making the students familiar with the skill of writing and reporting the research findings
- Enriching the skill of presentation of their research inventions in front of scientific community

Research areas to be focused

Students are advised to select their topics on the following areas;

1. Field project related to microbial issues with the questionnaires
2. Medical microbiology using the pathogens
3. Industrial microbiology for the screening and production of microbial products
4. Antimicrobial compounds from natural products
5. Agricultural microbiology using beneficial microbes
6. Environmental microbiology aims on environmental problems
7. Food microbiology focused on organisms associated with food preservation, spoilage and contamination
8. Marine microbiology associated with valuable products screening

Regulations for UG Project

- The project may be group project or individual. A group may consist of 2 to 8 students. More than 8 students in a group shall not be permitted.
- The project may be lab oriented or survey research. If the work is lab oriented, it should be done in the Microbiology Department lab only. Otherwise, can be done outside.
- After completion, the report should be submitted to the department. Extra credit will be given to the project work.
- The report pages should be between 5 and 10 pages.
- No literature review is needed.
- Students have to submit 2 copies of their project report to the department
- No downloaded figures are permitted.
- Common binding is advised for the project report to make it uniform.
- Font type and letter size should be as follows:
 - Font : Times New Roman (only accepted)
 - Size (Text) : 12
 - Size (Title) : 14
 - Line spacing : 1.5

YEAR – III	FOOD AND DAIRY MICROBIOLOGY (For the students who are admitted in the year 2019 – 2020 and onwards)	19MB509
SEMESTER - V		HRS/WK - 5
CORE - 9		CREDITS - 4

Objective: To make the students understand the importance of microbes in food and dairy industry.

Course Outcomes:

Upon successful completion of the course, the student:

CO 1: Will be able to describe the importance of microorganisms in food and methods used for food preservation.

CO 2: Will be able to identify the source of contamination and spoilage causing microorganisms in different foods

CO 3: Will be able to understand the role of microorganisms in food fermentation.

CO 4: Will be able to apply the knowledge in dairy product production and develop the skill for testing milk sample.

CO 5: Will be able to understand food borne diseases and detect the pathogens in different food samples.

SEMESTER: V	COURSE CODE: 19MB509					COURSE TITLE: FOOD AND DAIRY MICROBIOLOGY			HOURS : 5	CREDIT S: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF COs	
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3		
CO1	3.5	3.5	4	4.5	4	4	4	5	4.6	
CO2	3	3	3.5	3.5	3	3	4	4.5	3.4	
CO3	2.5	3	3	4	4	3	4.5	4.5	3.5	
CO4	4	2.5	3	3.5	3.5	3.5	3.5	4	3.4	
CO5	3	2.5	3.5	4	4	3.5	4	4.5	3.6	
Mean Overall Score									3.7	

Result: The score of this course is 3.7 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit – 1

(15 hrs)

Food as a substrate for microorganisms - Microorganisms important in food microbiology - Principles of food preservation - asepsis - removal of microorganisms - high temperature - low temperature-drying- food additives - radiation

Unit – 2 (15 hrs)
Contamination, spoilage and preservation of - vegetables and fruits, meat and meat products, fish and sea food, poultry products, canned food.

Unit – 3 (15 hrs)
Food fermentations – bread, malted beverages, idly, fermented vegetables, pickles, Oriental fermented foods- Probiotics: definition, types of microorganisms and health benefits

Unit – 4 (15 hrs)
Milk and milk products - fermented dairy products - butter, cheese, yogurt, acidophilus milk; Spoilage and defects of fermented dairy products; Milk-borne diseases; Microbiological analysis of milk – dye reduction test, total bacterial count; Applications of microbial enzymes in dairy industry (Proteases and Lipases).

Unit – 5 (15 hrs)
Food-borne infections and intoxications - bacterial, non-bacterial - laboratory methods for detection of food borne pathogens (cultural and rapid method) - Food plant sanitation - quality control - HACCP.

Text Books

- Food Microbiology. 2013 (5th Edition). William C. Frazier, Dennis C. Westhoff, K. N. Vanitha. McGraw-Hill Education, India.
- Modern Food Microbiology. 2007 (2nd Edition). James, M.J. CBS Publisher, New Delhi

Reference Books

- Food Microbiology. 2016 (1st Edition). Foster, W. M. CBS Publishers and Distributors Pvt. Ltd, New Delhi.
- Food Microbiology. 2015 (4th Edition). Adams, M.R., Moss, M.O and McClure, P. J. RSC Publication, CPI Group (UK) Ltd, Croydon, UK.
- Modern Food Microbiology. 2005 (7th Edition). James M. Jay, Martin J. Loessner, David A. Golden. Springer Science & Business.
- Food Microbiology -Fundamentals and Frontiers. 2001 (2nd Edition). Doyle, M. P., L. R. Beuchat and T. J. Montville. ASM Press. Washington, D.C.
- Dairy Microbiology Hand Book. 2002 (3rd Edition). Richard K. Robinson. John Wiley & Sons, New York, US.

YEAR – III	MEDICAL BACTERIOLOGY (For the students who are admitted in the year 2019 – 2020 and onwards)	19MB510
SEMESTER - V		HRS/WK - 5
CORE - 10		CREDITS - 4

Objective: To make the students understand the medical importance of bacteria.

Course Outcomes:

Upon successful completion of the course, the student:

- CO 1:** Will comprehend the role of virulence factors in bacterial infections
- CO 2:** Will gain knowledge on pathogenic bacteria of Enterobacteriaceae
- CO 3:** Will gain knowledge on Gram positive bacterial pathogens
- CO 4:** Will become familiar with the pathogenic potential of rare bacterial species
- CO 5:** Will be able to recognize intracellular bacterial pathogens

SEMESTER: R: V	COURSE CODE: 19MB510					COURSE TITLE: MEDICAL BACTERIOLOGY			HOURS : 5	CREDIT S: 4
COURSE OUTCOME S	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF COs	
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3		
CO1	4	4	3	4	4	4	3	4	3.75	
CO2	4	4	3	4	3	3	4	4	3.62	
CO3	4	4	4	3	4	4	4	3	3.75	
CO4	4	3	3	4	4	4	3	4	3.62	
CO5	4	4	3	4	3	4	4	3	3.62	
Mean Overall Score									3.68	

Result: The score of this course is 3.68 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit – 1

(15 Hrs)

General attributes and virulence factors of bacteria causing infections - Morphology, classification, cultural characteristics, pathogenicity, laboratory diagnosis and prevention of infections caused by the following organisms - *Staphylococci*, *Streptococci*, *Pneumococci*, *Neisseria meningitidis* and *N. gonorrhoea*, *Corynebacteria*.

Unit – 2

(15 Hrs)

Escherichia coli, *Klebsiella*, *Salmonella typhi*, *S. paratyphi A* and *S. paratyphi B*, *Shigella*, *Proteus*, *Vibrio cholerae*, *Pseudomonas*

Unit - 3**(15 Hrs)**

Bacillus anthracis, *Clostridium perfringenes*, *Cl. Tetani*, *Cl. botulinum*, *Mycobacterium tuberculosis*,

M. leprae, Atypical Mycobacteria

Unit - 4**(15 Hrs)**

Yersinia, *Haemophilus*, *Helicobacter*, *Francisella*, *Brucella*, *Bordetella*, *Legionella*, *Listeria*

Unit - 5**(15 Hrs)**

Rickettsiae, *Chlamydia*, *Spirochaetes*, *Mycoplasma*, Actinomycetes

Text Book

- Text Book of Microbiology. 2000 (6th Edition). Ananthanarayanan, R. and C.K.J. Panicker. Orient Longman Private Ltd., Chennai.

Reference Books

- Jawetz Melnick & Adelberg's Medical Microbiology. 2019 (28th Edition). Stefan Riedel, Stephen A. Morse, Timothy A. Mietzner, Steve Miller. Mc Graw Hill.
- Medical Microbiology. 2008 (6th Edition). Patrick R. Murray, Ken S. Rosenthal and Michael A. Pfaller. Mosby - Elsevier.
- Medical Microbiology. 2012. (18th Edition). David Greenwood, Richard Slack, Michael Barer and W. L. Irving. Churchill Livingstone.

YEAR – III	MEDICAL PARASITOLOGY (For the students who are admitted in the year 2019 – 2020 and onwards)	19MB511
SEMESTER - V		HRS/WK - 5
CORE - 11		CREDITS - 4

Objective: To make the students understand the medical importance of parasites.

Course Outcomes:

Upon successful completion of the course, the student:

CO 1: Acquires knowledge about the laboratory diagnosis and treatment of parasitic diseases.

CO 2: Learns about the diseases caused by amoebae and flagellates.

CO 3: Gains knowledge about the diseases caused by sporozoa and ciliate protozoan.

CO 4: Understands the diseases caused by cestode and trematode.

CO 5: Attains knowledge about the diseases caused by nematode.

SEMESTER: R: V	COURSE CODE: 19MB511					COURSE TITLE: MEDICAL PARASITOLOGY			HO URS : 5	CREDITS: 4
COURSE OUTCOME S	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF COs	
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3		
CO1	4	4	3	4	4	4	4	4	3.87	
CO2	4	3	4	4	4	3	4	4	3.75	
CO3	4	4	4	3	3	4	3	4	3.62	
CO4	3.5	4	3	4	4	4	3	3	3.56	
CO5	4	4	3	3.5	4	4	4	4	3.81	
Mean Overall Score									3.72	

Result: The score of this course is 3.72 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit-1

(15 Hrs)

Introduction – Classes of parasites – Classes of hosts– Host-parasite relationship – Sources of infection – Modes of transmission – Pathogenesis– Laboratory diagnosis of parasitic diseases – Treatment

Unit-2

(15 Hrs)

Entamoeba histolytica, *Naegleria fowleri*, *Giardia lamblia*, *Trichomonas vaginalis*, *Leishmania donovani*, *Trypanosoma brucei* complex

Unit-3

(15 Hrs)

Plasmodium species, *Toxoplasma gondii*, *Cryptosporidium parvum*, *Isospora belli*,

Balantidium coli

Unit-4

(15 Hrs)

Taenia saginata, *Taenia solium*, *Schistosoma haematobium*, *Fasciola hepatica*,
Fasciolopsis buski

Unit-5

(15 Hrs)

Trichuris trichiura, *Ancylostoma duodenale*, *Ascaris lumbricoides*, *Enterobius vermicularis*,
Wuchereria bancrofti,

Text Books

- Text Book of Medical Parasitology. 2013 (4th Edition). Subhash Chandra Parija. All India Publishers and Distributors, Chennai.
- Paniker's Text Book of Medical Parasitology. 2018 (8th Edition). Sougata Ghosh. Jaypee Brothers Medical Publishers (P) Ltd., New Delhi

Reference Books

- Medical Parasitology. 2018. (5th Edition). D.R.Arora and Brij Bala Arora. CBS Publishers and Distributors Pvt. Ltd., New Delhi,
- Essentials of Medical Parasitology. 2019 (2nd Edition). Apurba Sankar Sastry and Sandhya Bhat, 2019, Jaypee Brothers Medical Publishers (P) Ltd., New Delhi
- Medical Parasitology. 2010 (4th Edition). RL Icchpujani and Rajesh Bhatia. Jaypee Brothers Medical Publishers (P) Ltd., New Delhi
- Medical Parasitology 2019 (4th Edition). CP Baveja and V Baveja. Ariya Publishing Company, New Delhi
- Medical Parasitology. 2012 (3rd Edition). RP Karyakarte and AS Damle. Books and Allied (P) Ltd., Kolkata

YEAR – III	INDUSTRIAL MICROBIOLOGY (For the students who are admitted in the year 2019 – 2020 and onwards)	19MB512
SEMESTER - V		HRS/WK - 5
CORE - 12		CREDITS - 4

Objective: To make the students understand the industrial aspects of microbiology.

Course Outcomes:

Upon successful completion of the course, the student:

CO 1: Will acquire the knowledge about the study of practical understanding of fermentation.

CO 2: Will gain knowledge about product purification by downstream process

CO 3: Will get insight knowledge about microbial metabolites

CO 4: Will get depth insights about the microbial synthesis of industrially important enzymes.

CO 5: Will acquire the knowledge about the industrial production of antibiotics and vitamins

SEMESTER: R: V	COURSE CODE: 19MB512					COURSE TITLE: INDUSTRIAL MICROBIOLOGY			HOURS : 5	CREDIT S: 4
COURSE OUTCOME S	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF COs	
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3		
CO1	3	4	3	3	3	4	4	4	3.50	
CO2	4	3	3	2	3	4	4	4	3.37	
CO3	3	3	3	3	2	4	4	4	3.25	
CO4	3	3	3	2	2	4	4	4	3.12	
CO5	3	4	3	2	3	4	4	4	3.37	
Mean Overall Score									3.29	

Result: The score of this course is 3.29 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit – 1

(15 Hrs)

General concepts of industrial microbiology, screening and strain development strategies - raw materials used in media production media optimization – foaming - fermentation equipment and its uses – types of fermenters

Unit – 2

(15 Hrs)

Types of fermentation - batch, continuous, dual or multiple, surface, submerged, aerobic, anaerobic - Downstream process – recovery and purification of products – sterilization – development of inocula - scale up processes, Methods of achieving sterility

Unit – 3**(15 Hrs)**

Primary and Secondary Metabolites- Catabolic- anabolic products, Trophophase - idiophase Relationships in the Production of Secondary products, Production of alcohol and beverages – Ethanol, beer and wine, vinegar - Single cell proteins - Organic acids - lactic acid, citric acid, acetic acid - Steroid transformations

Unit – 4**(15 Hrs)**

Industrial production of enzymes - amylase, proteinase, cellulase - Amino acid production - glutamic acid and lysine

Unit – 5**(15 Hrs)**

Production of antibiotics - penicillin, tetracycline, streptomycin – Role of precursors - Production of Vitamins - riboflavin, cyanocobalamin, Production of bacterial insecticide.

Text Book

- Industrial Microbiology. 2016 (2nd Edition). Patel, A.H. Trinity press, Boston, USA.

Reference Books

- Principles of fermentation Technology. 2016 (3rd Edition). Stanbury. P.F., A. Whitaker and S.J. Hall. 2016. Butterworth - Heinemann (Pergamon), Oxford.
- Biotechnology. 2000 (2nd Edition). Crueger W. and A Crueger. Panima Publishing Corporation, New Delhi.
- Prescott & Dunn's Industrial Microbiology. 2004. (4th Edition). Reed, G. CBS Publishers Distributors, Delhi.
- Modern Industrial Microbiology and Biotechnology. 2007. (1st Edition). Nduka Okafor. Science Publishers, USA.
- Biotechnology. 2016 (10th Edition). Satyanarayana, U. 2016. Books and Allied (P) Ltd, Kolkata.

YEAR – III	SOIL AND AGRICULTURAL MICROBIOLOGY (For the students who are admitted in the year 2019 – 2020 and onwards)	19MB613
SEMESTER - VI		HRS/WK - 5
CORE - 13		CREDITS - 4

Objective: To make the students understand the importance of microbes in soil fertility and plant diseases.

Course Outcomes:

Upon successful completion of the course, the student:

CO 1: Understands different soil microflora and their roles in improving soil fertility

CO 2: Knows the plant-microbe interactions and their outcomes

CO 3: Studies different cyclical movement nutrients and different kinds of biofertilizers and biopesticides

CO 4: Understands different plant diseases due to bacterial and fungal phytopathogens

CO 5: Studies different plant diseases due to viruses and nematodes

SEMESTER: VI	COURSE CODE: 19MB613					COURSE TITLE: SOIL AND AGRICULTURAL MICROBIOLOGY			HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3		
CO1	2	5	4	4	3	3	3	4	3.5	
CO2	2	4	4	4	4	3	3	4	4.3	
CO3	2	3	3	4	3	2	3	3	2.8	
CO4	3	5	4	4	4	3	5	4	4.0	
CO5	3	3	3	5	5	4	4	4	3.8	
Mean Overall Score									3.6	

Result: The score of this course is 3.6 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating< =1	1.1<=rating< =2	2.1<=rating< =3	3.1<=rating< =4	4.1<=rating< =5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit - 1

(15 Hrs)

Soil – physical and chemical properties; soil microorganisms - bacteria, algae, fungi, actinomycetes, protozoans, nematodes and viruses – Influence of soil and environmental factors on soil microflora - Role of microbes in soil fertility - Winogradsky column.

Unit - 2

(15 Hrs)

Microbial interactions with plants - Mycorrhizae, Rhizosphere, Phyllosphere, Spherosphere- Plant growth promoting bacteria – Mechanisms of plant growth promotion - Organic matter decomposition - humus formation - Biodegradation of pesticides in the soil

Unit - 3**(15 Hrs)**

Biogeochemical cycles - carbon, phosphorus, sulphur, Iron and nitrogen cycles; Nitrogen fixation – symbiotic and free living; Biofertilizers - Types (bacterial and algal), Examples and advantages; Biopesticides - types (bacterial, fungal and viral), Examples and advantages; Mass multiplication of microbial Bioinoculants

Unit – 4**(15 Hrs)**

Plant pathogenic microorganisms - Disease symptoms, mode of entry, control measures - Diseases caused by bacteria – bacterial Wilt of potato- Citrus canker, leaf blight of paddy as examples - Diseases caused by fungi - False smut of paddy, Leaf smut of rice, wheat rust, Red rot of sugarcane and Tikka disease of groundnut as examples

Unit - 5**(15 Hrs)**

Diseases caused by viruses - Tungrovirus, Virus diseases of papaya and sugarcane – Bunchy disease of banana – Leaf curl of tomato as example - Diseases caused by *Mycoplasma* - Little leaf of brinjal as example – Diseases due to Phytoplasma - Sugarcane grassy shoot disease as example - Diseases due to nematodes – Root knot of vegetables as example – Seed borne diseases.

Text Books

- Diseases of crop plants in India. 1999 (4th Edition). G. Rangaswami, A. Mahadevan. Prentice – Hall of India Private Ltd., New Delhi.
- Agricultural Microbiology. 1998 (2nd Edition). G. Rangaswami, D. J. Bagyaraj. Prentice -Hall of India Private Ltd., New Delhi, India

Reference Books

- Microbiology - Fundamentals and Applications. 1998. Atlas and Bartha. Benjamin/Cummings Publishing Company, Inc., California.
- Introduction to Soil Microbiology. Alexander. M. 1961. John Wiley Sons, Inc. New York & London.
- Fundamental Agricultural Microbiology. 2017. Aneja, K.R. International private limited, Chennai, India
- Fundamental of Plant Pathology. 2013. Ravichandra, N.G. PHI publishers, New Delhi, India
- A Textbook of Plant Pathology. 2020. Sambamurty, A.V.V.S. Dreamtech Press, New Delhi, India

YEAR – III	MEDICAL VIROLOGY (For the students who are admitted in the year 2019 – 2020 and onwards)	19MB614
SEMESTER - VI		HRS/WK - 5
CORE - 14		CREDITS - 4

Objective: To make the students understand the medical importance of viruses and their diseases.

Course Outcomes:

Upon successful completion of the course, the student:

CO 1: Understands the basic properties and medical importance of viruses.

CO 2: Learns viral infections caused by contagious group of viruses.

CO 3: Acquires knowledge about respiratory borne viruses.

CO 4: Gains knowledge on pandemic viral diseases and sporadic viral diseases.

CO 5: Learns the importance of Retro viruses in detail and other viral infections in children.

SEMESTER: VI	COURSE CODE: 19MB614					COURSE TITLE: MEDICAL VIROLOGY			HOURS : 5	CREDIT S: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF COs	
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3		
CO1	3	4	4	4	3	3	3	4	3.5	
CO2	3	4	4	4	4	3	3	4	3.4	
CO3	3	3	3	4	3	4	4	4	3.5	
CO4	3	4	4	4	4	3	4	4	3.7	
CO5	3	4	3	3	4	4	4	4	3.6	
Mean Overall Score									3.5	

Result: The score of this course is 3.5 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit -1

(15 Hrs)

General properties of viruses – Cultivation of viruses - Virus-host interactions – Classification –Nomenclature of viruses - Prions - Antiviral agents - Viral vaccines - Mode of transmission of viruses

Unit -2

(15 Hrs)

Pox viruses - Herpes viruses - Adeno viruses - Picorna viruses

Unit - 3

(15 Hrs)

Orthomyxo viruses – Paramyxo viruses - Corona viruses

Unit -4 (15 Hrs)
Arboviruses - Rhabdoviruses - Hepatitis viruses

Unit -5 (15 Hrs)
Rubella virus - Rota virus - Oncogenic viruses - Retro viruses

Text Books

- Human Virology. 2006 (3rd edition). Collier L and Oxford J. Oxford University Press Inc., New York.
- Ananthanarayan and Paniker's Text Book of Microbiology. 2017 (10th edition). Reba Kanungo. Universities Press (India) Private Limited, Hyderabad.

Reference Books

- Introduction to Modern Virology. 2007 (6th edition). Dimmock N.J, Easton A.J and Leppard K.N. Blackwell Publishing Ltd., Oxford, London.
- Jawetz, Melnick and Adelberg's Medical Microbiology (28th Edition). Stefan Riedel, Stephen A Morse, Timothy A Mietzner and Steve Miller, 2019, McGraw-Hill Company, New York.
- Fields Virology. 2013. (5th edition). David M. Knipe and Peter M. Howley. Lippincott Williams & Wilkins, Philadelphia.
- Virology- Principles and Applications. 2013 (2nd Edition). Carter J.B and Saunders V.A. John Wiley and Sons Limited, West Sussex, UK.
- Notes on Medical Virology. 1997 (11th Edition). Timbury M.C. Churchill Livingstone, London.

YEAR – III	MEDICAL MYCOLOGY (For the students who are admitted in the year 2019 – 2020 and onwards)	19MB615
SEMESTER - VI		HRS/WK - 5
CORE - 15		CREDITS - 4

Objective: To make the students understand the medical importance of fungi.

Course Outcomes:

Upon successful completion of the course, the student:

CO 1: Acquires knowledge about the laboratory diagnosis and treatment of fungal diseases.

CO 2: Attains knowledge about superficial and cutaneous mycoses.

CO 3: Learns about subcutaneous mycoses.

CO 4: Understands systemic mycoses.

CO 5: Gains knowledge about opportunistic fungal infections and mycotoxicoses

SEMESTER: R: VI	COURSE CODE: 19MB615					COURSE TITLE: MEDICAL MYCOLOGY			HOURS : 5	CREDIT S: 4
COURSE OUTCOME S	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF COs	
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3		
CO1	4	4	3	4	3.5	4	4	4	3.81	
CO2	3	3.5	3	3.5	4	4	3.5	3.5	3.5	
CO3	4	3.5	3.5	3.5	4	4	4	3.5	3.75	
CO4	3.5	4	3	3.5	3.5	4	4	4	3.68	
CO5	3.5	3.5	3.5	4	3.5	3.5	3.5	4	3.62	
Mean Overall Score									3.67	

Result: The score of this course is 3.67 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating< =1	1.1<=rating< =2	2.1<=rating< =3	3.1<=rating< =4	4.1<=rating< =5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit - 1

(12 Hrs)

Introduction – General properties of fungi – Morphological classification of fungi - Classification of fungal diseases - Pathogenesis of fungal infection – Laboratory diagnosis of fungal disease – Antifungal therapy

Unit - 2

(12 Hrs)

Superficial mycoses – Pityriasis versicolor, Tinea nigra, Black piedra, White piedra - Cutaneous mycoses - Dermatophytosis

Unit - 3

(12 Hrs)

Subcutaneous mycoses – Mycetoma, Sporotrichosis, Chromoblastomycosis, Rhinosporidiosis

Unit - 4**(12 Hrs)**

Systemic mycoses – Histoplasmosis, Blastomycosis, Coccidioidomycosis, Paracoccidioidomycosis, Cryptococcosis.

Unit - 5**(12 Hrs)**

Opportunistic mycoses – Candidiasis, Aspergillosis, Penicillosis, Zygomycosis, Mycotoxicoses.

Text Books

- Text Book of Mycology. 2018 (4th edition). Jagdish Chander. Jaypee Brothers Medical Publishers Private Limited, New Delhi.
- Ananthanarayan and Paniker's Text Book of Microbiology. 2017 (10th edition). Reba Kanungo. Universities Press (India) Private Limited, Hyderabad.

Reference Books

- Jawetz Melnick & Adelberg's Medical Microbiology. 2019 (28th Edition). Stefan Riedel, Stephen A. Morse, Timothy A. Mietzner, Steve Miller. Mc Graw Hill.
- Medical Microbiology. 2008 (6th Edition). Patrick R. Murray, Ken S. Rosenthal and Michael A. Pfaller. Mosby - Elsevier.
- Medical Microbiology. 2012. (18th Edition). David Greenwood, Richard Slack, Michael Barer and W. L. Irving. Churchill Livingstone.
- Text Book of Microbiology and Immunology (2nd edition). Subhash Chandra Parija, 2012, Elsevier India, New Delhi.
- Essentials of Medical Microbiology. 2008 (4th edition). Rajesh Bhatia and Rattan Lal Ichhpujani, Jaypee Brothers Medical Publishers Private Limited, New Delhi.

YEAR – III	BIOTECHNOLOGY (For the students who are admitted in the year 2019 – 2020 and onwards)	19MB616
SEMESTER - VI		HRS/WK - 5
CORE - 16		CREDITS - 4

Objective: To make the students understand the basic principles and techniques involved in gene technology

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Understands the basics of recombinant DNA technology and cloning vectors.

CO2: Gains knowledge about the DNA and its amplification.

CO3: Acquires knowledge about enzymes and biofuels.

CO4: Understands the usage of plants and exploitation of them through genetic modification

CO5: Understands the usage of animals and exploitation of them through genetic modification, patenting and intellectual property rights.

SEMESTER: VI	COURSE CODE: 19MB616					COURSE TITLE: BIOTECHNOLOGY			HOURS : 5	CREDIT S: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF COs	
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3		
CO1	3	4	4	4	3.5	3	3.5	4	3.62	
CO2	3	4	4	4	4	3	4	3.5	3.68	
CO3	4	3	3.5	3	3	4	3.5	3	3.37	
CO4	3.5	4	4	4	4	3	4	4	3.81	
CO5	3	4	4	4	4	4	4	4	3.87	
Mean Overall Score									3.67	

Result: The score of this course is 3.67 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit - 1

(15 Hrs)

Definition and history – Recombinant DNA technology – Restriction endonucleases- Cloning vectors – pBR322, Cosmids - M13 phage vector and its applications – DNA ligation.

Unit - 2

(15 Hrs)

Chemical synthesis of DNA - DNA sequencing – Hybridisation techniques - Southern and Northern blotting techniques – Colony hybridization - PCR – Genomic library.

Unit - 3**(15 Hrs)**

Enzyme technology – Enzyme immobilisation, products, Applications - Biofuel –Hydrogen gas as fuel from Microorganisms – Biodiesel.

Unit - 4**(15 Hrs)**

Genetic engineering of plants – Electroporation – Gene gun –Particle bombardment- Ti plasmid vectors –Cauliflower mosaic virus as cloning vector - Applications- Transgenic plants –Insect resistant, Virus resistant plants, genetically modified foods.

Unit - 5**(15 Hrs)**

Transgenic animals –Retroviral vector method , DNA microinjection method –Applications of r DNA technology – Recombinant products –insulin, tPA, Interferons – Gene therapy – Patents – IPR.

Text Books

- Elements of Biotechnology. 1996. Gupta, P.K. Rastogi and Company, Meerut.
- Basic Biotechnology. 2001 (2nd edition). Ratledge C. and B. Kristiansen. Cambridge University press, United Kingdom.

Reference Books

- Principles of Gene Manipulation. 1994 (5th Edition).Old, R.W. and S.B.Primrose. Blackwell Science, Oxford.
- Molecular Biotechnology - Principles and Applications of Recombinant DNA technology. 2010 (4th Edition). Glick, B. R., Pasternack J.J. and Patten C.L.ASM Press.
- Genetics- A Molecular Approach. 2004. Brown, T.A. Chapman Hall, London.
- Biotechnology Expanding Horizons. 2021. Singh, B.D. Kalyani Publishers, Ludhiana.

III B.Sc. Microbiology	APPLIED MICROBIOLOGY PRACTICAL (For the students who are admitted in the year 2019 – 2020 and onwards)	19MBP603
SEMESTER – V & VI		HRS/WK - 3
CORE PRACTICAL - 3		CREDITS – 3

LIST OF EXPERIMENTS

1. Open plate method
2. Enumeration of bacteria from water sample
3. Coliform count in water (MPN Technique)
4. Presence/Absence test for coliforms in water
5. Microscopic Examination of curd
6. Isolation of *Lactobacillus* and *Staphylococcus* from curd
7. Microscopic examination of fungi by Lactophenol cotton blue method – *Mucor* and *Rhizopus*
8. Microscopic examination of microorganisms in spoiled food
9. Isolation of bacteria from spoiled food
10. Detection of bacteria in milk by SPC
11. Methylene blue reduction test
12. Phosphatase test for Milk
13. Turbidity test for sterilized Milk
14. Cross section of root nodule

LIST OF SPOTTERS

1. Butter
2. Cheese
3. Canned food
4. Spoiled vegetable
5. Spoiled bread
6. *Rhizopus* - Lactophenol cotton blue mount
7. *Mucor*- Lactophenol cotton blue mount
8. BOD bottle
9. Membrane filter
10. Trickling filter
11. Lactophenol cotton blue stain
12. Methylene blue for MBRT
13. Yeast
14. Bread
15. Vinegar
16. Mushroom
17. *E. coli* on EMB agar
18. Lactose fermenting colonies on MacConkey agar
19. YEMA medium
20. Root nodule
21. Cross section of root nodule
22. MPN Preliminary test - Lauryl tryptose broth with Durham's tube
23. MPN Confirmed test - Brilliant green lactose bile broth with Durham's tube
24. Curd
25. Milk

26. Milk sample with Methylene blue in screw cap tube
27. Teasing needle
28. *Lactobacillus* on Oxgall Agar
29. *Staph aureus* on Baird parker agar

III B.Sc. Microbiology	MEDICAL MICROBIOLOGY PRACTICAL (For the students who are admitted in the year 2019 – 2020 and onwards)	19MBP604
SEMESTER – V & VI		HRS/WK - 3
CORE PRACTICAL - 4		CREDITS – 3

LIST OF EXPERIMENTS

1. Type Study of the following bacteria
 - (i) *Staphylococcus aureus*
 - (ii). *Streptococcus pyogenes*
 - (iii) *E. coli*
 - (iv) *Klebsiella pneumoniae*
 - (v). *Proteus vulgaris*
 - (vi). *P. mirabilis*
 - (vii). *Salmonella typhi*
 - (viii). *S. paratyphi A*
 - (ix). *S. paratyphi B*
 - (x). *Shigella dysenteriae*
 - (xi). *Pseudomonas aeruginosa*
2. Enrichment culture technique
 - (i). *Salmonella* from feces
 - (ii). *Shigella* from feces
3. Throat Swab
4. Urine Culture
5. Antimicrobial Sensitivity test - Kirby Bauer method
6. Germ tube test for *Candida albicans*
7. Wet mount examinations of stool sample for parasites (*E. histolytica* and *Giardia*)
8. Lactophenol cotton blue mounting of *Aspergillus* and *Penicillium*

LIST OF SPOTTERS

1. Trophozoite of *E. histolytica*
2. Cyst of *E. histolytica*
3. Trophozoite of *G. lamblia*
4. Cyst of *G. lamblia*
5. Tapeworm
6. Roundworm
7. Lab animals – Guinea pig, Mouse, Rabbit
8. Embryonated egg method
9. Robertsons cooked meat medium
10. Stormy fermentation
11. Negribodies
12. Mosquito (Vector borne diseases)
13. Acid Fast Bacilli
14. Germ tube test
15. Pox virus
16. Rabies virus
17. LJ medium
18. *Aspergillus* mount
19. *Penicillium* mount
20. Growth of *E.coli* / *Klebsiella* on EMB

21. Growth of *Vibrio cholerae* on TCBS
22. Blood agar with hemolytic/ non hemolytic
23. MacConkey agar with LF/ Non LF
24. Growth of *Salmonella* on SS agar
25. Antibiotic Sensitivity test
26. Metachromatic granules
27. *Ascaris* male & female
28. Cyst of *Balantidium coli*
29. Microfilaria of *Wuchereria bancrofti*
30. Rat flea
31. *Salmonella typhi* biochemicals
32. NIH swab
33. Pneumococci

YEAR – III	BIOREMEDIATION (For the students who are admitted in the year 2019 – 2020 and onwards)	19SMB51A
SEMESTER - V		SELF STUDY COURSE
ELECTIVE		CREDITS – 2

Objective: To make the students aware of environmental pollutants and their biodegradation

Course Outcomes:

Upon successful completion of the course, the student:

CO 1: Understands Bioremediation and its types

CO 2: Lists the microbes involved in Bioremediation

CO 3: Knows the mechanisms of Bioremediation

CO 4: Understands the Bioremediation practices to treat soil and water pollution

CO 5: Is aware of the anaerobic treatments for different wastes

SEMESTER : V	COURSE CODE: 19SMB51A					COURSE TITLE: BIOREMEDIATION			HOURS : -	CREDITS : 2
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF COs	
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO2	PSO 3		
CO1	2	3	3	4	4	2	5	4	3.37	
CO2	3	4	3	4	5	3	5	4	3.87	
CO3	2	3	3	5	5	3	5	5	3.87	
CO4	3	3	5	4	5	2	4	4	3.75	
CO5	2	3	4	3	4	2	4	4	3.25	
Mean Overall Score									3.62	

Result: The score of this course is 3.62 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit- 1

(6 hrs)

Pollution - Types of pollution; Pollutants - Types of pollutants; Acid mine drainage; Bioaccumulation and biomagnifications; Bioremediation - definitions, different strategies, Types of bioremediation, advantages and limitations.

Unit - 2

(6 hrs)

Microbes for bioremediation – Bacteria and fungi; Role of plasmids in bioremediation; Gene manipulation in creation of new strains; Phytoremediation.

Unit - 3**(6 hrs)**

Mechanism of bioremediation - Metabolic pathways for the degradation of xenobiotics; Bioprocess design – Optimization; Problems associated with biotreatment studies; Quantification of biodegradation.

Unit - 4**(6 hrs)**

Bioremediation of soil and effluents; Bioreactors - Advantages and disadvantages; Biodegradation of oil spill in marine environment; Biosorption of heavy metals.

Unit- 5**(6 hrs)**

Anoxic bioremediation; Fermentation; Anaerobic bioremediation of Hydrocarbons, Phenols, Chlorinated phenolic compounds, Polycyclic Aromatic Hydrocarbon (PAH), Dyes and Radioactive wastes.

Text book:

- Microbial Bioremediation. 2011. P. Rajendran and P. Gunasekaran. MJP Publishers, Chennai, India.

Reference books:

- Bioremediation; Principles and Applications (Biotechnology Research). 2005. R.L. Crawford, D.L. Crawford. Cambridge University Press
- Microbial Biodegradation and Bioremediation. 2014. Surajith Das. Elsevier
- Advances in Biodegradation and Bioremediation of industrial wastes. 2015. Ram Chandra. CRC Press
- Bioremediation of Pollutants. 2020. V.C. Pandey and V. Singh. Elsevier.
- Biotechnology. 2020. U. Satyanarayana and U. Chakrapani. Books and Allied Ltd, Kolkata, India

YEAR – III	ANTIBIOTICS AND ANTIMICROBIAL RESISTANCE (For the students who are admitted in the year 2019 – 2020 and onwards)	19SMB51B
SEMESTER - V		SELF STUDY COURSE
ELECTIVE		CREDITS – 2

Objective: To make the students aware of development of resistance against antibiotics and their judicial use

Course Outcomes:

Upon successful completion of the course, the student:

CO 1: Will be able to describe various types of antimicrobial agents

CO 2: Will be able to list various antibacterial agents

CO 3: Will be able to understand the mode of action of antibacterial agents

CO 4: Will be able to explain different methods of testing antimicrobial activity

CO 5: Will be able understand drug resistance mechanisms

SEMESTER : V	COURSE CODE: 19SMB51B					COURSE TITLE: ANTIBIOTICS AND ANTIMICROBIAL RESISTANCE			HOURS : -	CREDITS : 2
	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF COs	
COURSE OUTCOME S	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3		
CO1	3.5	3.5	3	4	4	3	3.5	3.5	3.5	
CO2	3.5	3	4	4	3.5	3.5	3.5	3.5	3.6	
CO3	3.5	3.5	3.5	3	4	4	3	3.5	3.5	
CO4	4	3.5	3	3.5	3.5	3.5	4	4	3.6	
CO5	3.5	3.5	4	3.5	3.5	3.5	3.5	3.5	3.6	
Mean Overall Score									3.6	

Result: The score of this course is 3.6 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit- 1

(6 hrs)

The development of chemotherapy; General characteristics of antimicrobial drugs; Antibacterial drugs, Antifungal drugs, Antiviral drugs, Antiprotozoan drugs; The use of antibiotics in microbiological research.

Unit- 2**(6 hrs)**

Groups of antibacterial agents - β -Lactam antibiotics, Tetracyclines, Macrolides, Sulphonamides, trimethoprim and related drugs, Quinolones, Aminoglycosides, Glycopeptides, Antitubercular antibiotics, Newer antibiotics for MRSA and other Gram-positive cocci infections, Miscellaneous antibacterial antibiotics.

Unit- 3**(6 hrs)**

Mode of action of antibacterial agents - Inhibitors of cell wall synthesis, Protein synthesis inhibitors, Metabolic antagonists, Nucleic acid synthesis inhibition – Factors influencing antimicrobial drug effectiveness.

Unit- 4**(6 hrs)**

Determining the level of antimicrobial activity - Dilution Susceptibility Tests - MIC, Disk Diffusion Tests – Kirby-Bauer method, The Etest, CLSI, EUCAST.

Unit – 5**(6 hrs)**

The origin and transmission of drug resistance; Mechanisms of drug resistance; MRSA, ESBL, Carbapenemases; Antibiotic misuse and drug resistance - Antimicrobial resistance associated with foods of animal origin.

Text book:

- Pharmaceutical Microbiology. 2007 (6th Edition). W.B. Hugo & A.D. Russell. Blackwell Scientific Publications.

Reference books:

- Prescott's Microbiology. 2008 (7th Edition). Joanne M. Willey, Linda M. Sherwood and Christopher J. Woolverton. McGraw-Hill, New York.
- Antibiotics. 2019. Mary E. Wilson. Oxford University Press Inc.
- Antibiotics and Antibiotic Resistance. 2011. Ola Sköld. John Wiley & Sons, Inc.

YEAR – III	FOOD SAFETY (For the students who are admitted in the year 2019 – 2020 and onwards)	19SMB51C
SEMESTER - V		SELF STUDY COURSE
ELECTIVE		CREDITS – 2

Objective: To make the students understand basics and importance of food safety in food industry.

Course Outcomes:

Upon successful completion of the course, the student:

CO 1: Acquires knowledge of Food safety

CO 2: Understands the problem of Food Adulteration

CO 3: Becomes familiar with Food safety operations

CO 4: Describes Food Quality Indicators in foods

CO 5: Gains knowledge of Food safety management

SEMESTER: V	COURSE CODE: 19SMB51C					COURSE TITLE: FOOD SAFETY			HOURS : -	CREDITS : 2
COURSE OUTCOME S	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF Cos	
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3		
CO1	3.5	4	4	3.5	3.5	4	4	3.5	3.75	
CO2	3.5	4	3.5	4	4	3.5	4	3.5	3.75	
CO3	4	4	3.5	3.5	3.5	4	4	3.5	3.75	
CO4	3.5	4	4	3	3.5	4	3.5	3.5	3.62	
CO5	4	3.5	4	3.5	3.5	4	4	3.5	3.75	
Mean Overall Score									3.72	

Result: The score of this course is 3.72 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit I

(6 hrs)

Introduction to Food- Carbohydrates, Protein, Fat, Fibre, Vitamins, Minerals- Effect of food processing on food nutrition- Introduction to Food safety – Factors affecting food safety (Physical, Chemical and Microbial) – Safe Food – Definition – Importance of safe food – Personal Hygiene.

Unit II

(6 hrs)

Food Adulteration – Definition – common adulterants- simple methods for detection of adulterants – Food additives- classification of food additives – Functional role of food additives – safety issues of food additives- Food Packaging and Labelling.

Unit III**(6 hrs)**

Food Processing & issues: Minimal processing Technologies, Hurdle Technology – Food preservation techniques - Pickling, drying, smoking, curing, canning, bottling, Jellying, modified atmosphere, pasteurization- Issues in food Processing – organic food, GM food, Irradiated food, Freeze dried food, Functional foods.

Unit IV**(6 hrs)**

Food Surveillance & Risk analysis: Food alerts - Recent food alert, Rapid Alert system for food - Traceability – objectives of traceability, steps for application of traceability - Food Product Recall – Role of Government agencies, Recall classification - Risk assessment.

Unit V**(6 hrs)**

Food safety management: Good Hygienic Practices (GHP) – Good Manufacturing Practices (GMP)- Food plant sanitation- Hazard Analysis Critical Control Point- Key elements and use of ISO 22000 – Quality management system- ISO 9001- Documentation structure of ISO 9001: 2008, Codex Alimentarius commission (CODEX).

Textbooks

- The training manual for Food Safety Regulators. Vol.I- Food Safety regulations and food safety management. 2010. Food safety and Standards Authority of India. New Delhi.
- The training manual for Food Safety Regulators. Vol.II- Food Safety regulations and food safety management. 2010. Food safety and Standards Authority of India. New Delhi.

Reference books

- Food Analysis: Theory and Practice. 2008. Pomeraz, Y. and MeLoari, C.E. CBS publishers and Distributor, New Delhi.
- Guide to Quality Management Systems for the Food Industry. 2006. Early, R. Blackie, Academic and Professional, London.
- Manuals of Food Quality Control. 2-Additives Contaminants Techniques. 2006. FAO.

YEAR – III	ENTREPRENEURIAL MICROBIOLOGY (For the students who are admitted in the year 2019 – 2020 and onwards)	19SMB51D
SEMESTER - V		SELF STUDY COURSE
ELECTIVE		CREDITS – 2

Objective: To motivate the students to exploit the microbial techniques and resources to emerge out as an entrepreneur.

Course Outcomes:

Upon successful completion of the course, the student:

CO 1: Will understand the basic concepts of entrepreneurship in microbiology.

CO 2: Will describe different microbial products and their production methods.

CO 3: Will get knowledge about mushroom cultivation and its uses.

CO 4: Will appreciate the microbial pigments and their uses.

CO 5: Will have knowledge on biofertilizers and brewing.

SEMESTER : V	COURSE CODE: 19SMB51D					COURSE TITLE: ENTREPRENEURIAL MICROBIOLOGY			HOURS : -	CREDITS : 2
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)			MEAN SCORE OF COs	
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO2	PSO3		
CO1	2	5	4	4	3	3	3	3	3.3	
CO2	2	3	3	4	3	3	3	3	3.0	
CO3	2	4	4	4	3	3	3	3	3.2	
CO4	3	4	3	3	3	3	3	3	3.1	
CO5	3	4	4	5	4	3	3	4	3.7	
Mean Overall Score									3.2	

Result: The score of this course is 3.2 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit – 1

(6 hrs)

Introduction: Entrepreneur development – activity – Institutions involved – Government contributions to entrepreneurs – risk assessment– Qualities of an Entrepreneur – Factors influencing Entrepreneurship.

Unit - 2

(6 hrs)

Microbial products: Microbial cells as fermentation products- Baker’s yeast, food and feed yeasts, Bacterial insecticides, Legume inoculants, Algae; Enzymes as fermentation products- Bacterial and Fungal Amylases, Proteolytic Enzymes, Pectinases, Invertases and other enzymes.

Unit - 3**(6 hrs)**

Mushroom cultivation: Mushroom cultivation – edible and poisonous mushrooms – cultivation of *Agaricus campestris*, *Agaricus bisporus*, and *Volvariella volvaciae*, Preparation of compost, filling tray beds, spawning, maintaining optimal temperature, casing, watering, harvesting, storage. Mushroom recipes (Western and Indian recipes, pickles, jams etc.)

Unit - 4**(6 hrs)**

Microbial pigments: Prodigiosin – violacein and deoxyviolacein – fungal Monascin – bacterial and algal carotenoids – astaxanthin – occurrence, isolation, chemical and biological properties – Catalysis – its applications and importance.

Unit - 5**(6 hrs)**

Biofertilizers and Brewing: Biofertilizers - Historical background, Chemical fertilizers versus biofertilizers, organic farming. *Rhizobium* sp, *Azospirillum* sp, *Azotobacter* sp, as Biofertilizers. Brewing - media components, preparation of medium, microorganisms involved, maturation, carbonation, packaging, keeping quality, contamination, by-products.

Text books:

- Entrepreneurship: A south Asian Perspective. 2012 (1st Edition). Kuratko and Roa, Cengage Learning.
- Experiments in Microbiology, plant pathology Tissue culture and mushroom production technology. 2017 (6th Edition) K.R Aneja. New Age International Publication.

Reference books:

- Food microbiology. 2013 (5th Edition). William C. Frazier and Dennis C. Westhoff.
- Pigment Microbiology. 1992. Margalith P.Z. Chapman and Hall.
- Industrial Microbiology. 1986 (1st Edition) L.E. Casida. New Age Publication.

YEAR - I	BIOINFORMATICS (For those students admitted in the year 2021 – 22 and onwards)	21EPM15A
SEMESTER - I		HRS/WK - 3
ELECTIVE – I A		CREDITS - 2

Objective: To make the students familiar with recent techniques in sequence analysis using data bases.

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Will be able to describe various sequence databases and sequence analysis methods

CO2: Will understand the structural aspects of proteins *in silico*

CO3: Will be able to appreciate the significance of Comparative Genomics

CO4: Will be able to relate the basics of Functional Genomics and Proteomics with their application

CO5: Will be able to apply the concept of Pharmacogenomics in Pharma industry

SEMESTER : I	COURSE CODE: 21EPM15A				COURSE TITLE: BIOINFORMATICS				HOURS : 3	CREDITS : 2
COURSE OUTCOME S	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4		
CO1	4	3.5	4	3.5	4	4	4	4	3.9	
CO2	3.5	3.5	4	3.5	4	4	3.5	4	3.8	
CO3	3	3	4	3.5	4	4	3.5	3.5	3.6	
CO4	3	3.5	3.5	4	3.5	3.5	3	3.5	3.4	
CO5	3.5	3.5	3.5	4	4	3.5	3	4	3.6	
Mean Overall Score									3.7	

Result: The score of this course is 3.4 (High)

Association	1%- 20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit 1

(9 Hrs)

Introductory basics: Historical introduction and overview of Bioinformatics; Databases – Introduction, Nucleotide sequence databases, Protein sequence databases, Sequence motif databases, Protein structure databases, Enzyme and pathway databases, Family and domain databases; Sequence Formats; Sequence analysis – Alignment of pairs of sequences, Multiple sequence alignments; Phylogenetic tree; Database searching for similar sequences – Scoring matrices, BLAST.

Unit 2 (9 Hrs)

Structural Bioinformatics - Protein structure basics - Amino acids, Peptide formation, Secondary structures, Tertiary structures, Determination of protein three-dimensional structure; Protein structural visualization, Protein structure comparison, Protein structure classification; Protein secondary structure prediction - for globular proteins, for transmembrane proteins, Coiled coil prediction; Protein tertiary structure prediction, Methods, Homology modeling, Threading and fold recognition, Ab initio protein structural prediction, CASP.

Unit 3 : (9 Hrs)

Comparative Genomics: Purpose and Methods of comparison, Applications of Comparative Genomics - Reconstruction of metabolic pathway, Predicting regulatory elements, Identifying targets, examination of domain function, analysis of conserved strings, gene mapping and study of human diseases; Genome projects and Model Organism research – Human Genome Project, *E. coli*, Yeast, *Drosophila*, *C. elegans* and Mouse.

Unit 4 (9 Hrs)

Functional Genomics and Proteomics: Functional Genomics - Sequence-Based Approaches - SAGE; EST - clustering and assembly, EST databases (DBEST, UNIGENE), Microarray-based approaches; **Proteomics:** Technology of protein expression analysis, Post-translational modification, Protein sorting, Protein–Protein interactions.

Unit 5 (9 Hrs)

Pharmacogenomics - Introduction, Benefits, Ethical issues, Pharmacogenomics in the treatment of cancer and cardiovascular diseases as examples. Process of drug development - clinical trials phase I, II and III. High throughput screening; Phage antibody as tool.

Text Book

- Bioinformatics – Methods and Applications. 3rd Edition, 2008. S. C. Rastogi, N. Mendiratta and P. Rastogi PHI Learning Private Limited, New Delhi.

Reference Books

- Bioinformatics. 2001. David W. Mount. CBS Publishers & Distributors, New Delhi.
- Fundamental Concepts of Bioinformatics. 2003. Dan E. Krane and Michael L. Razmer. Pearson Education Inc. UK
- Microarrays for an Integrative Genomics. 2004. Ed. I.S. Kohane, A.T. Kho and A.J. Buttle. Ane Books, New Delhi.

YEAR – I	BIOSEPARATION TECHNIQUES (For those students admitted in the year 2021 – 22 and onwards)	21EPM15B
SEMESTER - I		HRS / WK - 3
ELECTIVE – I B		CREDIT - 2

Objective: To learn the fundamentals of bioseparation techniques, importance, and its need.

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Acquires knowledge about Primary Separation Techniques

CO2: Attains knowledge about Cell disruption methods

CO3: Learns about membrane technology

CO4: Gains knowledge about Chromatography

CO5: Understands the advanced separation methods

SEMESTER: I	COURSE CODE: 21EPM15B				COURSE TITLE: BIOSEPARATION TECHNIQUES				HOURS: 3	CREDITS: 2
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4		
CO1	3	3.5	4	3.5	3	3.5	3.5	4	3.5	
CO2	3	3	3.5	4	3	3.5	3	5	3.5	
CO3	3	3	3	4	3	3	4	5	3.5	
CO4	3	3.5	3	3	3.5	3	4	4	3.3	
CO5	3	4	3.5	3	4	3.5	3	5	3.6	
Mean Overall Score									3.5	

Result: The score of this course is 3.5 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating <=1	1.1<=rating <=2	2.1<=rating <=3	3.1<=rating <=4	4.1<=rating< =5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit - 1

(9 Hrs)

Primary Separation Techniques: Adsorption, extraction, precipitation, distillation, filtration and solvent evaporation, Crystallization, Freeze drying. Reverse Miscellar, mechanism extraction methods.

Unit - 2

(9 Hrs)

Cell disruption methods: Physical, chemical, mechanical methods - Thermolysis, Osmosis, Ultrasonication, alkali treatment, Detergent solubilization. Cell wall permeabilization, Enzyme digestion, bead mill disruption, High pressure homogenizer.

Unit - 3

(9 Hrs)

Membrane technology: Classification of membranes, Principle & applications; Nanofiltration, Ultrafiltration, Microfiltration; Reverse Osmosis – Process, Principle.

Unit - 4**(9 Hrs)**

Advanced Chromatography: Gel Exclusion Chromatography, High Performance Liquid Chromatography (HPLC), Gas Chromatography, LC Mass Spectrometry, Fast performance liquid chromatography.(FPLC).

Unit - 5**(9 Hrs)**

Separation methods: Immunomagnetic separation, Ultrasonication, Direct Epifluorescent filter technique, Hydrophobic grid membrane filter technique.

Text Book

- Biophysical Chemistry Principles and Techniques. 1997. Upadhyay, Upadhyay and Nath. Himalaya Publications.

Reference Books

- A Biologists guide to Principles and Techniques of Practical Biochemistry. 5th Edition, 2000. Wilson and Walker. Cambridge University Press.
- Physical Biochemistry. 2nd Edition, 1982. David Freifelder. W. H. Freeman and Company, New York.
- Ralph Rapley and John M. Walker. Molecular Biomethods. Hand book. Human Press, New Jersey.
- Rodney Boyer, Modern Experimental Biochemistry. 3rd Edition, 2000. Addison Wesley Longman, Inc.

YEAR – I	MOLECULAR TAXONOMY AND PHYLOGENY (For those students admitted in the year 2021 – 22 and onwards)	21EPM16B
SEMESTER - I		HRS / WK - 3
ELECTIVE – II B		CREDIT - 2

Objective: To make the students understand the importance of molecular taxonomy and phylogeny

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Acquires knowledge about basics of Microbial Taxonomy

CO2: Attains knowledge about Biochemical and Molecular taxonomy

CO3: Understands DNA finger printing methods

CO4: Learns about Sequence analysis methods

CO5: Gains knowledge about Molecular Phylogeny

SEMESTER: I	COURSE CODE: 21EPM16B				COURSE TITLE: MOLECULAR TAXONOMY AND PHYLOGENY				HOURS: 3	CRED ITS: 2
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4		
CO1	3	3.5	4	3.5	3	3.5	3.5	4	3.5	
CO2	3	3	3	4	3	3	3	5	3.2	
CO3	3	3	3	4	3	3	4	5	3.5	
CO4	3	3.5	3	3	3.5	3	4	4	3.3	
CO5	3	4	3.5	3	4	3.5	3	5	3.6	
Mean Overall Score									3.4	

Result: The score of this course is 3.4 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating <=1	1.1<=rating< =2	2.1<=rating< =3	3.1<=rating< =4	4.1<=rating< =5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit - 1

(9 Hrs)

Microbial Taxonomy: Introduction of microbial taxonomy - morphological taxonomy, biochemical taxonomy, molecular taxonomy, Numerical taxonomy, Morphological phylogeny.

Unit - 2

(9 Hrs)

Biochemical and Molecular taxonomy: Chemotaxonomy - Fatty acid, Protein finger printing; Isozyme typing; Molecular taxonomy - G+C content, DNA-DNA hybridization; Plasmid profiles, RFLP, RAPD, STRR & LTRR-r RNA based finger printing methods.

Unit - 3**(9 Hrs)**

16S r RNA based finger printing: Types of r RNA-23S r RNA, 16S r RNA and 5S r RNA-Importance of 16S r RNA in microbial identification and taxonomy-Methods of 16S r RNA/r DNA fingerprinting - amplification of 16S r DNA using PCR-Plasmid isolation-Dot blot/Southern blot hybridization using specific probes-sequencing of 16S r DNA using chain termination method.

Unit - 4**(9 Hrs)**

Sequence analysis: Submission of r DNA sequences in Gen Bank-Bankit& sequin guidelines-NCBI, EMBL, DDBJ - Retrieving sequences; Designing primers and probes; Sequence comparison-Alignment and data base searching – ClustalW, FASTA, BLAST; DNA barcoding.

Unit-5**(9 Hrs)**

Molecular Phylogeny: Introduction to molecular phylogeny - tree terminology, software programs for making phylogenetic trees - MEGA, PHYLIP, Cladogram –additive trees, ultrametric trees, rooted trees, unrooted trees and tree shapes.

Text book

- Molecular Evolution: A Phylogenetic Approach. 1998. Roderic D.M. Page, Edward C. Holmes. Blackwell publishing, USA.

Reference Books

- Functional microbial genomics – Vol-33 - Methods in Microbiology. 2002. Brendan Wren, Nick Dorrel. Academic press, UK.
- Principles of Genome analysis: A guide to mapping and sequencing DNA from different organisms. 1998. S.B. Primrose.
- Principles of Genome analysis and Genomics. 2005. Sandy B Primrose Richard m.Twynam. Blackwell Publishing, USA.

YEAR – I	RESEARCH METHODOLOGY (For those students admitted in the year 2021 – 22 and onwards)	21EPM25A
SEMESTER - II		HRS / WK - 3
Elective – III A		CREDIT - 2

Objective: To make the students understand the concept behind designing the research, data collection and data analysis using statistical methods.

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Acquires knowledge about Research and Experimental designs

CO2: Becomes familiar with Citation and Impact factor

CO3: Learns about preparing Research Report

CO4: Understands the role of committees in biological research

CO5: Gains knowledge about General Laboratory Procedures

SEMESTER: II	COURSE CODE: 21EPM25A				COURSE TITLE: RESEARCH METHODOLOGY				HOURS: 3	CREDITS: 2
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4		
CO1	4	3.5	4	3.5	4	4	4	4	3.87	
CO2	3.5	3.5	4	4	4	3.5	3.5	4	3.75	
CO3	4	3.5	4	4	3.5	4	4	4	3.56	
CO4	3	3.5	3.5	4	4	3	3	3.5	3.87	
CO5	3.5	3.5	3.5	3.5	4	3.5	3	3.5	3.50	
Mean Overall Score									3.71	

Result: The score of this course is 3.71 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit 1

(9 Hrs)

Research – Definition – Experimental designs - Identification, Selection and formulation of research problem – Research questions – Research Hypothesis.

Unit 2

(9 Hrs)

Literature Collection – Literature Citation - Major search engines - Major Websites, book and scientific information – Journals – Impact factor.

Unit 3

(9 Hrs)

Research Report – Components of a Research Report – Authors and Addresses – Abstract – Synopsis – Key words – Introduction – Materials and Methods – Results – Discussion – Acknowledgements – Summary and Conclusions – Appendixes – References - Title – Tables – Figures – Formatting and Typing.

Unit 4**(9 Hrs)**

Biological research - Institutional Ethical committee – Animal ethical committee – Use of laboratory animals in research - Laboratory animal management.

Unit 5**(9 Hrs)**

General Laboratory Procedures – pH, Buffers, Electrodes and Biosensors – Estimation of Carbohydrates (Bradford Method) – Protein (Lowry Method) – Lipid (Soxlet Method) – Nucleic Acid (Spectrophotometry) – Techniques for Sample Preparation.

Text Books

- Research Methodology: For Biological Sciences. Dr. N. Gurumani. 2006, MJP Publishers.
- Biophysical Chemistry Principles and Techniques. Upadhyay, Upadhyay and Nath. 1997. Himalaya Publications.

Reference Books

- Y. K. Singh and R. B. Bajpai, Research Methodology Data Presentation, 2008. APH Publishing Corporation, New Delhi.
- Modern Experimental Biochemistry. 3rd Edition, 2000. Rodney Boyer. Addison Wesley Longman, Inc.
- A Biologists guide to Principles and Techniques of Practical Biochemistry. 5th Edition, 2000. Wilson and Walker. Cambridge University Press.
- Physical Biochemistry. 2nd Edition, 1982. David Freifelder. W. H. Freeman and Company, New York.

YEAR – I	VETERINARY MICROBIOLOGY (For those students admitted in the year 2021 – 22 and onwards)	21EPM25B
SEMESTER - II		HRS/WK - 3
ELECTIVE – III B		CREDIT - 2

Objective: To learn about the different diseases caused in animals by various animal pathogens, treatment and its control measures.

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Acquires knowledge about bacteria causing animal disease

CO2: Gets knowledge about Pathogenic fungi causing diseases in animal

CO3: Learns about parasitic infections in animals

CO4: Understands the properties of viruses and their cultivation

CO5: Gains knowledge about viral infections in animals

SEMESTER: II	COURSE CODE: 21EPM25B				COURSE TITLE: VETERINARY MICROBIOLOGY				HOURS: 3	CREDITS: 2
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4		
CO1	4	3.5	4	3.5	3.5	4	3.5	4	3.75	
CO2	3.5	3.5	4	4	4	3.5	3.5	4	3.75	
CO3	4	3.5	4	4	3.5	4	4	4	3.56	
CO4	3	3.5	3.5	4	4	3	3	3.5	3.87	
CO5	3.5	3.5	3.5	4	4	3.5	3	4	3.62	
Mean Overall Score									3.71	

Result: The score of this course is 3.71 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit-1

(9 Hrs)

General characteristics of bacteria causing animal disease - Pathogenic bacteria - Defense mechanism of the host – Actinobacillosis – Anthrax – Tuberculosis - Bovine mastitis - symptoms, diagnosis, treatment and control - Haemorrhagic septicaemia.

Unit-2

(9 Hrs)

Pathogenic fungi - Characteristics epidemiology of fungal diseases - Types of fungal diseases, symptoms, diagnosis, treatment and control of Mycotic diseases of animals.

Unit-3

(9 Hrs)

Definition - Parasites, host, vector, parasitism, effect of parasitism on the host - protozoan parasites - Trypanosomes, *Leishmania*, *Plasmodium* - diagnosis, treatment and control. Miscellaneous protozoan parasites - Amoebae, Ciliates.

Unit-4**(9 Hrs)**

General properties of virus, purification of virus particles and reaction of viruses to physical and chemical agents Classification, cultivation and replication of viruses. Viral genetics and interaction. Viral haemagglutination, interference and inclusion bodies. Oncogenic and latent viruses.

Unit-5**(9 Hrs)**

Picornavirus group - Foot and Mouth disease virus - Enteroviruses of animals - Reovirus group - African horse sickness virus - Blue tongue virus. Toga virus group - Swine fever viruses - Mucosal disease virus - Paramyxovirus group, Pseudo virus group, Bovine Rhinotracheitis virus.

Text Book

- Text book of Veterinary Microbiology. S.N.Sharma and S.C. Adlakha. Vikas publishing house. Pvt. Ltd.

Reference Books

- Veterinary Microbiology and Microbial Disease. 2nd Edition. P.J. Quinn. B.K. Markey. F.C. Leonard. Wiley-Blackwell publishers.
- Veterinary Microbiology. 2nd edition. Dwight C. Hirsh, N. James MacLachlan. Richard L. Walker. Wiley-Blackwell publishers.
- Veterinary Microbiology. 3rd Edition. D. Scott Mc Vey. Melissa Kennedy, M. Chengappa. Wiley-Blackwell publishers.

YEAR – I	METHODS IN BIOLOGY (For those students admitted in the year 2021 – 22 and onwards)	21EPM26A
SEMESTER - II		HRS / WK - 3
ELECTIVE – IV A		CREDIT - 2

Objective:

To make the students familiar with techniques routinely used in bio sciences

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Acquires the knowledge about the study of advanced techniques in biology

CO2: Gains the knowledge about the biophysical techniques used to detect functional structure of biological samples

CO3: Gets insight knowledge about radioisotopes and its application

CO4: Gets depth insights about the electrophysiological methods.

CO5: Acquires the knowledge about the animal population and migration through remote sensor technique.

SEMESTER: II	COURSE CODE: 21EPM26A				COURSE TITLE: METHODS IN BIOLOGY				HOURS: 3	CREDITS: 2
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4		
CO1	4	3.5	4	3.5	4	4	4	4	3.87	
CO2	3.5	3.5	4	4	4	3.5	3.5	4	3.75	
CO3	4	3.5	4	4	3.5	4	4	4	3.56	
CO4	3	3.5	3.5	4	4	3	3	3.5	3.87	
CO5	3.5	3.5	3.5	3.5	4	3.5	3	3.5	3.50	
Mean Overall Score									3.71	

Result: The score of this course is 3.71 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit 1

(9 Hrs)

Biophysical methods: Analysis of biomolecules using UV/visible, fluorescence, atomic force microscope, circular dichroism, NMR and ESR spectroscopy

Unit 2

(9 Hrs)

Biophysical methods: structure determination using X-ray diffraction, X-ray photoelectron spectroscopy; analysis using light scattering, different types of mass spectrometry, Optical Tweezers

Unit 3

(9 Hrs)

Radiolabeling techniques: Properties of radioisotopes, their detection and measurement; incorporation of radioisotopes in biological tissues and cells, molecular imaging of radioactive material, safety guidelines for removal of radioactive wastes.

Unit 4**(9 Hrs)**

Electrophysiological methods: Single neuron recording, patch-clamp recording, ECG, Brain activity recording, lesion and stimulation of brain, pharmacological testing, PET, MRI, fMRI, CAT

Unit 5**(9 Hrs)**

Methods in field biology: Methods of estimating population density of animals and plants, ranging patterns through direct, indirect and remote observations, sampling methods in the study of behavior, habitat characterization-ground and remote sensing methods.

Text Book

- Biophysical Chemistry Principles and Techniques, (4th Edition) Upadhyay, Upadhyay and Nath, 2009, Himalaya Publications, India

Reference Book

- A Biologists guide to Principles and Techniques of Practical Biochemistry, (8th Edition), Wilson and Walker, 2018, Cambridge University Press.
- Physical Biochemistry, (2nd Edition) David Freifelder, 1982, W. H. Freeman and Company, New York.
- Modern Experimental Biochemistry (3rd Edition) Boyer, R. 2000, Addison Wesley Longman.
- Fundamentals and Techniques of Biophysics and Molecular Biology, (1st edition), Pranavkumar, 2016, Pathfinder Publication, New Delhi.
- Biophysics Tools and Techniques, (1st edition), Mark C. Leake, 2016, CRC press. UK

YEAR – I	MEDICAL LAB TECHNOLOGY (For those students admitted in the year 2021 – 22 and onwards)	21EPM26B
SEMESTER - II		HRS/WK - 3
ELECTIVE – IV B		CREDIT - 2

Objective: To orient students towards diagnosis of diseases in hospital setting.

Course Outcomes:

Upon successful completion of the course, the student:

- CO1:** Gains knowledge on basic hematology and blood disorders
- CO2:** Gets detailed information about the blood banking systems and preservation process
- CO3:** Gets information on the setup of modern clinical laboratories
- CO4:** Understands the preparation of reagents and buffer solutions in the laboratories
- CO5:** Understands the methods of isolating and identification of bacterial pathogens in the clinical labs

SEMESTER : II	COURSE CODE: 21EPM26B				COURSE TITLE: MEDICAL LAB TECHNOLOGY				HOURS: 3	CREDITS: 2
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4		
CO1	4	3.5	4	3.5	4	4	4	4	3.87	
CO2	3.5	3.5	4	4	4	3.5	3.5	4	3.75	
CO3	4	3.5	4	4	3.5	4	4	4	3.56	
CO4	3	3.5	3.5	4	4	3	3	3.5	3.87	
CO5	3.5	3.5	3.5	4	4	3.5	3	4	3.62	
Mean Overall Score									3.73	

Result: The score of this course is 3.73 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit-1

(9 Hrs)

Basic Haematology: Composition of blood and its functions, Origin, Development, and morphology of Blood cells, Basic concepts of Anaemia, Leukaemia, and hemorrhagic disorder; Haematocrit, ESR, blood volume measurements. RBC, WBC & platelet counts, Functions of WBC and platelets. Basis of blood coagulation; Blood groups – ABO & Rh.

Unit-2

(9 Hrs)

Blood banking & Immunohaematology: Methods of estimation of Haemoglobin, Methods of determination of PCV, Blood transfusion and hazards; Requirement of Blood Collection - Blood collection - Phlebotomy - Sampling errors - Collection and preservation of biological fluids - Anticoagulants - Preservation of samples - Chemical preservatives - Process of analysing the specimens - The laboratory report.

Unit-3**(9 Hrs)**

Introduction to Clinical laboratory: The use of the laboratory - Basic laboratory principles - Code of conduct of medical laboratory personnel - Organization of clinical laboratory and role of medical laboratory technician - Safety measures - Medical laboratory professional and professionalism in laboratory workers - clinic borne infection and personnel hygiene.

Unit-4**(9 Hrs)**

Preparation of Reagents & Quality control: Buffer and pH- Preparation of reagents : Normal, per cent and Molar solution - normal saline - Methods of measuring liquids - Clinical Laboratory records; Modern Laboratory set up; Quality control: Accuracy, Precision, and Reference values.

Unit-5**(9 Hrs)**

Approaches to diagnosis of infectious diseases: Isolation of bacteria from mixed culture. Study of morphological, cultural, biochemical characteristics of common bacterial pathogen; Composition and use of important differential media for identification of pathogenic bacteria EMB agar, McConkey agar, TCBS agar and *Salmonella - Shigella* agar and blood culture media.

Text Book

- Textbook of Medical Lab Technology. 3rd Edition, 2016. Praful B. Godkar and Darshan B. Godkar.

Reference Books

- Medical Laboratory Technology Methods and Interpretations. Volume 1 & 2, 6thedition. 2009. RamnikSood. Jaypee Brothers Medical Publishers.
- Bailey and Scott's Diagnostic Microbiology, 12thedition 2007. Betty A. Forbes, Daniel F. Sahn and Alice S. Weissfeld. Mosby Elsevier Publishers, ISBN-13: 978-0808923640.
- Medical Laboratory Technology, Vol.1-3. 3rd Edition, 2017. Mukherjee L. K. Tata Mcgraw Hill.
- Microbiology: A Laboratory Manual. 10th Edition, 2013. James Cappuccino and Natalie Sherman, Benjamin Cummings.
- Wintrobe's Clinical Haematology. 13thedition, 2014. Lippincott Williams & Wilkins.

YEAR - I	FUNDAMENTALS OF MICROBIOLOGY (For those students admitted in the year 2021 – 22 and onwards)	21PMB11
SEMESTER - I		HRS/WK - 4
CORE - 1		CREDITS - 4

Objective: To make the students understand the Fundamental Principles of Microbiology

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Acquires knowledge about History of Microbiology and Bacterial taxonomy

CO2: Attains knowledge about Microscopy and Staining techniques

CO3: Learns about Prokaryotic cell structure and function

CO4: Understands the Characteristics and importance of fungi, algae, protozoa, viruses

CO5: Gains knowledge about Sterilization and Antimicrobial therapy

SEMESTER : I	COURSE CODE: 21PMB11				COURSE TITLE: FUNDAMENTALS OF MICROBIOLOGY				HOURS : 4	CREDITS : 4
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4		
CO1	4	4	4	4	4	4	4	4	3.5	
CO2	4	4	4	4	4	4	4	4	3.5	
CO3	4	4	4	4	4	4	4	4	3.5	
CO4	4	4	4	3	4	4	4	3	3.25	
CO5	4	4	4	3	4	4	4	3	3.25	
Mean Overall Score									3.4	

Result: The score of this course is 3.4 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit- 1

(12 Hrs)

Introduction to Microbiology: Scope of Microbiology (Employability and Entrepreneurship) - History of Microbiology; Microbial Evolution; Taxonomy: Three-kingdom classification system - Five-kingdom classification system - Three-domain classification system - Taxonomic ranks - Techniques for determining microbial taxonomy and phylogeny - Classification and salient features of bacteria according to Bergey's Manual of Determinative Bacteriology.

Unit- 2

(12 Hrs)

Microscopy: Light Microscopy - Bright-field microscopy, Dark-field microscopy, Phase-contrast microscopy, Fluorescence microscopy and Confocal microscopy; Electron Microscopy - Transmission electron microscopy, Scanning electron microscopy and Scanning Tunneling Microscopy; Techniques for light microscopy: Preparation of specimens for light microscope; Staining techniques – simple, differential and special methods.

Unit- 3**(12 Hrs)**

Prokaryotic cell structure: Size, shape and arrangement of bacterial cells; Structures external to the cell wall – capsule and slime layers, pili and fimbriae; flagella; Cell wall – composition and characteristics; Structures internal to the cell wall – plasma membrane, cytoplasm, nucleoid, ribosomes, inclusions and endospores.

Unit- 4**(12 Hrs)**

Fungi: Characteristics, morphology, reproduction, cultivation, classification; Lichens; **Algae:** occurrence, characteristics – classification, biological and economic importance; **Protozoa:** General characteristics, classification; Slime molds; **Viruses:** General characteristics, structure and composition, viral multiplication, cultivation, classification; Viroids and virusoids; Prions.

Unit- 5**(12 Hrs)**

Sterilization and disinfection: Physical agents – heat, filtration, radiation; Chemical agents – phenolics, alcohols, halogens, heavy metals, quaternary ammonium compounds, aldehydes and sterilizing gases. **Antimicrobial therapy:** Antibacterial agents - antifungal agents - antiprotozoan agents - antihelminthic agents – antiviral agents.

Text Book

- Prescott's Microbiology. 10th Edition, 2016. Willey J., Sherwood L., Woolverton C.J. McGraw Hill Education, New York.

Reference Books

- Principles of Microbiology. 2nd Edition, 1997. Atlas R.M. William C Brown Publishers, New York.
- Microbiology. 5th Edition, 2006. Pelczar T.R., Chan E.C.S. and Krieg N.R. Tata McGraw-Hill, New Delhi.
- Foundations in Microbiology. 8th Edition, 2001. Talaro K.P. and Chess B. McGraw Hill Companies, New York.
- Microbiology: Principles and Explorations. 8th Edition, 2012. Black J.G. 2012. John Wiley & Sons, Inc., Hoboken, New Jersey.
- Microbiology: An Introduction. 10th Edition, 2010. Tortora G.J., Funk B.R. and Case C.L. Benjamin Cummings, San Francisco.

YEAR - I	IMMUNOLOGY ((For those students admitted in the year 2021 – 22 and onwards))	21PMB12
SEMESTER - I		HRS/WK - 4
CORE - 2		CREDITS - 4

Objective: To make the students understand Immune system and its functions.

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Acquires knowledge about the Immune system and its functions.

CO2: Gains knowledge about Serological and Hematological techniques.

CO3: Understands the mechanisms and functions of MHC.

CO4: Learns the Immunological process of transplantation and cancer.

CO5: Learns the importance of polyclonal and monoclonal antibody production.

SEMESTER: I	COURSE CODE: 21PMB12				COURSE TITLE: IMMUNOLOGY				HOU RS: 4	CRED ITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4		
CO1	3.5	3	4	5	4	4	4	5	4.6	
CO2	3	3	3.5	3.5	3	3	4	4.5	3.4	
CO3	2	3	3	4	4	3	4.5	5	3.5	
CO4	4	2	3	3.5	4	3.5	3.5	4	3.4	
CO5	3	2.5	3.5	4	4	3.5	4	4.5	3.6	
Mean Overall Score									3.7	

Result: The score of this course is 3.7 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating <=1	1.1<=rating< =2	2.1<=rating <=3	3.1<=rating< =4	4.1<=rating< =5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit - 1:

(12 Hrs)

History of Immunology; Overview of the immune system - Cells and organs of the immune system; Antigens – immunogenicity and antigenicity, haptens, adjuvants, vaccines; Immunoglobulins - structure and classes.

Unit - 2:

(12 Hrs)

Immunohaematology - Blood groups, blood transfusion, Rh incompatibilities; Antigen-Antibody reactions - Complement fixation, Immunofluorescence, ELISA, RIA, Flow cytometry.

Unit - 3:

(12 Hrs)

Host-Parasitic relationships - Microbial infections, Virulence and host resistance; Innate and acquired immunity – MHC molecules – Endogenous, Exogenous pathway; T-cell receptors, T-cell maturation, activation and differentiation; B-cell generation, activation and differentiation; Cell mediated Immunity – Lymphokines and Cytokines.

Unit - 4:**(12 Hrs)**

Complement pathways – Classical, Alternate and Lectin pathway; Hypersensitivity – Types and Mechanisms; Basic concepts of Autoimmunity – Brief account of autoimmune diseases; Immunodeficiency; Transplantation immunology – immunological basis of graft rejection, immunosuppressive therapy; Cancer and the immune system.

Unit - 5:**(12 Hrs)**

Antibody production -Production of polyclonal antibodies; antibody titre assay; Separation and Identification of protein or antigen; Hybridoma technology - Monoclonal antibodies, Antibody engineering; IgY antibodies and their applications.

Text Book

- Kuby Immunology. 4th Edition, 2000. Goldsby, R.A., T. J. Kindt and B. A. Osborne. W. H. Freeman and Company, New York.

Reference Books

- Text book of Microbiology and Immunology. 2nd Edition, 2012. Subash Chandra Parija. Reed Elsevier India Pvt. Ltd., India.
- Text book of Microbiology. 12th Edition, 2017. Ananthanarayanan R and Panicker C.K. Universities Press (India) Private Ltd, Hyderabad, India.
- Essential Immunology. 8th Edition, 2011. Roitt I. M. Wiley Blackwell, UK.
- Medical Immunology. 6th Edition, 2007. Gabriel Virella. Informa Healthcare, USA.
- Immunology. 4th Edition, 1995. Tizard, I. R. Saunders College Publishing, USA.

YEAR - I	MICROBIAL GENETICS (For those students admitted in the year 2021 – 22 and onwards)	21PMB13
SEMESTER - I		HRS/WK - 4
CORE - 3		CREDITS - 4

Objective: To make the students understand the basics of Microbial genetics and Mechanisms of gene expression.

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Understands the components of Nucleic acids and its types

CO2: Understands gene expression and regulation

CO3: Gains knowledge of different kinds of mutations and role of viruses in oncogenesis

CO4: Knows different gene transfer mechanisms in bacteria

CO5: Acquires knowledge about phage life cycles and its genetics

SEMESTER: I	COURSE CODE: 21PMB13				COURSE TITLE: MICROBIAL GENETICS				HOURS: 4	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)				PROGRAMME SPECIFIC OUTCOMES(PSO)				MEAN SCORE OF Cos	
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4		
CO1	4	3.5	4	3.5	4	4	4	4	3.87	
CO2	3.5	3.5	4	4	4	3.5	3.5	4	3.75	
CO3	3	3	4	3.5	4	4	3.5	3.5	3.56	
CO4	3	3.5	3.5	4	4	3	3	3.5	3.43	
CO5	3.5	3.5	3.5	4	4	3.5	3	4	3.62	
Mean Overall Score									3.64	

Result: The score of this course is 3.64 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit – 1

(12 Hrs)

Nucleic acids – Components, Nucleic acids as a genetic material, Griffith and Hershey and Chase experiments; DNA structure and forms; RNA – types and functions; Denaturation and Renaturation; Plasmids and their types; Organization of Prokaryotic and Eukaryotic genetic material; Replication of DNA - methods, enzymes involved; DNA damage and Repair.

Unit – 2

(12 Hrs)

Gene concept - Gene expression – Transcription – Mechanism, Post transcriptional modifications in Prokaryotes and Eucaryotes; Translation – the genetic code – overlapping genes – polypeptide synthesis, Post translational modifications - Gene regulation- ‘Lac’ and ‘Trp’ operons.

Unit – 3**(12 Hrs)**

Mutation - Types, Mutagens, Mutagenesis; Biochemical basis of Mutations – Spontaneous and Induced; Gene as a unit of mutation; Oncogenes and Cancer - Transforming viruses carrying oncogenes - Retroviral oncogenes - Immortalization & transformation; Reversion, suppression, genetic analysis of mutants; Transposons.

Unit – 4**(12 Hrs)**

Gene transfer mechanisms - Bacterial transformation (detection of transformation, development of competence, mechanism of transformation, transfection); Conjugation - effective contact and pili in conjugation, F-factor, the conjugal transfer process; high frequency recombination (Hfr) strains; the order of chromosome transfer; formation of F prime (F').

Unit – 5**(12 Hrs)**

Genetics of Bacteriophages – General properties, phage life cycles, phage counting, Host restriction and modification - **Phage genetics I:** phage T4 – Phage mutants, Genetic mapping of phage T4, features of the T4 life cycle. **Phage genetics II:** phage λ – λ DNA and its gene organization, outline of the life cycle of λ , λ DNA replication and phage production, recombination in the λ life cycle. **Phage genetics III:** Lysogeny – Immunity and repression, lysogenization and prophage insertion, prophage excision, Polylysogeny. **Phage genetics IV:** Transduction – DNA transfer by means of transduction, cotransduction and linkage, properties of specialized transducing particles.

Text book

- Molecular Biology. Freifelder, D. 2008. Narosa Publishing House, New Delhi.

Reference Books

- Molecular Biology. 3rd Edition, David P. Clark, Nanette J. Pazdernik and Michelle R. McGehee. Academic Cell, USA
- Molecular Cell Biology. 2021. Lodish, H., Berk, A., Kaiser, C.A., Krieger, M., Bretscher, A., Ploegh, H., Martin, K.C., Yaffe, M. and Amon, A. WH Freeman & Co.
- Genes VIII. Lewin B. 2004. Oxford University Press.
- Molecular Biology. 4th Edition, 2008. Robert F. Weaver. McGraw – Hill Publishers.
- Modern Microbial Genetics. 2nd Edition, 2002. Streips, U. N. and R. E. Yasbin. Wiley-Liss, Inc., New York.

YEAR - I	MICROBIAL ECOLOGY (For those students admitted in the year 2021 – 22 and onwards)	21PMB14
SEMESTER - I		HRS/WK - 4
CORE - 4		CREDITS - 4

Objective: To make the students understand the importance of microorganisms in ecology and their applications.

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Gains knowledge about the basics of microbial ecology

CO2: Acquires knowledge about microbial interactions in various ecosystems

CO3: Understands the role of microorganisms in cycling of nutrients and biodegradation of pollutants

CO4: Gains knowledge about role of microorganisms in wastewater treatment

CO5: Acquires knowledge about quantitative studies and microbial applications in environment

SEMESTER : I	COURSE CODE: 21PMB14				COURSE TITLE: MICROBIAL ECOLOGY				HOURS : 4	CREDITS : 4
COURSE OUTCOME S	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4		
CO1	4	3	4	4	4	4	3	3	3.62	
CO2	4	4	4	3	4	4	3	4	3.75	
CO3	4	3	4	3	4	4	4	3	3.62	
CO4	4	4	4	3	3	4	4	4	3.75	
CO5	4	4	4	3	4	4	3	4	3.75	
Mean Overall Score									3.70	

Result: The score of this course is 3.7 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit – 1

(12 Hrs)

Microbial communities – terminology, ecological hierarchy, ecological niche; Microbial colonization - energy flow in ecosystem - Environmental factors affecting microbial populations; Adaptation of microorganisms in various ecosystem – Atmosphere - Microbiology of air, droplet nuclei, aerosols, enumeration of microorganisms in air, air sanitation, Laboratory hazards, airborne diseases.

Unit – 2

(12 Hrs)

Interaction of microorganisms with their physical and chemical environments; marine ecosystem - mangroves, estuaries, deep seas and hydrothermal vents; fresh water ecosystem - lakes, rivers, ponds; terrestrial ecosystem - rock and soil, prairie, forest, tundra; extreme environments - hot springs, glaciers and acid-mine drainage; interaction of microorganisms with plants, animals and microorganisms.

Unit – 3**(12 Hrs)**

Biogeochemical cycles - carbon, nitrogen, sulfur, iron, and phosphorus cycles; adaptation of microorganisms to toxic pollutants; biodegradation of xenobiotics (pesticides, heavy metals, hydrocarbons) – mechanisms.

Unit – 4**(12 Hrs)**

Waste water treatment - primary, secondary (anaerobic and aerobic - trickling, activated sludge, oxidation pond), Sludge digestion, Disposal; Drinking water treatment – chlorination; Microbiological standards of water; Water pollution - indicators of water pollution - BOD – COD - techniques for the study of water pollution; Waterborne diseases.

Unit – 5**(12 Hrs)**

Quantitative microbial ecology - Culture based methods and molecular based methods; Composting – landfills; Bioleaching of metals; Biodeterioration of paint, textile and leather; biofouling; Biofilms; Microbial enhanced oil recovery.

Text Book

- Microbial Ecology - Fundamental and Applications. 4th Edition, 1998. Atlas & Bartha, Benjamin/ Curmmings Publishing Company, Inc., California

Reference Books

- Environmental Microbiology. 1981. Grant W. D. and Long P.E. Blackie and Son Ltd., Glasgow.
- Aquatic Microbiology. 2nd Edition, 1980. Rheinheimer, G. Jhon Wiley & Sons. New York.
- Environmental Aspects of Microbiology. 1996. Joseph C. Daniel. Brightsun Publications, Chennai.
- Environmental Microbiology. 2nd Edition, 2016. Mitchell, R and J.I. DongGu. John Wiley, New York.

YEAR - I	MICROBIAL PHYSIOLOGY (For those students admitted in the year 2021 – 22 and onwards)	21PMB21
SEMESTER - II		HRS/WK - 4
CORE - 5		CREDITS - 4

Objective: To enable students to understand the physiology of microorganisms.

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Acquires knowledge about microbial nutrition and pure culture methods.

CO2: Attains knowledge about microbial growth.

CO3: Learns about bioenergetics, enzymes and redox.

CO4: Gains knowledge about catabolism.

CO5: Gains knowledge about anabolism.

SEMESTER: II	COURSE CODE: 21PMB21				COURSE TITLE: MICROBIAL PHYSIOLOGY				HOURS: 4	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4		
CO1	3.5	3.5	4	3.5	4	3.5	4	3.5	3.68	
CO2	3	3.5	4	3.5	3.5	4	3.5	4	3.62	
CO3	3.5	4	4	3.5	4	3.5	4	3.5	3.75	
CO4	3.5	3.5	3.5	3.5	4	4	3.5	4	3.68	
CO5	4	4	3	3	4	3	3.5	4	3.56	
Mean Overall Score									3.66	

Result: The score of this course is 3.66 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit - 1

(12 Hrs)

Microbial Nutrition: Nutritional requirements; Nutritional types of microorganisms; Growth factors; Uptake of nutrients – passive diffusion, facilitated diffusion, active transport, group translocation and iron uptake; Bacteriological media – types of media; Isolation of pure cultures – streak plate, pour plate and spread plate; Methods of maintenance and preservation of microorganisms; Culture collections.

Unit - 2

(12 Hrs)

Microbial Growth: Growth curve of bacteria– phases of growth, synchronous growth, mathematics of growth; Measurement of microbial growth; Continuous culture of microorganisms – chemostat and turbidostat; Influence of environmental factors on growth – solutes and water activity, pH, temperature, oxygen concentration, pressure and radiation; Microbial growth in natural environments – biofilms, cell-cell communication within microbial populations.

Unit - 3

(12 Hrs)

Introduction to Metabolism: Energy and work, Laws of thermodynamics, Free energy and reactions, ATP, oxidation-reduction reactions, Electron transport chains, Enzymes, Ribozymes, Regulation of metabolism, Post translational regulation of enzyme activity.

Unit - 4**(12 Hrs)**

Catabolism: Aerobic respiration; Glycolysis - Embden-Meyerhof pathway, Pentose phosphate pathway and Entner-Doudoroff pathway; Tricarboxylic acid cycle; Electron transport and oxidative phosphorylation; Anaerobic respiration; Fermentation; Catabolism of carbohydrates and intracellular reserve polymers; Lipid catabolism; Protein and aminoacid catabolism, chemolithotrophy; Phototrophy.

Unit - 5**(12 Hrs)**

Anabolism: Carbon di oxide fixation; Synthesis of sugars and polysaccharides; Synthesis of aminoacids; Synthesis of purines, pyrimidines and nucleotides; Lipid synthesis.

Text Book

- Microbial Physiology. 2002 (4th Edition). Moat AG, Foster JW, Spector MP. Wiley-Liss, Inc., New York.

Reference Books

- Microbial Physiology and Metabolism. 1995. Caldwell D.R. McGraw Hill Education, USA.
- Bacterial Physiology and Metabolism. 1st Edition, 2008. Kim B.H. and Gadd G.M, Cambridge University Press, Cambridge.
- Microbial Physiology. 1992 (2nd Edition). Dawes I.W. and Sutherland I.W. Blackwell Scientific Publications, London.
- Advances in Microbial Physiology. 2016 (1st Edition). Robert Poole K. Academic Press, London.
- The Physiology and Biochemistry of Prokaryotes. 2011 (4th Edition). White D., Drummond J. and Fuqua C. Oxford University Press, London.

YEAR - I	FERMENTATION TECHNOLOGY (For those students admitted in the year 2021 – 22 and onwards)	21PMB22
SEMESTER - II		HRS/WK - 4
CORE - 6		CREDITS - 4

Objective: To make the students familiar with Microbiological techniques and applications in fermentation industry.

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Imparts knowledge on bioprocess techniques and fermenter design

CO2: Learns the basic operations of fermenter

CO3: Acquires knowledge about Strain development, preservation and media formulation

CO4: Gets familiar with product recovery

CO5: Gains knowledge about stoichiometry of cell growth and product formation.

SEMESTER: II	COURSE CODE: 21PMB22				COURSE TITLE: FERMENTATION TECHNOLOGY				HOURS: 4	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4		
CO1	3.5	4	4	3.5	4	3.5	4	3.5	3.8	
CO2	4	4	4	3.5	4	3.5	2.5	3	3.6	
CO3	4	3.5	3.5	3.5	4	4	3	4	3.7	
CO4	3.5	4	3	3.5	4	3.5	3	3	3.4	
CO5	4	3.5	4	4	4	4	3	3.5	3.8	
Mean Overall Score									3.7	

Result: The score of this course is 3.7 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit – 1

(12Hrs)

Historical development of bioprocess technology, outline of an integrated bioprocess and the various (upstream and downstream) unit operations involved in bioprocesses, generalized process flow sheets - General requirements of fermentation processes, Basic design and construction of fermentor and ancillaries - aerator, agitator, valves. steam traps, stirrer and seals; Main parameters to be monitored and controlled in fermentation processes - asepsis and containment requirements - body construction and temperature, pH control - aeration and agitation systems.

Unit – 2

(12 Hrs)

Sterilization of fermentor; Design of sterilization equipment - aseptic inoculation methods, sampling methods - valve systems - monitoring and control devices and types of fermentors – An overview of aerobic and anaerobic fermentation processes and their application in the biotechnology industry; solid-substrate fermentation and its applications.

Unit – 3**(12 Hrs)**

Screening and strain development strategies – preservation of industrially important microorganisms - Fermentation media - Desired qualities - Medium requirements for fermentation processes, Carbon, nitrogen, minerals, vitamins and other complex nutrients, oxygen requirements, media formulation strategies - formulation of optimal growth and product formation, examples of simple and complex media; role of buffers, precursors, inhibitors, inducers and antifoams - design and usage of various commercial media for industrial fermentations - Sterilization methods – Batch and Continuous sterilization of medium and air - thermal death kinetics of microorganisms - filter sterilization of liquid media, air.

Unit – 4**(12 Hrs)**

Downstream process - Objectives and criteria - foam separation - precipitation methods - filtration devices and filter aids - industrial scale centrifugation and cell disruption methods - liquid-liquid extraction - solvent recovery – chromatography - two-phase aqueous extraction - ultrafiltration, drying devices, crystallisation and whole broth processing-Product formulation Fermentation economics.

Unit – 5**(12 Hrs)**

Stoichiometry of Cell growth and product formation, degrees of reduction of substrate and biomass, yield coefficients of biomass and product formation, oxygen consumption and heat evolution in aerobic cultures, thermodynamic efficiency of growth - Phases of cell growth in batch cultures, product formation kinetics, substrate and product inhibition on cell growth and product formation.

Text Book

- Biotechnology. 2nd Edition, 2000. Crueger W. and A Crueger. Panima Publishing Corporation, New Delhi.

Reference Books

- Industrial Microbiology; An Introduction. 2001. Waits, M.J., N.L. Morgan and G. Higton. Blackwell Science, Oxford.
- Prescott & Dunn's Industrial Microbiology. 4th Edition, 1982. Reed, G. CBS Publishers Distributors, Delhi.
- Microbial Technology-Fermentation Technology. 2nd Edition, 2004. Peppler. H. J. and D. Perlman. Academic Press, Madison.
- Principles of Fermentation Technology. 3rd Edition, 2016. Stanbury. P. A. Whitaker and S. Hall. Butterworth-Heinemann. Oxford.

YEAR - I	MEDICAL MICROBIOLOGY (For those students admitted in the year 2021 – 22 and onwards)	21PMB23
SEMESTER - II		HRS/WK - 4
CORE - 7		CREDITS - 4

Objective: To make the students familiar with various disease-causing microorganisms.

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Becomes familiar with Host-parasite relationship

CO2: Acquires knowledge about the diseases caused by bacteria and their characteristics

CO3: Attains knowledge about fungal infections

CO4: Learns about parasitic and worm infections

CO5: Gains knowledge about pathogenesis and laboratory diagnosis of viruses

SEMESTER: II	COURSE CODE: 21PMB23				COURSE TITLE: MEDICAL MICROBIOLOGY				HOURS: 4	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4		
CO1	3.5	3.5	4	4	4	3.5	4	4	3.81	
CO2	3	3.5	4	3.5	3.5	4	3.5	4	3.62	
CO3	3.5	4	4	3.5	4	3.5	4	3.5	3.75	
CO4	3.5	3.5	3.5	3.5	4	4	3.5	4	3.68	
CO5	4	4	3	3	4	3	3.5	4	3.56	
Mean Overall Score									3.68	

Result: The score of this course is 3.68 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit - 1:

(12 Hrs)

Host-parasite relationship - General attributes and virulence factors of bacteria causing infections – Pathogenicity and laboratory diagnosis of infections caused by selected bacteria - Staphylococci, Streptococci, *Neisseria*, *Corynebacteria*, *Escherichia coli*, *Salmonella*, *Shigella*, *Vibrio*.

Unit - 2:

(12 Hrs)

Pathogenicity and laboratory diagnosis of infections caused by selected bacteria (contd.) - *Bacillus*, *Clostridium*, *Mycobacterium*, *Yersinia*, *Haemophilus*, *Helicobacter*, *Bordetella*, *Legionella*, *Listeria*, *Rickettsiae*, *Chlamydia*, *Spirochaetes*, *Mycoplasma*.

Unit - 3:

(12 Hrs)

Characteristics of fungi; Pathogenesis and Lab diagnosis of selected fungal infections - Superficial mycoses – Surface mycoses - *Malassezia* infections, Tinea nigra, Piedra; Cutaneous mycoses – Dermatophytoses; Subcutaneous mycoses - Mycotic mycetoma; Systemic mycoses – Histoplasmosis, Blastomycosis, Coccidioidomycosis; Opportunistic Mycoses; Yeasts of medical importance - *Candida*, *Cryptococcus*.

Unit - 4:**(12 Hrs)**

Brief account of selected parasites - *Entamoeba histolytica*, *Giardia intestinalis*, *Trichomonas vaginalis*, *Plasmodium*, *Cryptosporidium*, *Pneumocystis carinii*, *Taenia saginata*, *Taenia solium*, *Schistoma haematobium*, *Ancylostoma duodenale*, *Ascaris lumbricoides*, *Wuchereriabancrofti*.

Unit - 5:**(12 Hrs)**

General properties of viruses - Outline of animal tissue culture - Virus-Host interactions – Brief account of the following viruses - Pox viruses, Herpes viruses, Adeno viruses, Picorna viruses, Orthomyxo viruses, Paramyxo viruses, Arboviruses, Rhabdo viruses, Hepatitis viruses, Rubella virus, Rota virus, Corona Viruses, Retroviruses.

Text Book

- Text Book of Microbiology. 9th Edition, 2013. Ananthanarayanan, R and C.K.J. Panicker. Orient Longman Private Ltd., Chennai.

Reference Books

- Jawetz, Melnick & Adelberg's Medical Microbiology. 24th Edition, 2007. Geo F Brooks , Karen C Carroll , Janet S Butel , Stephen A Morse. McGraw-Hill.
- Medical Microbiology. 7th Edition, 2012. Ken S. Rosenthal, Michael A. Pfaller, and Patrick R Murray. Elsevier Health Sciences.
- Medical Microbiology - A Guide to Microbial Infections: Pathogenesis, Immunity, Laboratory Investigation and Control. 19th Edition, 2018. Editors: Michael Barer W L Irving. Elsevier.

YEAR - I	MICROBIAL GENOMICS (For those students admitted in the year 2021 – 22 and onwards)	21PMB24
SEMESTER - II		HRS/WK - 4
CORE - 8		CREDITS - 4

Objective: To make the students understand the genome of microorganisms.

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Will be able to interpret the basics of Genomics

CO2: Will be able to correlate Genomics with Microbial evolution

CO3: Will be able to understand the role of DNA microarray technology in Genomics

CO4: Will be able to describe the functional genomics of model organisms

CO5: Will be able to comprehend the Genomic analysis of selected bacteria

SEMESTER: II	COURSE CODE: 21PMB24				COURSE TITLE: MICROBIAL GENOMICS				HOURS: 4	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4		
CO1	4	4	4.5	4	4	4	3.5	4	4.0	
CO2	4	4	4	3.5	4	3.5	2.5	3	3.6	
CO3	4	3.5	3.5	3.5	4	4	3	4	3.7	
CO4	3.5	4	3	3.5	4	3.5	3	3	3.4	
CO5	4	3.5	4	4	4	4	3	3.5	3.8	
Mean Overall Score									3.7	

Result: The score of this course is 3.7 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit - 1

(12 Hrs)

Genomics: Introduction, Definitions, Historical Perspectives, Scope and General Approaches; Microbial Diversity and Genomics - Genome analysis, Next-generation sequencing, Properties of genomes, Genome size, Gene families, Skew, GC content, and codon usage; Prokaryotic genomes, Microbial eukaryotic genomes.

Unit - 2

(12 Hrs)

Microbial evolution and Genomics: Identification of Orthologous Genes; Genome Perspectives on Molecular Clock; Genome Perspectives on Horizontal Gene Transfer - Identification of HGT, Mechanisms underlying HGT, Types of genes subjected to HGT, Evolutionary impact of HGT; Genomic Perspectives on Gene Duplication, Gene Loss, and Other Evolutionary Processes; Universal Tree of Life - Genome-based phylogenetic analysis; Minimal Genomes

Unit - 3**(12 Hrs)**

DNA microarray technology: Types of Microarrays and Advantages; Microarray Fabrication; Microarray Hybridization and Detection; Microarray Image Processing; Using Microarrays to Monitor Gene Expression; Microarray Gene Expression Data Analysis

Unit - 4**(12 Hrs)**

The functional genomics of model organisms: *Escherichia coli*: A Model Eubacterium - *E. coli* genome, transcriptomics, proteomics, Modeling *E. coli* metabolism; *Bacillus subtilis*: - *B. subtilis* genome, transcriptomics, proteomics; *Saccharomyces cerevisiae*: A Model for higher eukaryotes - Yeast genome, transcriptomics, proteomics, interactome, Comparison with Genomics of Model Eukaryotic Organisms.

Unit - 5**(12 Hrs)**

Genomic analysis of bacterial pathogens and Environmentally significant microorganisms: Understanding bacterial pathogenesis through genome sequence and function annotation, Predicting virulence genes from sequence homology, Evolution of bacterial pathogens: gene acquisition and loss, Comparative Genomics: Clues to Bacterial Pathogenicity, The genomics of *Mycobacterium tuberculosis*: virulence gene identification and genome plasticity, Microarray-based comparative genomics of *Helicobacter pylori*, Sequence comparison of pathogenic and nonpathogenic species of *Listeria*; *E. coli* K1: identification of invasion genes; Genome Sequence and Functional Analysis of Environmentally Important Microorganisms - Dissimilatory metal ion-reducing bacterium *Shewanella oneidensis*; Extreme radiation-resistant bacterium *Deinococcus radiodurans*; Hyperthermophilic archaeon *Pyrococcus furiosus*.

Text book

- Microbial Functional Genomics. Jizhong Zhou, Dorothea K. Thompson, Ying Xu, James M. Tiedje. 2004. John Wiley & Sons, Inc., Hoboken, New Jersey.

Reference Books

- An Introduction to Ecological Genomics. Second Edition. 2012. Nico M. van Straalen and Dick Roelofs. Oxford University Press Inc., New York.
- Microbial Genomes. 2004. Claire M. Fraser, Timothy Read and Karen E. Nelson. (Eds.). Humana Press.
- Functional Microbial Genomics. 2002. Editors: Brendan Wren and Nick Dorrell. Academic Press.

YEAR – I	LAB COURSE – I (For those students admitted in the year 2021 – 22 and onwards)	21PMBP11
SEMESTER - I		HRS / WK - 8
PRACTICAL		CREDITS - 4

EXPERIMENTS IN BASIC MICROBIOLOGY

1. Gram staining
2. Negative staining
3. Capsule staining
4. Spore staining
5. Hanging drop technique
6. Catalase test
7. Oxidase test
8. Indole test
9. Methyl red test
10. Voges proskauer test
11. Citrate utilization test
12. Urease test
13. Triple sugar iron agar test
14. Lysine iron agar test
15. Nitrate reduction test
16. Slide culture for fungi

EXPERIMENTS IN IMMUNOLOGY

1. Separation of serum
2. Separation of plasma
3. ABO blood grouping by reverse grouping
4. ASO semi quantitative test
5. Single radial immunodiffusion
6. Double immuno diffusion
7. Rocket immuno electrophoresis
8. Serum electrophoresis
9. Isolation of lymphocytes
10. Dot ELISA

EXPERIMENTS IN ENVIRONMENTAL MICROBIOLOGY

1. Enumeration of total coliform by MPN method
2. Enumeration of faecal coliform by MPN method
3. Membrane filter technique
4. Biochemical oxygen demand
5. Nitrogen cycle:
 - a. Ammonification
 - b. Nitrification
 - c. Denitrification

EXPERIMENTS IN BIOSTATISTICS

1. Testing the difference between means of two samples (independent)
2. Testing the difference between means of two samples (dependent)
3. Chi square test for independence of attributes
4. F – test (or) the variance ratio test
5. One way analysis of variance (anova)
6. Randomized block design (rbo)
7. Latin square design(lsd)

EXPERIMENTS IN BIOINFORMATICS

1. Pairwise alignment
2. Blast

YEAR – I	LAB COURSE – II (For those students admitted in the year 2021 – 22 and onwards)	21PMBP22
SEMESTER - II		HRS / WK - 8
PRACTICAL		CREDITS - 4

EXPERIMENTS IN MICROBIAL PHYSIOLOGY

1. Micrometry
2. Direct microscopic count
3. Starch hydrolysis test
4. Casein hydrolysis test
5. Lipid hydrolysis test

EXPERIMENTS IN MEDICAL MICROBIOLOGY

1. Throat Swab
2. Blood Culture
3. Faeces Culture
4. Cholera stool sample
5. Dermatophytes – LPCB
6. Assimilation Test for yeast
7. Flootation and Sedimentation of Parasites
8. MIC Phenol Co-efficient test
9. Antibiotic Sensitivity test
10. β – Lactamase activity

EXPERIMENTS IN FERMENTATION TECHNOLOGY

1. Amylase production and Estimation
2. Wine Production
3. Screening for antibiotic producing bacteria
4. Microbial Limit Test

EXPERIMENTS IN RESEARCH METHODOLOGY

1. Agarose gel electrophoresis
2. Preparation of acetate buffer
3. Lowry's method for protein estimation

YEAR – I	PUBLIC HEALTH (For those students admitted in the year 2021-22 and onwards)	21SPMB2A
SEMESTER - II		SELF STUDY COURSE
Elective – V A		CREDITS – 2

Objective: To make the students aware of healthcare strategies for better well-being

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Will be able to describe the basic concepts of health

CO2: Will be able to correlate nutrition and health

CO3: Will be able to explain the role of environment in health

CO4: Will be able to relate occupation and health

CO5: Will be able to understand the strategies for the prevention of diseases

SEMESTER: II	COURSE CODE: 21SPMB2A				COURSE TITLE: PUBLIC HEALTH				HOURS: -	CREDITS: 2
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4		
CO1	4	4	3.5	3.5	4	4	3	3.5	3.68	
CO2	3.5	3.5	3	4	3.5	3.5	3.5	4	3.56	
CO3	3.5	3.5	3	4	3.5	3.5	3.5	4	3.56	
CO4	4	4	3.5	3.5	4	4	3	3.5	3.68	
CO5	3.5	3.5	3	4	3.5	3.5	3.5	4	3.56	
Mean Overall Score									3.61	

Result: The score of this course is 3.61 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit - 1

(9 Hrs)

Concept of health, Definition of health, Determinants of health, Indicators of health, Concept of Disease, Concept of causation, Concept of control, Concept of prevention

Unit - 2

(9 Hrs)

Nutrition and health – Nutritional requirements, Energy, Balanced diet, Nutritional problems in public health

Unit - 3**(9 Hrs)**

Environment and health – Water pollution, Water quality – criteria and standards, Air pollution, Noise, Radiation, Medical entomology

Unit - 4**(9 Hrs)**

Occupational health – Occupational hazards, Radiation hazards, Accidents in industry; Genetics and health – Chromosomal disorders, Mendelian diseases

Unit - 5**(9 Hrs)**

Disease prevention and Control – Immunizing agents, Immunization schedule; Healthcare of the community; Health planning and management

Text Book

- Park's Textbook of Preventive and Social Medicine. 26th Edition, 2021. K. Park. BanarsidasBhanot Publishers, Jabalpur, India.

Reference Books

- An Introduction to Public Health and Epidemiology. 2nd Edition, 2007. Susan Carr, Nigel Unwin and Tanja Pless-Mulloli. Open University Press, England.
- Short text book of Public Health Medicine for the Tropics. 4th Edition, 2003. Adetokunbo O. Lucas and Herbert M. Gilles. CRC Press.
- The New Public Health. 2nd Edition, 2009. Theodore H. Tulchinsky and Elena A. Varavikova, Elsevier Inc.

YEAR - I	PROBIOTICS FOR HUMAN HEALTH (For those students admitted in the year 2021 – 22 and onwards)	21SPMB2B
SEMESTER - II		SELF STUDY COURSE
ELECTIVE – V B		CREDITS - 2

Objective:

To make the students understand the importance of probiotics in human health.

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Will understand the sources and uses of probiotics

CO2: Will know the characteristics of probiotics

CO3: Will be able to describe probiotic organisms

CO4: Will be able to appreciate the applications of probiotics

CO5: Will become familiar with the safety regulations of probiotic products

SEMESTER: II	COURSE CODE: 21SPMB2B				COURSE TITLE: PROBIOTICS FOR HUMAN HEALTH				HOURS: -	CREDITS: 2
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4		
CO1	4	4	3.5	3.5	4	4	4	4	3.87	
CO2	3.5	3.5	3	4	4	3.5	3.5	4	3.62	
CO3	3.5	3.5	3	4	4	3.5	3.5	4	3.62	
CO4	4	4	3.5	3.5	4	4	4	4	3.87	
CO5	3.5	3.5	3	4	4	3.5	3.5	4	3.62	
Mean Overall Score									3.72	

Result: The score of this course is 3.72 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit - 1

(9 Hrs)

Probiotics: Definition, History, Role of probiotics in human health, Probiotic sources – dairy products, vegetables, fruits, egg, meat, fish, beverages, sugar products, dietary supplements - uses of probiotics.

Unit - 2 **(9 Hrs)**

Characteristics of probiotics: Tolerance to additives, stability during storage, stability during passage to intestinal sites, minimum effective dose, maintenance of probiotic microorganisms-enzyme production – antagonistic activity.

Unit - 3 **(9 Hrs)**

Probiotic organisms - *Lactobacillus*, *Bifidobacteria*, *Enterococcus*; production of specific substance (organic acid and bacteriocins); Modulation of immune system -reduction of inflammation; Modification of microbial population.

Unit - 4 **(9 Hrs)**

Applications of probiotics: stimulation of immune system; prevention and reduction of constipation; prevention of diarrhea; reduction of colon cancer; reduction of cholesterol level; lactose intolerance; Gastrointestinal infection; Urinary tract infection.

Unit - 5 **(9 Hrs)**

Probiotic products Safety and regulations: Food and Drug Administration, USA (FDA) – FAO/WHO Guidelines on probiotics – Animal testing – Dosage of probiotics (Pregnant women, Children, Adult)

Text Book

- Probiotics. 1st Edition, 2012. Rigobelo E.C. InTech Publishers, Rijeka, Croatia, European Union.

Reference Books

- Probiotics and Prebiotics: Current Research and Future Trends. 1st Edition, 2015. Venema K. and Carmo AP do. Caister Academic Press, Brazil.
- Interactive Probiotics. 1st Edition, 2014. Pessione E. CRC Press, New York, USA.
- Handbook of Probiotics and Prebiotics. 2009. Lee Y. K. and Salminen S. A. John Willey and Sons Inc. Publications.
- Intestinal Microbiota, Probiotics and Prebiotics. 1st Edition, 2014. Orel R. Institute for Probiotics and Functional Foods Ltd., Ljubljana, Slovenia.

YEAR - I	PHARMACEUTICAL MICROBIOLOGY (For those students admitted in the year 2021 – 22 and onwards)	21SPMB2C
SEMESTER - II		SELF STUDY COURSE
ELECTIVE – V C		CREDITS – 2

Objective: To study the role of microbes in the production of pharmaceutically active compounds, development of new drugs and to understand the regulatory aspects in pharmaceuticals.

Course Outcomes:

Upon successful completion of the course, the student:

CO1: Understands the basic concepts of Pharmacological Microbiology and the role of microbiologist in pharmacology.

CO2: Grasps knowledge on pharmaceutical microbiology laboratory and management.

CO3: Gains knowledge on drug discovery and development, clinical and preclinical trials.

CO4: Grasps information on pharmaceutical applications.

CO5: Understands regulatory aspects in Pharmaceuticals.

SEMESTER: II	COURSE CODE: 21SPMB2C				COURSE TITLE: PHARMACEUTICAL MICROBIOLOGY				HOURS: -	CREDITS: 2
COURSE OUTCOMES	PROGRAMME OUTCOMES (PO)				PROGRAMME SPECIFIC OUTCOMES (PSO)				MEAN SCORE OF COs	
	PO1	PO2	PO3	PO4	PSO1	PSO2	PSO3	PSO4		
CO1	3	4	4	3	3	3	3	4	3.3	
CO2	3	3	3	4	3	3	3	5	3.2	
CO3	3	3	3	4	3	3	4	5	3.5	
CO4	3	3	3	3	3	3	4	5	3.3	
CO5	3	4	3	3	5	3	3	5	3.6	
Mean Overall Score									3.4	

Result: The score of this course is 3.4 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcomes and Programme Specific Outcomes.

Unit - 1

(9 hours)

Introduction and Overview of Pharmaceutical Microbiology – Microbiological test methods
— Basics of pharmaceutical sector – Role of the microbiologist– Importance of medicine in

public health – Role and development of pharmacopoeias – Importance of inspections in the life cycle of medicines. Biology of pharmaceutically important microorganism: Bacteria and Fungi (Yeast and Molds).

Unit - 2 **(9 hours)**

Microbial products and pharmaceutical laboratory management: Microbial products in pharmaceutical industry: antibiotics, antifungal agents, antiviral agents, small molecules, growth factors, hormones, vitamins, therapeutic enzymes, recombinant proteins and vaccines. Pharmaceutical microbiology laboratory –Laboratory management and design.

Unit - 3 **(9 hours)**

Drug Discovery and Development: Microbial, Recombinant, Biochemical and Molecular level screening systems and their construction/ design strategies. Conventional Process; Bio-prospecting. Search of database/data mining for Drug designing; Preclinical and Clinical trials; Estimation of toxicity: LD50 and ED50; Rational Drug Design – Principle (Structure activity relationship -SAR) and Tools (applications of High throughput Screening - Combinatorial synthesis - Pharmacogenomics).

Unit - 4 **(9 hours)**

Pharmaceutical Applications: Immobilisation procedure for pharmaceutical applications (liposomes), biosensors in pharmaceuticals - Applications of microbial enzymes in pharmaceuticals; Phage therapy: Introduction to phages, lytic cycle, types of phages involved in phage therapy; Plant based therapeutic agents.

Unit – 5 **(9 hours)**

Regulatory aspects in pharmaceuticals: Regulatory aspects of quality control - Sterilisation, control and sterility testing (Heat sterilization, D-value, Z-value, radiation, Gaseous and filter sterilization), chemical and biological indicators used; Government regulatory practices and policies for pharmaceutical industry: Food and Drug Administration (FDA), The Central Drugs Standard Control Organization (CDSCO), The Drug Controller General of India (DCGI); Patenting of pharmaceutical products; GMP in pharmaceuticals.

Text Book

- Pharmaceutical Microbiology. 2007 (6th Edition, 2007). Ed. by W. B. Hugo and A.D. Russell. Blackwell scientific Publications.

Reference Books

- Pharmaceutical Microbiology. Essentials for Quality assurance and quality control. 2015. Tim Sandle. Woodhead publishing series biomedicine.
- Quality control in pharmaceutical industry, Vol. 2. 2001. Murray. S. Cooper. Academic press, New York.
- Pharmaceutical Biotechnology. 2004. S.P. Vyas, V.K. Dixit. CBS publishers and Distributors, New Delhi.
- Textbook of Drug Design and Discovery. 2004. Krogsgaard L, Lilliefors T. and Madsen, U. Taylor and Francis, London.

PROGRAMME OUTCOMES (POs)

UNDER GRADUATE PROGRAMME OUTCOMES (POs)

PO1: The Students find their footings in life through wholesome and integral education.

PO2: The Students are encouraged to climb the academic ladder by pursuing Post Graduate Education in different domain.

PO3: The Students are academically and technically equipped to steer the Nation along the path of progress and peace.

PO4: The Students are trained to be Employable and Entrepreneurial Citizen of the Nation.

PO5: The Students are fortified intellectually, ethically and socially to face the challenges in life.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1: *Disciplinary knowledge*

The students will develop their ability to understand the basic concepts of zoology viz., animal kingdom, systematic classification, anatomy, morphology, physiology, embryology, evolution, ecology etc.

PSO2: *Critical thinking*

The students will obtain knowledge to express their concepts effectively by understanding their subject with various disciplines.

PSO3: *Scientific reasoning*

The students will have ability to identify, classify and describe various organisms from different phylum by understanding their structure and function of various organ system and relationship with their environment

PSO4: *Research-related skills*

The students will develop ability to explain structure and functions of a cell and organ (from molecular level to the organ system level) as well as the process of development of an embryo

PSO5: *Problem solving*

The students will acquire knowledge in cell biology, molecular biology, genetics, biotechnology, microbiology, biochemistry, biostatistics, developmental biology, immunology, animal physiology, environmental biology, evolution etc., which helps to develop their ability to analyse and solve various biological problems.

PSO6: *Cooperation/Team work*

The students will able to work effectively and respectfully with diverse team during vermiculture and mushroom culture practices
PSO7: <i>Information/digital literacy</i>
The students will able to use various biological softwares to analyze the data by obtaining knowledge in biostatistics, computational biology and biotechnology.
PSO8: <i>Self-directed learning</i>
The students will able to work independently to enhance their expertise through various activities like seminars, assignments, etc., and they can manage a project like vermiculture, mushroom culture, aquaculture etc., on completion of the course.
PSO9: <i>Moral and ethical awareness/reasoning</i>
The students will have the knowledge to minimize the environmental issues like global warming, pollution, degradation of natural resources, and helps in conservation endangered species, afforestation etc.
PSO10: <i>Lifelong learning</i>
The students will able to apply their knowledge of biological sciences in various disciplines like vermiculture, mushroom culture, aquaculture, apiculture, agriculture and medicine. And contribute the knowledge for Nations development.

COURSE OUTCOME

III B.Sc. Zoology	PROJECT	XJZO601
SEMESTER -VI		
PROJECT		CREDIT-2

COURSE OBJECTIVES:

- To provide students with practical experience in biology and biodiversity of organisms.
- To encourage the students to learn the skills in observing and studying nature, biological techniques and scientific investigation.
- To learn the unity and diversity of organisms.
- To learn about applied branches of zoology and prepare for self-employment.

COURSE OUTCOMES:

Upon successful completion of this course, students will be able to:

- Learn the fundamentals of animal sciences and complex interaction between living organisms.
- Understand the basic theories and principles of ecology.
- Learn about gene, genome, cell, tissue, organ and organ system.
- Learn about evolutionary history and relationship between different groups of animals
- Obtain practical knowledge on Vermiculture, Mushroom culture, Aquaculture, Sericulture etc.

COURSE CONTENT:

1. Introduction about the Projects

- Overview of project work
- Selection of project topics based on recent trends in Zoology

2. Project Design and Development

- Culturing techniques of animals
- Selection and procurement of cultivable species
- Toxicological studies, pollution studies, growth parameters and biology of animals.

3. Documentation and Report Writing

Arrangement of contents

1. Title Page
2. Bonafide Certificate
3. Acknowledgement
4. Table of contents
5. Abstract
6. Chapters of the Report
7. References
8. Appendices, if any

Appendices should be named as APPENDIX –A

Binding Specification

- Project report should be submitted with hard bound.
- The Cover should be colour printed.

Margin Specification

Top	: 4 cms
Bottom	: 3 cms
Left	: 4.5 cms
Top	: 2.5 cms

Page Numbering

All Page numbers should be typed without punctuation on the bottom center portion of the page. The Preliminary pages (table of contents and abstract) should be numbered in lowercase roman literals.

4. Presentation and Defense

- Preparing for the project presentation
- Effective communication of project work

THEMES

Students can choose a project theme from the following areas:

1. Studies on the biology of animals

Study of anatomy, behavioural ecology etc.

2. Taxonomical status of animals

Systematic classification, phylogeny of animals etc.

3. Biodiversity study

Species, genetic and ecological diversity

4. Biochemical studies

Biochemical composition, Nutritional value etc.

5. Pollution

Causes, concentration, effects of pollution etc.

6. Environmental issues

Biodiversity laws, waste management, climate change etc.

7. Culturing technology of organisms

Culturing techniques of various organisms

8. Molecular techniques

DNA study, genetical studies, molecular study etc.

9. Entomological studies

Economic classification of insects, pest control measures etc.

10. Physiology of animals

Physiological function of various system

II-MSC (CS)	PYTHON PROGRAMMING For the students admitted from the year 2021	21PCS807
SEMESTER – II		HRS/WK – 4
CORE –6		CREDIT – 4

Objective:

The course introduces students to learn fundamentals of Python Programming and have an understanding of Python and its various Programming constructs.

COURSE OUTCOMES (COs):

- CO1:** To Learn the introduction and Features of Python
- CO2.** Learn the Basic Syntax of Python
- CO3.** Learn about the Strings, Lists, Tuples and Dictionary in Python
- CO4.** Acquired an idea about Control Structures in Python
- CO5.** Understood the Defining a Function – Calling a Function

Relationship Matrix Course Outcome, Programme Outcome and Programme Specific outcome

SEMESTER II	COURSE CODE: 21PCS807					COURSE TITLE: PYTHON PROGRAMMING					HOURS: 4	CREDITS: 4
COURSE OUTCOME	PROGRAMME OUTCOME(PO)					PROGRAMME SPECIFIC OUTCOME(PSO)					MEAN SCORE OF CO	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	4	4	5	5	4	4	4	4	3	3	4.0	
CO2	4	4	3	4	4	4	4	3	3	4	3.7	
CO3	4	4	3	3	4	4	4	3	4	4	3.9	
CO4	4	4	3	3	4	4	4	3	4	4	3.7	
CO5	4	3	4	4	3	4	4	3	4	4	3.7	
Mean Overall Score											3.8	

Result: The Score of this Course is 3.8(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT-I **[Hrs 12]**
INTRODUCTION TO PYTHON: Features of Python – Applications of Python – Installing and Running Python

UNIT- II **[Hrs 11]**
BASIC SYNTAX OF PYTHON: Python Identifiers – Comments in Python –Variables – Standard Data types in Python

UNIT- III **[Hrs 13]**
STRINGS, LISTS, TUPLES AND DICTIONARY IN PYTHON: -Simple Programs in Python - Operators and its types in Python – Operator Precedence

UNIT- IV **[Hrs 12]**
CONTROL STRUCTURES IN PYTHON: Decision Making Statements – Looping Constructs – Unconditional Control Statements.

UNIT –V **[Hrs 12]**
FUNCTION IN PYTHON: Defining a Function – Calling a Function – Call by Value and Reference – Function Arguments – Anonymous Functions – Return Statement – Scope of Variables.

TEXT BOOKS:

1. “Introduction to Computing and ProblemSolving with PYTHON”, Jeeva Jose and P. SojanLal, Khanna Book Publising Co. (P) Ltd., 2016.
2. “Core Python Programming”, Wesley J. Chun, Second Edition, PrenticeHall Publication, 2006.

REFERENCE BOOK:

1. “Python Programming for Absolute Beginners”, Micheal Dawson, Third Edition, Course Technology,2010.

II-MSC (CS)	PYTHON PROGRAMMING For the students admitted from the year 2021	21PCSP23
SEMESTER – II		HRS/WK – 5
CORE PRACTICAL–III		CREDIT – 3

Objective:

- ❖ The course introduces students to learn fundamentals of Python Programming and have an understanding of Python and its various Programming constructs.

COURSE OUTCOMES (COs):

CO1: To Learn the Simple programs of Python

CO2. Learn the Basic Syntax of Python

CO3. Learn about the Strings, Lists, Tuples and Dictionary in Python

CO4. Acquired an idea about Control Structures in Python

CO5. Understood the Defining a Function – Calling a Function

Relationship Matrix Course Outcome, Programme Outcome and Programme Specific outcome

SEMESTER II	COURSE CODE: 21PCSP23					COURSE TITLE: PYTHON PROGRAMMING					HOURS: 5	CREDITS: 3
COURSE OUTCOME	PROGRAMME OUTCOME(PO)					PROGRAMME SPECIFIC OUTCOME(PSO)					MEAN SCORE OF CO	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	4	4	5	5	4	4	4	4	3	3	4.0	
CO2	4	4	3	4	4	4	4	3	3	4	3.7	
CO3	4	4	3	3	4	4	4	3	4	4	3.9	
CO4	4	4	3	3	4	4	4	3	4	4	3.7	
CO5	4	3	4	4	3	4	4	3	4	4	3.7	
Mean Overall Score											3.8	

Result: The Score of this Course is 3.8(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

PYTHON PROGRAMMING

1. Write a Simple program in python.
2. Write a python program to Check Armstrong Number.
3. Write a python program to implement conditional branching.
4. Write a python program to implement loop structure.
5. Write a Python program to remove the nth index character from a nonempty string.
6. Write a Python program to find the second smallest number in a list.
7. Write a python program using tuples.
8. Write a Python program to find the highest 3 values of corresponding keys in a dictionary.
9. Write a Python program to find the factorial of a number using recursive function.
10. Write a program for Simple Calculator

WEB REFERERENCE

[/www.programiz.com/python-programming](http://www.programiz.com/python-programming)

II-MSC (CS)	BASICS OF MACHINE LEARNING For the students admitted from the year 2021	21PCS912
SEMESTER – III		HRS/WK – 4
CORE –10		CREDIT – 4

Objectives:

- ❖ This course introduces students to understand fundamentals of Machine Learning.
- ❖ At the end of the course, students should have an understanding of Machine Learning and its various importance in Research.
- ❖ Students will also be aware of the utilization of Machine Learning in building dynamics of Knowledge.

COURSE OUTCOMES (COs):

CO1: Essential knowledge on Machine Learning.

CO2: Learn the Basics of Machine Learning and its concepts.

CO3: Acquire the fundamental knowledge on building Machine Learning programs.

CO4: Develop an idea about Machine Learning Algorithms

CO5: Understand and develop Research Application using Machine Learning.

Relationship Matrix Course Outcome, Programme Outcome and Programme Specific outcome

SEMESTER III	COURSE CODE: 21PCS912					COURSE TITLE: BASICS OF MACHINE LEARNING					HOURS: 4	CREDITS: 4
COURSE OUTCOME	PROGRAMME OUTCOME(PO)					PROGRAMME SPECIFIC OUTCOME(PSO)					MEAN SCORE OF CO	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	4	4	5	5	4	4	4	4	3	3	4.0	
CO2	4	4	3	4	4	4	4	3	3	4	3.7	
CO3	4	4	3	3	4	4	4	3	4	4	3.9	
CO4	4	4	3	3	4	4	4	3	4	4	3.7	
CO5	4	3	4	4	3	4	4	3	4	4	3.7	
Mean Overall Score											3.8	

Result: The Score of this Course is 3.8(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT - I**[12Hrs]**

INTRODUCTION: Introduction to Machine Learning – Importance of Machine Learning in Research - Applications of Machine Learning – Categories of Machine Learning Techniques – Trends in Machine Learning.

UNIT- II**[12Hrs]**

SUPERVISED LEARNING: Introduction to Supervised Techniques - Algorithms for Supervised Learning - k-Nearest Neighbors - Decision Trees - Naive Bayes- Logistic Regression- Support Vector Machines.

UNIT- III**[13Hrs]**

UNSUPERVISED LEARNING: Introduction to Unsupervised Techniques - Algorithms for Unsupervised Learning- K-Means Clustering Algorithms –Hierarchical Clustering Algorithms – Difference between Supervised and Unsupervised Algorithms.

UNIT- IV**[11Hrs]**

ARTIFICIAL NEURAL NETWORKS: Multilayer Perceptron - The Perceptron - Training a Perceptron - Learning Boolean Functions - MLP as a Universal Approximator – Back propagation Algorithm - Nonlinear Regression - Two-Class Discrimination - Multiclass Discrimination - Multiple Hidden Layers.

UNIT- V**[12Hrs]**

DESIGN AND ANALYSIS OF MACHINE LEARNING EXPERIMENTS: Guidelines for Machine Learning Experiments - Cross-Validation and Resampling Methods - Measuring Classifier Performance - Interval Estimation - Hypothesis Testing - Assessing a Classification Algorithm’s Performance - Comparing Multiple Algorithms: Analysis of Variance.

TEXT BOOK:

1. “Introduction to Machine Learning”, Ethem Alpaydm, Second Edition, The MIT Press, 2010.

REFERENCE BOOKS:

1. “Machine Learning for Absolute Beginners”, Oliver Theobald, Second Edition, Oliver Theobald Publications, 2017.
2. Andreas C. Müller & Sarah Guido, “Introduction to Machine Learning with Python”, O’Reilly Publications, 2017.

II-MSC (CS)	MACHINE LEARNING USING PYTHON For the students admitted from the year 2021	21PCSP35
SEMESTER – III		HRS/WK – 5
CORE – PRACTICAL-V		CREDIT – 3

Objectives:

- ❖ This course introduces students to understand basics of Machine Learning with Python.
- ❖ Students will also be program and build simple and efficient Machine Learning logic in Python.

COURSE OUTCOMES (COs)

- CO1:** Essential knowledge on Machine Learning Algorithms.
CO2: Learn the Basics of Machine Learning and its concepts.
CO3: Acquire the fundamental knowledge on building Machine Learning programs.
CO4: Develop an idea about Machine Learning Algorithms
CO5: Understand and develop Research Application using Machine Learning.

Relationship Matrix Course Outcome, Programme Outcome and Programme Specific outcome

SEMESTER III	COURSE CODE: 21PCSP35					COURSE TITLE: MACHINE LEARNING USING PYTHON					HOURS: 5	CREDITS: 3
COURSE OUTCOME	PROGRAMME OUTCOME(PO)					PROGRAMME SPECIFIC OUTCOME(PSO)					MEAN SCORE OF CO	
	PO1	PO 2	PO 3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	4	4	5	5	4	4	4	4	3	3	4.0	
CO2	4	4	3	4	4	4	4	3	3	4	3.7	
CO3	4	4	3	3	4	4	4	3	4	4	3.9	
CO4	4	4	3	3	4	4	4	3	4	4	3.7	
CO5	4	3	4	4	3	4	4	3	4	4	3.7	
Mean Overall Score											3.8	

Result: The Score of this Course is 3.8(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

MACHINE LEARNING USING PYTHON

1. Implement k-Nearest Neighbors Algorithm
2. Implement Decision Trees Algorithm
3. Implement Naive Bayes Algorithm
4. Implement Logistic Regression Algorithm
5. Implement Support Vector Machines Algorithm
6. Implement K-Means Algorithm
7. Implement Hierarchical Clustering Algorithm
8. Implement Neural Network Algorithms
9. Implement Cross-Validation and Resampling Methods
10. Implement Classification Algorithms

WEB REFERENCE:

1. <https://medium.com/coders-camp/60-python-projects-with-source-code>

III B.Sc, (CS)	OPEN-SOURCE TECHNOLOGIES-PHP	19CS614
SEM – VI		HRS/WK- 6
CORE - XII		CREDIT - 5

Objective:

To impart basic knowledge of PHP and My SQL with Programming Skills.

Course Outcomes(COs):

CO1: To gain knowledge about basics of PHP.

CO2: To understand the concept of strings and arrays.

CO3: To implement function and control structures

CO4: Ability to learn about controls for reading data in Web page.

CO5: To implement the concept of database in PHP.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER VI	COURSE CODE: 19CS614					COURSE TITLE: OPEN-SOURCE TECHNOLOGY- PHP					HOURS 6	CREDITS 5
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
											3.5	
CO1	4	4	3	3	3	4	4	3	4	3		
CO2	3	3	3	3	2	4	4	3	4	3	3.2	
CO3	3	3	3	3	2	4	4	3	3	3	3.1	
CO4	3	3	3	4	3	3	3	3	4	3	3.2	
CO5	3	3	4	3	3	3	4	3	4	4	3.4	
Mean Overall Score											3.2	

Result: The Score of this Course is 3.2(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome.

UNIT-I**[15 Hrs]**

ESSENTIAL PHP: Creating your Development Environment – Mixing HTML and PHP – Command - Line PHP – Working with Variables – Creating Constants – Understanding PHP’s Internal Data types – Operators - Data Input/ Output functions - flow of control – branching , looping, switch, break and continue - Go to statement-comma operator.

UNIT-II**[20 Hrs]**

STRINGS AND ARRAYS: String Functions- Converting to and from Strings - Formatting Text String -Modifying Data in an Array-Deleting Array Elements- Arrays with Loops - PHP Array Functions-Sorting Arrays.

UNIT-III**[20 Hrs]**

CREATING FUNCTIONS: Passing Functions- Passing Arrays to Functions- Passing by Reference-Using Default Arguments- Returning Data from functions- Nesting Functions:

UNIT-IV**[20 Hrs]**

READING DATA IN WEB PAGES: Setting up web pages to communication with PHP- Handling Text Fields-Checkbox-Radio buttons-Password Controls- List boxes- Buttons – Hidden Control – File Upload.

UNIT-V**[15Hrs]**

WORKING WITH DATABASES: Creating a MYSQL Database- Creating a New Table- Accessing the Databases in PHP-Updating Databases-Inserting New Data Items into a Database-Deleting Records-Sorting your Data.

Text Book:

“The Complete Reference PHP”, Steven Holzner, Tata McGraw Hill Pvt.Ltd., 2008.

Reference Book:

“Core PHP programming”, Leon Atkinson, Pearson Education, 2004.

III B.Sc (CS)	SOFTWARE ENGINEERING	19ECS51A
SEMESTER – V		HRS/WK-6
Elective – II Option(I)		CREDIT – 4
For the students admitted from the year 2019		

Objective:

To introduce the concepts of software Engineering and the various phases in Software development in order to equip the students in developing project.

COURSE OUTCOMES:

After learning this course, the students should be able to expose

CO1: Ability to understand the Software Engineering and Models

CO2: Ability to understand Requirement Engineering and Requirement Engineering Tasks

CO3: Ability to understand Building Analysis Model

CO4: Ability to know the Testing strategies

CO5: Ability to learn the basic concept of the Management Spectrum

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER V	COURSE CODE: 19ECS51A					COURSE TITLE: Software Engineering					HOURS: 6	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	4	4	4	3	4	3	3	3	4	4	3.6	
CO2	4	4	3	3	4	4	4	4	4	3	3.7	
CO3	4	4	3	4	4	4	4	3	3	3	3.6	
CO4	4	4	3	4	4	4	4	3	4	4	3.8	
CO5	4	4	3	4	4	4	4	3	3	4	3.7	
Mean Overall Score											3.7	

Result: The Score of this Course is 3.7(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

Unit-I:**[20hrs]**

Software Engineering and Models: Introduction -Characteristics of Software-Software Myths-
Process Models: The Waterfall Model- Incremental Process Models: The Incremental Model, The RAD Model - **Evolutionary Process Models:** Prototyping, The Spiral Model, The Concurrent Development Model.

Unit-II:**[15hrs]**

Requirement Engineering: Requirement Engineering Tasks: Inception, Elicitation, Elaboration, Negotiation, Specification, Validation, Requirement management - Initiating the Requirements Engineering Process: Identifying the stake-holder, Recognizing the multiple view point, Working towards collaboration, Asking the first question- Eliciting Requirements: Collaborative requirement gathering- Quality function deployment (QFD)- Users scenarios- Elicitations work product.

UNIT-III:**[20hrs]**

Building Analysis Model: Requirement Analysis: Overall objectives and Philosophy, Analysis Rule of thumbs, Domain Analysis - Data Modeling: Data Objects, Data Attributes, Relationships, Cardinality and Modality – Flow Oriented Modeling – Class Based Modeling – Creating a Behavioral Model.

Unit-IV:**[20hrs]**

Testing: Introduction about testing: Testing ,Generic characteristics of testing, Verification and Validation - Test Strategies for Conventional Software: Unit Testing, Integration Testing: Top-down Integration, Bottom-up Integration - Validation Testing – System Testing –White Box Testing – Basic Path testing : Flow Graph Notation, Independent paths, Cyclomatic Complexity, Graph matrices method - Control Structure – Black Box Testing: Graph-Based Testing Methods , Equivalence Partitioning, Boundary Value Analysis, Orthogonal Array Testing

Unit-V:**[15hrs]**

Project Management: The Management Spectrum- The People: The Players, Team Leaders, The Software Team- Coordination and Communication Issues-The Product: Software Scope, Problem Decomposition - The Process: Melding the Product and the Process, Process Decomposition – The Project: Signs of Project Failure, Five-part commonsense approach to software projects - Formal Technical Reviews(FTR).

Text Book:

1. R.S.Pressman – Software Engineering –Sixth Edition McGraw Hill International edition-2007.

Reference Books:

1. Richard Fairley – Software Engineering – (Design, Reliability and Management) – Tata McGraw Hill edition–1983.
2. Software Engineering: (Update), 8th Edition. Ian Sommerville, PearsonEdition-2006.

III B.Sc (CS)	MANAGEMENT INFORMATION SYSTEM	19ECS51B
SEMESTER – V		HRS/WK-6
Elective – II Option(II)		CREDIT - 4
For the students admitted from the year 2019		

Objective:

To introduce the concepts of Management Information System and its various phases in Software Development Management to equip the students in understanding project Environment.

COURSE OUTCOMES:

After learning this course, the students should be able to expose

CO1: Ability to understand the basics of Information Systems (IS)

CO2: Ability to understand Information systems for business operations

CO3: Ability to understand Managing Information Technology

CO4: Ability to know the Enterprise Resource Planning(ERP)

CO5: Ability to learn the basic concept of ERP implementation

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER V	COURSE CODE: 19ECS51B					COURSE TITLE: Management Information System					HOURS: 6	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	4	4	3	2	4	4	4	2	4	3	3.4	
CO2	4	4	3	2	4	4	4	2	4	4	3.5	
CO3	4	4	3	3	4	3	3	3	4	3	3.4	
CO4	3	4	3	3	4	4	4	2	4	4	3.5	
CO5	4	4	3	2	4	4	4	3	4	4	3.6	
Mean Overall Score											3.5	

Result: The Score of this Course is 3.5(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome.

UNIT-I:**[20hrs]**

Introduction to Information systems(IS): why study IS- why business need information technology (IT) – fundamentals of IS concepts – overview of IS – solving business problems with IS – developing IS solutions.

UNIT-II:**[20hrs]**

Information systems for business operations: Business IS – marketing, manufacturing, human resource, accounting and financial information systems – transaction processing system – management information and decision support systems.

UNIT-III:**[20hrs]**

Managing information technology: Managing information resource and technologies – global IT management – planning and implementing business change with IT.

UNIT-IV:**[15hrs]**

Enterprise Resource Planning (ERP): an overview – benefits of ERP – ERP and related technologies – business process reengineering – data warehousing – data mining – online analytical processing – supply chain management.

UNIT-V:**[15hrs]**

ERP implementation: ERP implementation life cycle – implementation methodology – hidden cost – organizing the implementation – vendors, consultants and users contracts with vendors, consultants and employees project management and monitoring – ERP present and future – turbo change the ERP systems – enterprise integration applications – ERP and E- commerce – ERP and Internet.

Text Book:

1. James A O'Brien – Management Information Systems for managing IT in the internetnetworked Enterprise – 4thEdition, Tata McGraw Hill, New Delhi, 1999.

Reference Books:

1. Enterprise Resource Planning - Alexis Leon, Tata McGraw Hill, New Delhi,2000.
2. Alexis LeonERP Demystified ... Enterprise Resource Planning, Tata McGraw-Hill Publishing Company Ltd, New Delhi,2007.
3. Management Information Systems, W.S. Jaswadekar – Tata McGraw Hill, New Delhi,1998.

III B.Sc(CS)	DATA COMMUNICATION AND NETWORKS For the students admitted in the year 2019	19ECS52A
SEMESTER - V		HRS/WK-5
Elective –I (Option I)		CREDIT –4

Objective:

To enable the students to get acquainted with the basics of Networks and to make them concentrate on research side with respect to networks.

COURSE OUTCOMES:

CO1: To know about basics of networks and internetworks.

CO2: To understand the function of layers and signals.

CO3: Ability to understand the different transmission medium with error correction and detection.

CO4: Ability to acquire knowledge about switching

CO5: To understand the concept of networking, internetworking devices and routing algorithm.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER V	COURSE CODE:19ECS52A	COURSE TITLE: DATA COMMUNICATION AND NETWORKS					HOURS: 5	CREDITS: 4			
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)					MEAN SCORE OF CO'S
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	4	3	3	3	4	4	3	3	3	4	3.4
CO2	3	4	3	4	4	4	3	3	3	4	3.5
CO3	3	3	4	3	3	3	3	3	4	3	3.2
CO4	4	3	4	3	3	3	4	3	3	3	3.3
CO5	3	3	4	3	4	3	4	3	3	4	3.4
Mean Overall Score											3.4

Result: The Score of this Course is 3.4(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome.

UNIT-I**[10hrs]**

Networks: Protocols and standard – line configuration – topology – transmission mode – categories of networks – inter networks.

UNIT-II**[20hrs]**

The OSI Model: Functions of the layers – TCP/IP protocol suite – signals – analog and digital signal – periodic and a periodic signal – analog signals – digital signal – data transmission – data terminal equipment – data circuit terminals equipment – modems.

UNIT-III**[20hrs]**

Transmission Media: Guided media – unguided media – transmission impairments – media comparison. Multiplexing – FDM – TDM – WDM. Error detection and correction – types of errors–detection – vertical redundancy check (VRC) – longitudinal redundancy check (LRC) – cyclic redundancy check (CRC) – check sum – error correction.

UNIT-IV**[15hrs]**

Switching: Circuit switching – packet switching – message switching – networking and internetworking devices – repeaters – bridges – routers – gateways.

UNIT-V**[10hrs]**

Routing algorithms: Distance vector routing – link state routing – data link control – line discipline – flow control – error control.

Text Books:

1. “Data Communications and Networks” – Behrouz A Forouzan, Second Edition, Tata McGraw Hill,2002.
2. “Data and Computer Communication”, William Stallings, 7thEdition, Pearson Education – 2006.
3. Introduction to Data Communications and Networking. Wayne Tomasi . Pearson Prentice Hall, 2005

Reference Books:

1. William Stallings, “Data & Computer Communications”, Sixth Edition, Pearson Education, 2001.
2. Introduction to Data Communications and Networking by Behrouz Forouzan, Catherine Ann Coombs, and Sophia Chung Fegan-1997.
3. Fred Halsall, “Data Communications, Computer Networks and Open Systems”, Addison Wessley,1995.

III B.Sc (CS)	Electronic Commerce For the students admitted in the year 2019	19ECS52B
SEMESTER - V		HRS/WK-5
Elective –I (Option II)		CREDIT –4

Objective:

To explore the basic concepts of E-Commerce and its Applications in real world.

COURSE OUTCOMES:

CO1: To know about basics of E-Commerce.

CO2: To understand the use of Electronic Payment.

CO3: To understand the various security policies.

CO4: To acquire knowledge about various cards used for transactions.

CO5: To know about the Internet Applications for E-commerce.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER V	COURSE CODE: 19ECS52B					COURSE TITLE: Electronic Commerce					HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	3	3	4	5	4	4	3	4	3	3	3.6	
CO2	4	4	3	4	4	4	4	4	2	3	3.6	
CO3	4	4	3	4	4	4	3	4	3	2	3.5	
CO4	4	3	2	3	4	4	4	4	3	3	3.4	
CO5	4	3	4	3	3	3	3	3	3	4	3.3	
Mean Overall Score											3.48	

Result: The Score of this Course is 3.48(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome.

UNIT-1**[10HRS]**

Electronic commerce environment and opportunities: Background – the electronic commerce environment - electronic marketplace technologies – models of electronic commerce: Overview – electronic data interchange – migration to open EDI – electronic commerce with WWW/Internet – Commerce Net Advocacy – Web commerce going forward.

UNIT-II**[15HRS]**

Approaches to safe electronic commerce: Overview – secure transport protocols – secure transactions – secure electronic payment protocol (SEPP) – Secure electronic transaction (SET) – certificates for authentication – security on web servers and enterprise networks – electronic cash and electronic payment schemes: Internet monetary payment and security requirements – payment and purchase order process – on-line electronic cash.

UNIT-III**[20HRS]**

Internet/Intranet security issues and solutions: The need for computer security – specific intruder approaches – security strategies – security tools – encryption – enterprise networking and access to the internet – antivirus programs – security teams.

UNIT-IV**[20HRS]**

MasterCard/visa secure electronic transaction: Introduction – business requirements – concepts – payment processing – E-mail and secure E-mail technologies for electronic commerce: Introduction – The means of distribution A Model for message handling – how does E-mail work?- MIME: Multipurpose internet mail extensions – S/MIME: Secure multipurpose internet mail extensions – MOSS: Message object. Security services – Comparisons of security methods – MIME and related facilities for EDI over the internet.

UNIT-V**[10HRS]**

Internet and web site establishment: Introduction – technologies for web servers – internet tools relevant to commerce – internet applications for commerce – internet charges – internet access and architecture – searching the internet – internet resources: A travelogue of web malls: Introduction a shopping experience – a travelogue – applications: Advertising on the internet: Issues and technologies: Introduction – advertising on the web – “Marketing 101” – creating a website.

Text Books:

1. Daniel Minoli and Emma Minoli. Web commerce technology handbook. Tata Mc Graw Hill. 1999.
2. Kamallesh K Bajaj and Debjani Nag.. E-Commerce, the cutting edge of business. TataMcGrawHill.1999
3. Janice Reynolds.. The Complete E-Commerce Book: Design, Build & Maintain a Successful Web-based Business. Focal PressPublication.2004

Reference Books:

1. Kenneth C. Laudon, Carol GuercioTraver.. E-commerce: Business, Technology, Society. Addison WesleyPublication,2001
2. Constance H. McLaren, Bruce J. McLaren. E-commerce: Business on the Internet South. Western Educational Publication,1999.

III B.Sc, (CS)	WEB GRAPHICS For the students admitted in the year 2019	19ECS65A
SEM – VI		HRS/WK – 5
ELECTIVE - III Option (II)		CREDIT - 4

Objectives:

To enable students, learn and incorporate graphics in Web based Applications through understanding of appropriate tools.

COURSE OUTCOMES:

CO1: Understand the basic concepts of web graphics and basic HTML tags to design a website.

CO2: Understand the built-in tools of Photoshop.

CO3: Designing and adding multimedia to the webpage

CO4: Understanding and implementing the basic tools of Photoshop.

CO5: Acquire knowledge to handle images in an effective manner.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER VI	COURSE CODE: 19ECS65A					COURSE TITLE: WEB GRAPHICS					HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	3	4	3	3	4	3	4	4	3	3	3.4	
CO2	3	3	3	3	3	3	4	3	4	4	3.3	
CO3	3	3	3	3	4	3	4	3	3	4	3.3	
CO4	3	3	3	4	3	4	3	3	3	3	3.2	
CO5	3	3	3	3	3	4	3	3	4	3	3.2	
Mean Overall Score											3.3	

Result: The Score of this Course is 3.3(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome.

UNIT-I

[15 Hrs]

Introduction: HTML Coding – Basic Web Graphics – Web Page Design – Site building – Image Maps – Adding Multimedia to the Web.

UNIT-II

[15 Hrs]

Paint Sharp Pro/Photoshop: Introduction – Image Basics – File Formats – GIF – JPEG – Color Palette – Layers – Creating new Images – Brushes – Grids – Scaling Images – Moving and Merging layer – Tool Palette – Screen Capturing – Gray – Using Style Palette – Animation.

UNIT-III

[15 Hrs]

Image Handling: Scanning images – adding text to the images – Designing icons – Creating background images – Color models – Color Depths – Color Calibration – Creating Gradients – Oil paint effect.

UNIT-IV

[15 Hrs]

Multimedia: Creating Clipping- Animation with sound effect – audio or video – Window's Media Player ActiveX control – Embedding VRML in a web page – Real player ActiveX control.

UNIT-V

[15 Hrs]

Applications: Creating website with a particular theme - Graphics – Animations and Interactions.

Text Book and Reference Books:

1. Photoshop 6 Visual jump start, Adobe Richard Schrand, Published by SybexInc.,U.S.,2000
2. Flash 5.0 graphics, Animation and Interaction, Macromedia, James L Mohles 2000.

III B.Sc, (CS)	COMPUTER GRAPHICS For the students admitted from the year 2019	19ECS65B
SEMESTER- VI		HRS/WK-5
Core -VIII		CREDIT - 4

Objective:

To enable Students, Learn and understand the basic concepts of Computer Graphics.

COURSE OUTCOMES

CO1: Ability to learn about the basic knowledge of Graphics systems

CO2: Ability to know about the Attributes of I/O and 2-D transformation models.

CO3: Ability to understand clipping, interactive graphics I/P and picture Construction techniques

CO4: Ability to understand 3-D display methods

CO5: Ability to know about Projections and Projection operations.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER VI	COURSE CODE:19ECS65B					COURSE TITLE: COMPUTER GRAPHICS					HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	4	4	4	4	4	4	5	3	2	5	3.9	
CO2	4	4	4	4	4	4	5	3	2	5	3.9	
CO3	4	4	4	4	4	4	5	3	2	5	3.9	
CO4	4	4	4	4	4	4	5	3	2	5	3.9	
CO5	4	4	4	4	4	4	5	3	2	5	3.9	
Mean Overall Score											3.9	

Result: The Score of this Course is 3.9(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome.

UNIT-I

[15 Hrs]

Introduction to Computer Graphics: Video display devices – Raster scan system – Random Scan System – Interactive input Devices – Graphics software – Output primitives – line drawing algorithms – Line function – circle Generating algorithms.

UNIT-II

[15 Hrs]

Output Primitives: Attributes of output Primitives – line attributes – Color and Grayscale style – Area filling algorithms – Character attributes Inquiry functions – Two dimensional transformations – Basic transformation – composite transformation – Matrix representation –Other transformations.

UNIT-III

[15 Hrs]

Two dimensional viewing: Two – dimensional viewing – window – to view port co-ordinate transformation – clipping algorithms – interactive input methods –logical classification of input devices – interactive picture construction methods.

UNIT-4

[15Hrs]

Three dimensional viewing :Three – dimensional concepts – Three dimensional display methods – parallel Projection –Perspective projection – Depth Cueing – Visible line and surface identification.

UNIT -V

[15Hrs]

Three dimensional Transformations: Three dimensional transformations - Three dimensional viewing – Projection – Viewing transformations – Depth buffer(Z-Buffer) method – A-buffer method - implementation of viewing operations.

Text Books:

1. Computer Graphics [C Version] – D. Hearn and M.P. Basker – Person Education -1996
2. Computer Graphics: Principles and Practice in C (2nd Edition) by James D. Foley, Andries van Dam, Steven K. Feiner, and John F. Hughes-1990
3. Schaum's Outline of Computer Graphics by Zhigang Xiang and Roy A. Plastock-McGraw-Hill Education -2000

Reference Books:

1. Principle of Interactive Computer Graphics by W.M. Newman and RF. Sproull — McGraw Hill International Edition -1979.
2. Interactive Computer Graphics: A Top-Down Approach Using OpenGL by Edward Angel 5th Edition-2009

III B.SC(CS)	MULTIMEDIA For the students admitted from the year 2019	19ECS66A
SEMESTER – VI		HRS/WK – 5
ELECTIVE- IV Option(I)		CREDIT – 4

Objectives:

To enable the students to learn the concepts of Multimedia.

COURSE OUTCOMES:

- CO1 : Understand the basic need and ways of using multimedia.
- CO2 : Understanding the basics of text and its origin.
- CO3 : Gain knowledge about the multimedia project developing team.
- CO4 : Acquire the knowledge about video and its standards.
- CO5 : To develop and understand about the multimedia project planning and Costing.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER VI	COURSE CODE: 19ECS646A					COURSE TITLE: MULTIMEDIA					HOURS: 5	CREDITS: 4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	3	3	3	3	3	4	4	3	3	3	3.2	
CO2	3	3	3	4	3	4	4	3	3	3	3.3	
CO3	3	4	3	4	3	3	3	3	4	3	3.3	
CO4	3	3	3	3	3	3	4	3	4	3	3.2	
CO5	3	3	3	3	3	4	3	3	3	4	3.2	
Mean Overall Score											3.2	

Result: The Score of this Course is 3.2(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome.

UNIT-I:**[15 Hrs]**

MULTIMEDIA: Definition and Introduction to Multimedia – **Introduction to Making Multimedia:** Needs of Multimedia - **TEXT:** The power of meaning – About fonts and faces – Using text in multimedia – Computers and Text – Font editing and Design tools – Hypermedia and Hypertext.

UNIT-II:**[15 Hrs]**

SOUND: The power of sound – Multimedia system sounds – MIDI versus Digital Audio – Digital Audio – Making MIDI audio – Audio, File formats – Adding sound to your Multimedia project - **IMAGES:** Making still Images – Color – Image file formats.

UNIT -III:**[15 Hrs]**

ANIMATION: The Power of Motion – Principles of Animation – Making animations that works.

UNIT-IV:**[15 Hrs]**

VIDEO: Using Video – Working of Video – Broadcast video standards – Integrating computers and television – Shooting and Editing Video – Video tips – Recording formats – Digital Video.

UNIT-V:**[15 Hrs]**

PLANNING AND COSTING: Project planning – Estimating – RFPs and Bid Proposals - Designing – Producing.

Text Book:

1. “Multimedia Making itWork” -Tay Vaughan — McGraw Hill, 8thEdition-2010,

Reference Book:

1. Multimedia in Practice: Technology and Applications -Jeffcoate, Judith — Prentice Hall, 2001.

III B.C.A	ORGANIZATIONAL BEHAVIOUR	19GCA52A
SEMESTER V		HRS/WK – 5
GE – I (1)		CREDIT - 4

UNIT- I **[15 Hrs]**

INTRODUCTION TO ORGANIZATIONAL BEHAVIOR : Definition-Key Elements of OB-Need for studying OB-Contributing Disciplines to OB-Challenges faced by the Management-OB Frame work – OB models.

UNIT-II **[15 Hrs]**

INDIVIDUAL BEHAVIOUR: Introduction to Personality –Determinants of Personality- Personality Types –Theories of Personality-Perceptual Process-Factors affecting Perception- Job Satisfaction-Determinants of Job Satisfaction-MotivationProcess -Need for Motivation- Maslow’s Need Hierarchy Theory of Motivation.

UNIT- III **[15 Hrs]**

GROUP BEHAVIOUR: Definition and Characteristics of Group-Need for people to form and join Group-Types of Group-Stages of Group Development-Team Building-Types of Team-Team Building Process.

UNIT - IV **[15 Hrs]**

COMMUNICATION: Introduction-Nature and Need for Communication-Process of Communication-Channels of Communication-Barriers to Communication

LEADERSHIP: Meaning-Functions of Leadership-Leadership Styles-Factors determining Effective Leadership-Leadership Theories - Transactional and Transformational Leadership.

UNIT -V **[15 Hrs]**

CONFLICTS: Introduction - Sources of Conflicts – Types of Conflicts – Conflict Management

STRESS: Introduction - Sources of Stress – Consequences of Stress.

ORGANIZATIONAL CLIMATE: Definition-Dimensions of Organizational Climate - Determinants of Organizational Climate

ORGANIZATIONAL CULTURE: Organizational Culture: Definition and Characteristics - Types of Culture.

TEXT BOOK:

1. Dr. S.S. Khanka, Organizational Behaviour, S.Chand Publication, 4th Revised Edition

REFERENCE BOOKS:

1. Stephen P. Robins, Organisational Behavior, PHI Learning / Pearson Education, 11th edition, 2008.
2. Fred Luthans, Organisational Behavior, McGraw Hill, 11th Edition, 2001

III B.C.A	ENTREPRENEURIAL DEVELOPMENT	19GCA52B
SEMESTER V		HRS/WK – 5
GE – I (2)		CREDIT - 4

UNIT-I

[15 Hrs]

Introduction: Entrepreneurship: Meaning- Nature-Importance-Theories-Entrepreneur: Meaning-Definition-Characteristics-Qualities-Types and roles of Entrepreneur-Entrepreneur vs Intrapreneur - Factors promoting an Entrepreneur-Role of Entrepreneurs in India's Economic Development.

UNIT-II :

[15 Hrs]

Rural Entrepreneurship and Agri-Preneurship: Rural Entrepreneurship: Meaning -Need - Problems of Rural Entrepreneurship- Developing Rural Entrepreneurship-NGOs and Rural Entrepreneurship.

Agri-Preneurship: Introduction-Need for Developing Agri-preneurship in India-Opportunities and Challenges Involved in Developing Agri-preneurship-Suggestions for Developing Agri-preneurship

UNIT-III :

[15 Hrs]

Family Business: Meaning – Characteristics -Types - Advantages of Family Business- Disadvantages of Family Business-Major Challenges Faced by Family Business in India- Business Succession Planning-Making Family Business More Effective

UNIT-IV :

[15 Hrs]

New Venture and MSME- An Introduction: New venture-meaning-Promoting New Venture-Sources of business Ideas-Idea Generation Techniques-Project Identification-Project selection-Procedures to start a New Venture-Project: Meaning-Types-Formulation of Project Report-Project Appraisal-MSME: Introduction-Classification of Enterprises-Memorandum of MSME's-Registration of MSME's.

UNIT- V

[15 Hrs]

Institutional Support and Subsidies: Sources of raising funds-need for institutional finance-various Institutions Supporting entrepreneurship. Incentives and Subsidies: Meaning, needs, incentives and subsidies is available for entrepreneur- District Industries Centre (DIC) - Industrial Estates.

TEXT BOOK:

1. Entrepreneurial Development, Dr .S.S. Khanka, S. Chand Publications-2018.

REFERENCE BOOKS:

1. Vasant Desai, Small-Scale Industries and Entrepreneurship, Himalaya Publishing House, 2017
2. C B Gupta & Srinivasan : Entrepreneurship Development in India, Sultan Chand.
A Gupta : Indian Entrepreneurial Culture, New Age International.

II- B.COM	OFFICE AUTOMATION	19GCM31A
SEMESTER III		HRS/WK – 5
GENERIC ELECTIVE- I (A)		CREDIT - 4

Unit- I: [15 Hrs]
Introduction to Microsoft Office: Overview of the Office components (Word, Excel, PowerPoint, Access) – Identifying Common Screen Elements – Exiting a Program.

Common Office Tools and Techniques: Switching from one application to another – Sizing and Arranging Windows – Working with Menus – Working with Dialog Boxes – Working with Toolbars.- Using the Clipboard to cut, copy and paste.

Unit-II: [15 Hrs]
Starting Word: Starting a New Document – Opening an Existing File – Saving a Document – Printing a Document – Closing a Document.

Word Basics :- Typing Text – Inserting, Selecting and Deleting Text – Using Undo and Redo – Inserting Special Characters or symbols – Formatting Characters (Changing Fonts and Font Sizes, Applying Bold, Italic or Underline, Changing Text Case – Drop Caps) – Margins & Gutters - Working with Bulleted or Numbered Lists – Aligning Text – Borders and Shading - Formatting Paragraphs – Line Spacing

Unit-III: [15 Hrs]
Working with AutoCorrect and AutoFormat: Using Find and Replace – Correcting Spelling and Grammatical Errors – Working with Headers and Footers – Working with Tabs - Working with Tables.

Working with Graphics: Importing Graphics – ClipArt Gallery – Drawing Objects.

Unit-IV: [15 Hrs]
Using Excel: Creating a Simple Spreadsheet – Editing a Spreadsheet – Working with Functions and Formulas – Formatting Worksheets – Creating Charts.

Unit-V: [15 Hrs]
Using PowerPoint: Creating & Viewing Presentations – Editing a Presentation – Working with Presentation Special Effects.

TEXT BOOKS:

1. Microsoft Office XP fast & easy by Diane Koers, Prentice-Hall of India, New Delhi, 2001.
2. “Working in Microsoft Office”, by Ron Mansfield, Tata McGraw-Hill Publishing Company Limited, New Delhi, 1997.

REFERENCE BOOKS:

1. “Microsoft Excel 2016 BIBLE” by John Walkenbach, DurgaPrinto Graphics, Delhi
2. “Microsoft Office Professional Instant Reference” by Sheila S. Dienes, BPB Publications, New Delhi.
3. “Mastering Word 2000” by Ron Mansfield & J.W Olsen, BPB Publications, New Delhi.

II- B.COM	INTERNET TECHNOLOGIES	19GCM31B
SEMESTER III		HRS/WK – 5
GENERIC ELECTIVE- I (B)		CREDIT - 4

Unit-I **[15 Hrs]**

Internet Basics: What is Internet?-Origin of Internet-IP address-Domain name-Host Name-DNS-Port Number-WWW-URL-Web server-Web browser-Search Engine-Types of Internet Connections-Hardware Requirements-Internet accounts-Network-Types of Network-Network Topologies.

Unit-II **[15 Hrs]**

Introduction to HTML: History of HTML-Structure of HTML-Basic HTML tags-Linking HTML document-Adding images into HTML document-List

Unit-III **[15 Hrs]**

HTML and CSS: Tables creation in HTML-Frames in HTML-Cascading Style Sheet (CSS)-Uses of CSS-Types of CSS

Unit-IV: **[15 Hrs]**

Java Script: Java Script Syntax-Input and Output in Java Script-Data types- Variables-Arrays-Expressions-Dialog box-Looping structure.

Unit-V: **[15 Hrs]**

Uses of Internet: E-mail-Chat-On line Transaction-credit card transaction-Debit card transaction-Net banking-E-Business-Uses of internet in education-E-Shopping-Web publishing

TEXT BOOKS:

1. Ivan Bayross-Web Enabled Commercial Application Development HTML, Java Script, DHTML and PHP-4TH Edition
2. H.Schildt Complete Reference-Internet

REFERENCE BOOK:

1. Thomas.A.Powel., The Complete Reference-HTML & CSS., Fifth Edition., Tata McGraw Hill

III- B.A ENGLISH	OFFICE AUTOMATION	19GEN61A
SEMESTER VI		HRS/WK – 5
GENERIC ELECTIVE- I (A)		CREDIT - 4

Unit I: **[15 Hrs]**

Introduction to Microsoft Office: Overview of the Office components (Word, Excel, PowerPoint, Access) – Identifying Common Screen Elements – Exiting a Program.

Common Office Tools and Techniques: Switching from one application to another – Sizing and Arranging Windows – Working with Menus – Working with Dialog Boxes – Working with Toolbars. - Using the Clipboard to cut, copy and paste.

Unit II: **[15 Hrs]**

Starting Word: Starting a New Document – Opening an Existing File – Saving a Document – Printing a Document – Closing a Document.

Word Basics :- Typing Text – Inserting, Selecting and Deleting Text – Using Undo and Redo – Inserting Special Characters or symbols – Formatting Characters (Changing Fonts and Font Sizes, Applying Bold, Italic or Underline, Changing Text Case – Drop Caps) – Margins & Gutters - Working with Bulleted or Numbered Lists – Aligning Text – Borders and Shading - Formatting Paragraphs – Line Spacing

Unit III: **[15 Hrs]**

Working with AutoCorrect and AutoFormat: Using Find and Replace – Correcting Spelling and Grammatical Errors – Working with Headers and Footers – Working with Tabs - Working with Tables.

Working with Graphics: Importing Graphics – ClipArt Gallery – Drawing Objects.

Unit IV: **[15 Hrs]**

Using Excel: Creating a Simple Spreadsheet – Editing a Spreadsheet – Working with Functions and Formulas – Formatting Worksheets – Creating Charts.

Unit V: **[15 Hrs]**

Using PowerPoint: Creating & Viewing Presentations – Editing a Presentation – Working with Presentation Special Effects.

TEXT BOOKS:

1. Microsoft Office XP fast & easy by Diane Koers, Prentice-Hall of India, New Delhi, 2001.
2. “Working in Microsoft Office”, by Ron Mansfield, Tata McGraw-Hill Publishing Company Limited, New Delhi, 1997.

REFERENCE BOOKS:

1. “Microsoft Excel 2016 BIBLE” by John Walkenbach, DurgaPrinto Graphics, Delhi
2. “Microsoft Office Professional Instant Reference” by Sheila S. Dienes, BPB Publications, New Delhi.
3. “Mastering Word 2000” by Ron Mansfield & J.W Olsen, BPB Publications, New Delhi.

III- B.A ENGLISH	INTERNET TECHNOLOGIES	19GEN61B
SEMESTER VI		HRS/WK – 5
GENERIC ELECTIVE- I (B)		CREDIT - 4

Unit-I **[15 Hrs]**

Internet Basics: What is Internet?-Origin of Internet-IP address-Domain name-Host Name-DNS-Port Number-WWW-URL-Web server-Web browser-Search Engine-Types of Internet Connections-Hardware Requirements-Internet accounts-Network-Types of Network-Network Topologies.

Unit-II **[15 Hrs]**

Introduction to HTML: History of HTML-Structure of HTML-Basic HTML tags-Linking HTML document-Adding images into HTML document-List

Unit-III **[15 Hrs]**

HTML and CSS: Tables creation in HTML-Frames in HTML-Cascading Style Sheet (CSS)-Uses of CSS-Types of CSS

Unit-IV: **[15 Hrs]**

Java Script: Java Script Syntax-Input and Output in Java Script-Data types- Variables-Arrays-Expressions-Dialog box-Looping structure.

Unit-V: **[15 Hrs]**

Uses of Internet: E-mail-Chat-On line Transaction-credit card transaction-Debit card transaction-Net banking-E-Business-Uses of internet in education-E-Shopping-Web publishing

TEXT BOOKS:

1. Ivan Bayross-Web Enabled Commercial Application Development HTML, Java Script, DHTML and PHP-4TH Edition
2. H.Schildt Complete Reference-Internet

REFERENCE BOOK:

1. Thomas.A.Powel., The Complete Reference-HTML & CSS., Fifth Edition., Tata McGraw Hill

II- B.SC BIO CHEMISTRY	OFFICE AUTOMATION	19AOA301
SEMESTER III		HRS/WK – 3
SKILL		CREDIT - 2

Unit -I: **[9 Hrs]**

Introduction to Microsoft Office: Overview of the Office components (Word, Excel, PowerPoint, Access) – Identifying Common Screen Elements – Exiting a Program.

Common Office Tools and Techniques: Switching from one application to another – Sizing and Arranging Windows – Working with Menus – Working with Dialog Boxes – Working with Toolbars. - Using the Clipboard to cut, copy and paste.

Unit-II: **[9 Hrs]**

Starting Word: Starting a New Document – Opening an Existing File – Saving a Document – Printing a Document – Closing a Document.

Word Basics :- Typing Text – Inserting, Selecting and Deleting Text – Using Undo and Redo – Inserting Special Characters or symbols – Formatting Characters (Changing Fonts and Font Sizes, Applying Bold, Italic or Underline, Changing Text Case – Drop Caps) – Margins & Gutters - Working with Bulleted or Numbered Lists – Aligning Text – Borders and Shading - Formatting Paragraphs – Line Spacing

Uni- III: **[9 Hrs]**

Working with AutoCorrect and AutoFormat: Using Find and Replace – Correcting Spelling and Grammatical Errors – Working with Headers and Footers – Working with Tabs - Working with Tables.

Working with Graphics: Importing Graphics – ClipArt Gallery – Drawing Objects.

Unit-IV: **[9 Hrs]**

Using Excel: Creating a Simple Spreadsheet – Editing a Spreadsheet – Working with Functions and Formulas – Formatting Worksheets – Creating Charts.

Unit-V: **[9 Hrs]**

Using PowerPoint: Creating & Viewing Presentations – Editing a Presentation – Working with Presentation Special Effects.

TEXT BOOKS:

1. Microsoft Office XP fast & easy by Diane Koers, Prentice-Hall of India, New Delhi, 2001.
2. “Working in Microsoft Office”, by Ron Mansfield, Tata McGraw-Hill Publishing Company Limited, New Delhi, 1997.

REFERENCE BOOKS:

1. “Microsoft Excel 2016 BIBLE” by John Walkenbach, DurgaPrinto Graphics, Delhi
2. “Microsoft Office Professional Instant Reference” by Sheila S. Dienes, BPB Publications, New Delhi.
3. “Mastering Word 2000” by Ron Mansfield & J.W Olsen, BPB Publications, New Delhi.

III- B.COM	INCOME TAX LAW AND PRACTICE	19CM514
SEMESTER -V	<i>(For the Students Admitted from the year 2019 onwards)</i>	HRS/WK - 6
CORE - XI		CREDIT - 5

Objectives:

1. To help the students understand and apply basic concepts and provisions of Income Tax Act 1961.
2. To provide with various heads of incomes for finding out Income Tax liability.

Course Outcomes:

At the end of the Course the students should be able to exhibit

CO1: Have knowledge of the basic concepts of Income Tax Act, 1961 and to analyze the components of taxable salary and compute it.

CO2: Classify the types of house properties and compute their taxable annual values.

CO3: Understand the basic concepts of and provisions relating to income from business or profession and compute taxable capital gains.

CO4: Know the income taxable under the head income from other sources and apply the provisions for deductions and rates of tax.

CO5: Analysis Set off and Carry Forward of losses in business application.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes.

SEMESTER V	COURSE CODE: 19CM514					COURSE TITLE: INCOME TAX LAW AND PRACTICE					HOURS:6	CREDITS:5
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	4	4	3	5	4	5	4	4	3	5	4.1	
CO2	5	5	4	4	5	4	5	3	4	4	4.3	
CO3	4	3	4	4	4	5	5	4	5	3	4.1	
CO4	5	4	5	3	4	5	4	4	3	5	4.2	
CO5	5	4	3	5	3	5	4	5	4	5	4.3	
Mean Overall Score											4.2	

Result: The Score of this Course is 4.2 (Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT-I Basic Concepts

(20 Hrs.)

Basic Concepts - Definitions of Previous Year, Assessment Year, Persons, Assesse, Income, Gross Total Income, Residential status, Exempted Income, Agricultural Income. Computation of Salary Income, Taxable Allowances, Perquisites and Profit in lieu of salary, Deductions u/s 80 C to 80 U.

UNIT-II Income from House Property**(17 Hrs.)**

Computation of House Property income - Annual value, Gross Annual Value and Net Annual Value Deductions.

UNIT-III Income from Business or Profession**(18****Hrs.)**

Profits and Gains from Business or Profession, Expressly allowed and disallowed Deductions. Depreciation - Block of assets.

UNIT-IV Income from Capital gains and Other Sources**(18****Hrs.)**

Income from Capital gains - Deductions and Exemptions. Income from other sources - Grossing up of interest.

UNIT-V Set off and Carry forward of Losses**(17 Hrs.)**

Deemed Income – Set off and Carry forward of losses.

TEXT BOOKS:

1. T S Reddy and Y. Hari Prasad, Reddy *Income Tax Theory, Law and Practice*, Margham Publication, 2023.
2. Dr N. Hariharan, *Income Tax Law and Practice* –Vijay Nichole publication, New Delhi, 2023.

REFERENCE BOOKS

1. Gaur & Narang, *Income Tax Law and Practice*, Kalyani Publications, New Delhi, 2023.
2. T S Reddy and Hari Prasad Reddy *Business Taxation*, Margham Publication, 2023.
3. Dr. Vinod and K. Singhania,, Monica Singhania, *Students Guide To Income Tax*, Taxmann Publications, New Delhi, 2023.
4. Dr. H.C Mehrotra, *Income Tax Law & Practice*, Sri Venkateswara Publication, Chennai, 2023.

WEB REFERENCE

1. <https://incometaxindia.gov.in/pages/acts/income-tax-act.aspx>
2. <https://saral.pro/blogs/income-from-business-and-profession/>
3. <https://cleartax.in/s/set-off-carry-forward-losses>

QUESTION PAPER PATTERN**Problem oriented paper****Time: 3 Hours****Marks: 75****Theory 40% Problem 60%**

Part - A = 10x2 =20 Marks – All the Questions are to be Answered.

Part – B = 5x5 = 25 Marks –Five Questions with Eight open Choice

Part – C = 3x10 = 30 Marks – Three Out of Five – Open Choice.

Note: Questions should be asked from all the **UNITs** with equal weightage.

III- B.COM	CUSTOM, EXCISE AND GOODS AND SERVICETAX <i>(For the Students Admitted from the year 2021)</i>	19CM619
SEMESTER-VI		HRS/WK –6
CORE- XIII		CREDIT - 5

Objectives:

- To enable the students to understand basic concepts of Goods and Service Tax.
- To provide an insights into practical aspects of GST and equip them to become a Tax practitioner.

Course Outcomes

After completing this course, the student will be able to:

CO1: Imbibe the basics concepts of Customs and Excise duty.

CO2: Know the fundamental concepts of Goods and Service Tax (GST).

CO3: Understand the Goods and Service Tax Registration.

CO4: Analyze the procedures of Levy and Collection of GST.

CO5: Be acquainted with the Assessment Returns and Refund of Goods and Service Tax.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes.

SEMESTER VI COURSE OUTCOMES	COURSE CODE: 19CM619 PROGRAMME OUTCOMES(PO)					COURSE TITLE: CUSTOM, EXCISE AND GOODS AND SERVICE TAX PROGRAMME SPECIFIC OUTCOMES(PSO)					HOURS: 6	CREDITS:5
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	MEAN SCORE OF CO'S	
	CO1	5	5	5	5	5	5	5	5	5	5	5
CO2	5	4	5	4	5	5	3	5	4	5	4.5	
CO3	4	4	3	4	5	4	5	4	4	4	4.1	
CO4	3	3	4	4	4	3	4	3	4	5	3.8	
CO5	4	4	3	3	3	4	3	4	3	3	3.4	
Mean Overall Score											4.16	

Result: The Score of this Course is 4.16 (Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT –I Customs and Excise Duty

(18 Hrs.)

Customs act 1962- Objectives of Customs Act, Levy and collection of Customs duty, Classification of goods, Goods Exempted from Customs duty, Searches, Seizures, Confiscation and penalties. Central excise duty 1944 - Nature of excise duty, Levy and Collection of excise duty - Type of excise duty, Valuation of goods, Clearance of goods - Registration and exemption from registration.

UNIT –II Introduction to Goods and Service Tax

(18 Hrs.)

Goods and Service Tax – Meaning, History of Goods and Service Tax, Features, Objectives, Challenges, Types – SWOT (Strength, Weakness, Opportunities, and Threats of Goods and Service Tax), Scope of Goods and Service Tax - Difference between Indirect Tax and Goods and Service Tax, Advantages and Disadvantages of Goods and Service Tax, Impact of GST (Consequential Changes) - Effects of Goods and Service Tax in Indian Economy- General Constraints in Implementation of GST.

UNIT-III Goods and Service Tax Registration

(18 Hrs.)

Goods and Service Tax Registration - Meaning, Importance, Types, Person Liable to get Registered - Procedure for Resident and Non- Resident – Enrolment process under Goods and Service Tax – Documents required – Penalties – Cancellation of Registration – Revocation of Cancellation of Registration.

UNIT-IV Levy and Collection of GST

(18 Hrs.)

Supply– Meaning, Place of Supply, Time of Supply, Value of Supply, Methods of Valuation - Goods and Service Tax on Exports. Provisions and rules regarding Input Tax Credit– Matching and Reversal and Reclaim at Reduction in Output tax liability.

UNIT-V Assessment Returns and Refund of Goods and Service Tax

(18 Hrs.)

Assessment – Meaning and types – Periods of Retention of Accounts - Furnishings of details of Outward Supply – Furnishing of Returns – Furnishing of First Return-Furnishing of Annual Return- Furnishing of Final Return– Payments of Goods and Service Tax TDS and TCS under Goods and Service Tax – Refund of Goods and Service Tax.

TEXT BOOKS

1. Prof. V. Balachandran, *Textbook of GST & Customs Law*, Sultan Chand & Sons, Educational Publishers, New Delhi, 2021.
2. T.S. Reddy & Y. Hari Prasad Reddy, *Business Taxation (Goods & Service Tax - GST)* Margham Publication, Chennai, 2019.

REFERENCE BOOKS

1. V.S. Datey, *Indirect Tax Law & Practice*, Taxmann Publication Pvt. Ltd., Delhi, 2020.
2. Dr. Vinod K. Singhanian And Dr. Monica Singhanian, *Students Guide To Income Tax including GST*, Taxmann Publication Pvt. Ltd., New Delhi, 2021-2022.
3. Rakesh Kumar, *Goods and Services Tax*, Diamond Pocket Books (P) Ltd., New Delhi, 2017.
4. CA Hermant Narang, *Goods and Services Tax Simplified, A Complete Guide to New Model GST Law*, Computech Publications Limited, New Delhi, 2017.

WEB REFERENCES

1. <https://www.teachoo.com/548/169/Exemption-from-Custom-duty/category/Cases-Where-Custom-Duty-Not-Charged/>
2. <https://taxguru.in/goods-and-service-tax/gst-glitches-swot-study-gst.html>
3. <https://cleartax.in/s/gst-registration-process-for-nri>
4. <https://howtoexportimport.com/Method-of-valuation-of-goods-under-GST-9452.aspx>
5. <https://www.aaptaxlaw.com/cgst-act/section-39-cgst-act-furnishing-returns.html>

QUESTION PAPER PATTERN

Time: 3 Hours

Marks: 75

Part - A = 10x2 =20 Marks – All the Questions are to be Answered.

Part – B = 5x5 = 25 Marks – Five Questions with Internal Choice.

Part – C = 3x10 = 30 Marks – Three Out of Five – Open Choice.

Note: Questions should be asked from all the **UNITs** with equal weightage

III- B.COM	BUSINESS LAWS	19ECM513
SEMESTER -V	<i>(For the Students Admitted from the year 2019 onwards)</i>	HRS/WK –6
DSE – I (A)		CREDIT -4

Objectives:

1. To make the students to be acquaint with different laws governing various activities of businesses.
2. To aware about the interest and rights of consumers.

Course Outcomes:

At the end of the Course the students should be able to exhibit

CO1: Know the framework of Indian Contract Act 1872.

CO2: Understand the other essential elements of Indian Contract 1872.

CO3: Explain the provisions of Special Contracts and Modes of Discharge.

CO4: Acquire the Knowledge of Sale of Goods Act 1930.

CO5: Perceive the concepts Consumer Protection Act 2019.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes.

SEMESTER - V	COURSE CODE:19ECM513					COURSE TITLE: BUSINESS LAWS					HOURS:6	CREDITS:4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	5	5	5	5	5	4	2	5	5	2	4.3	
CO2	5	5	5	5	5	4	4	5	4	2	4.4	
CO3	5	5	5	5	5	4	4	5	5	2	4.5	
CO4	5	5	5	5	5	4	4	4	4	2	4.3	
CO5	5	5	5	5	5	4	4	4	2	2	4.1	
Mean Overall Score											4.3	

Result: The Score of this Course is 4.3 (Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT – I Indian Contract Act 1872 (Introduction and Essential Elements) (15Hrs.)

Law – Meaning, Objectives, Need for the Knowledge of Law. Law of Contract. Contract- Definition, Agreement and its Enforceability, Consensus Ad Idem, Essential Elements of a Valid Contract. Classification of Contracts. Offer and Acceptance, Legal Rules as to Offer and Acceptance, Communication of Offer, Acceptance and Revocation.

UNIT – II Indian Contract Act 1872 (Other Essential Elements) (20 Hrs.)

Consideration – Definition, Meaning, Legal Rules as to Consideration, Valid Contracts without Consideration. Capacity to Contract, Agreements with Minor, Minor's Liability for Necessaries

Free Consent, Coercion, Undue Influence, Fraud, Misrepresentation, Mistake. Agreements Opposed to Public Policy.

UNIT – III Indian Contract Act 1872 (Special Contracts) (20 Hrs.)

Special Contracts – Bailment and Pledge, Indemnity and Guarantee, Various Modes of Discharge of Contract. Breach of Contract – Meaning, Remedies for Breach of Contract. Quasi Contract-Types.

UNIT – IV Sale of Goods Act 1930 (17Hrs)

Sale of Goods Act 1930 - Definition of Sale, Sale Vs. Agreement to Sell. Goods, Condition and Warranties, Warranty vs. Guarantee, Express and Implied Conditions. “Doctrine of Caveat Emptor” - Rights of Unpaid Seller.

UNIT – V Consumer Protection Act 2019 (18 Hrs.)

Definitions, Consumer, Complainant, Complaint, Objectives, Consumer Protection Councils: Central Council and State Council, Central Consumer Protection Authority (CCPA). Role of Consumer Disputes Redressal Agencies: District Commission, State Commission, National Commission, Procedure of Filing Complaint.

TEXT BOOKS:

1. N.D. Kapoor, Dr. Rajni Abbi , Bharat Bhushan, Rajiv Kapoor, *Business Laws*, Sultan Chand & Sons (P) Ltd, Revised Edition, 2019.
2. – R.S.N. Pillai and Bagavathi, *Business Law* -S.Chand & Company Ltd, Third Edition , 2010

REFERENCE BOOKS

1. P.C. Tulsian, Bharat Tulsian, *Business Laws*, McGraw-Hill, Fourth Edition,2020
2. Akhilashware Pathek, *Leggal Aspects of Business*, MC Graw Hill, , Seventh Edition, 2018
3. P. Saravanavel & S. Sumathi, *Legal Aspects of Business*, Eswar Press, First Edition, 2012
4. M.R. Sreenivasan, *Business Law*, Margham Publication, Fifth Edition, 2012
5. M.C. Kuchal, Vivek Kuchhal, *Business Law*, Vikas Publishinh House Pvt Ltd, Sixth Edition , 2013

WEBSITE REFERENCES

1. <https://consumeraffairs.nic.in/>
2. <http://egazette.nic.in/WriteReadData/2019/210422.pdf>

QUESTION PAPER PATTERN

Time: 3 Hours

Marks: 75

Part - A = 10x2 =20 Marks – All the Questions are to be Answered.

Part – B = 5x5 = 25 Marks – Five Questions with Internal Choice.

Part – C = 3x10 = 30 Marks – Three Out of Five – Open Choice.

Note: Questions should be asked from all the **UNITs** with equal weightage.

III- B.COM	COMPANY LAW <i>(For the Students Admitted from the year 2019 onwards)</i>	19ECM617
SEMESTER -VI		HRS/WK –6
DSE – II (A)		CREDIT -4

Objectives:

1. To provide adequate knowledge on formation of Companies.
2. To understand the management and winding up of the Companies.

Course Outcomes

After completing this course, the student will be able to:

CO1: Learn the basic concepts of company and different kinds of Companies.

CO2: Express the procedure of the Formation of a Company.

CO3: Study the various types of Share Capitals and Prospectus Company.

CO4: Acquire the Knowledge about the Management of Companies.

CO5: Explain the process of winding up of Companies.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes.

SEMESTER VI	COURSE CODE: 19ECM617					COURSE TITLE: COMPANY LAW					HOURS: 6	CREDITS:4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	5	5	5	5	5	5	5	5	5	5	5	
CO2	4	4	5	4	5	4	5	4	5	3	4.3	
CO3	4	4	4	4	3	4	3	4	4	3	3.7	
CO4	3	4	3	3	4	2	4	3	4	3	3.3	
CO5	3	3	4	3	4	3	4	3	3	4	3.4	
Mean Overall Score											3.94	

Result: The Score of this Course is 3.94 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT – I Introduction of a Company

(15 Hrs.)

Company - Meaning and Definition, Kinds of Companies, Limited and Unlimited, Private and Public, Government Companies, Statutory Companies, One Person Company, Corporate Social Responsibility u/s 135 of 2013.

UNIT – II Formation of a Company

(15 Hrs.)

Formation of a Company - Promotion, Promoter, Functions of a Promoter, Incorporation . Documents of Company . Memorandum of Association - Definition, Clauses, Provisions and Procedures for Alteration. Articles of Association - Definition, Contents, Provisions and Procedures for Alteration, Distinction between Memorandum and Articles of Association.

UNIT –III Prospectus and Share Capital**(20 Hrs.)**

Prospectus - Contents, Statements in Lieu of Prospectus. Share Capital – Types, Provisions of Alteration, conversion , Buyback of Shares and Commencement of Business.

UNIT – IV Management of Companies**(20 Hrs.)**

Management of Companies –Directors, Independent Director, Women Directors, Appointment, Qualification, Remuneration, Rights, Responsibilities and Liabilities. Company secretary – Definition, Appointment, Dismissal, Qualification, Duties and Liabilities. Meetings - Statutory, Annual, Extra-ordinary and Board Meetings, Agenda, Quorum, Proxy, Resolutions, Types and Minutes.

UNIT – V Winding Up**(20 Hrs.)**

Winding up of Companies – Meaning, Modes of Winding up - Winding up by Court, Role of Liquidators in Winding up by Court. Voluntary Winding up, Liquidators in voluntary Winding up.

TEXT BOOKS:

1. P.P.S. Gogna, *A Text Book of Company Law*, S. Chand Publishing, 2021.
2. N.D. Kapoor, *Elements of Company Law*, Sultan Chand & Sons, 2020.

REFERENCE BOOKS:

1. N.D. Kapoor, *Elements of Mercantile Law*, Sultan Chand & Sons, 2021.
2. N.D. Kapoor, *Company Law & Secretarial Practice*, Sultan Chand & Sons, 2020.
3. Dr. G. Kapoor and Dr. Sanjay Dhamija, *Company Law & Practice*, Taxmann's, 2022.

WEB REFERENCES:

1. <https://www.mca.gov.in/Ministry/pdf/CompaniesAct2013.pdf>
2. <https://www.mca.gov.in/Ministry/pdf/CompaniesAct2013.pdf>

QUESTION PAPER PATTERN**Time: 3 Hours****Marks: 75**

Part - A = 10x2 =20 Marks – All the Questions are to be Answered.

Part – B = 5x5 = 25 Marks – Five Questions with Internal Choice.

Part – C = 3x10 = 30 Marks – Three Out of Five – Open Choice.

Note: Questions should be asked from all the **UNITs** with equal weightage.

II- M.COM	INTERNATIONAL BUSINESS (For the Students Admitted from the year 2020 onwards)	19PCM43
SEMESTER - IV		HRS/WK -6
CORE -XIV		CREDIT - 4

Objectives:

1. The purpose of this paper is to enable the students learn nature, scope and structure of International Business, and understand the influence of various environmental factors on international business operations.
2. To Provide Knowledge about International Financial Organizations.

Course Outcomes

After completing this course, the student will be able to:

CO1: Understand the basic concepts and recent development of International Business.

CO2: Distinguish and Outline the International Business environments.

CO3: Acquiring Knowledge on the theories of International Trade.

CO4: Analyzing the role of international organizations in International Business.

CO5: Practice the International Financial management and Negotiations.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes.

SEMESTER IV	COURSE CODE: 19PCM43					COURSE TITLE: INTERNATIONAL BUSINESS					HOURS:6	CREDITS:4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	4	5	4	3	5	3	5	5	4	4	4.2	
CO2	3	4	3	4	4	4	4	5	5	3	3.9	
CO3	4	3	4	3	4	4	4	4	3	3	3.6	
CO4	3	3	4	4	3	3	3	4	4	4	3.5	
CO5	4	4	5	4	4	4	4	4	4	3	4.0	
Mean Overall Score											3.84	

Result: The Score of this Course is 3.87 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT-I- Concept Of International Business

(20 Hrs)

Meaning-Domestic Business vs International Business-Localisation Vs Globalisation-Reasons for IB-Problems in International Business-Modes of Entry in International Business-Factors affecting International Business- Recent Trends in world Trade.

UNIT-II International Business Environment (16 Hrs)

Concept-Forms of environment: Economic and Social Environment- Cultural and Political-Legal and Regulatory environment- Natural Environment-Ethics and Social responsibilities of IB.

UNIT-III- Theories Of International Trade (18 Hrs)

Absolute Cost Advantage theory- Comparative Cost Advantage Theory-Factor Endowment Theory-Product Life Cycle Theory-New Trade Theory -National Competitive Advantage Theory.

UNIT-IV International Organizations And Arrangements (18 Hrs)

WTO, World Bank, IMF, IBRD, UNCTAD: Objectives, Principles and Functions-Regional Economic Cooperation-Advantages and Disadvantages.

UNIT -V International Financial Management And Negotiations (18 Hrs)

Capital Budgeting-Capital Structure of International Projects-International Working Capital Management-Sourcing International Finance.

Steps in the negotiation Process-Behaviour and Tactics in negotiations- Approaches to International Negotiations.

TEXT BOOKS::

1. C B Gupta, *International Business*, S.Chand, 2014 Edition.
2. Michael Geringer, Jeanne M. McNett, Michael S. Minor, Donald A. Ball, *International Business*, Mc Graw Hill India, 2020 Edition.

REFERENCE BOOKS:

1. Cherunilam, F., *International Business: Text and Cases*, 5th Edition, PHI Learning, 2011.
2. Subba Rao. P, *International Business Text and Cases*, Himalaya Publishing house , 2019.
3. Paul, J., *International Business*, 5th Edition, PHI Learning, 2010.
4. Ball, D., Geringer, M., Minor, M. and McNett, J., *International Business: The Challenge of Global Competition*, 11th Edition, Tata-McGraw-Hill Education, 2009.
5. Deresky, H., *International Management: Managing Across Borders and Cultures*, 8th Edition, Pearson, 2013.
6. Griffin, R., *International Business*, 7th Edition, Pearson Education, 2012.
7. K Aswathappa, *International Business*, Mc Graw Hill India, 2020 Edition.
8. John Daniels, Lee Radebaugh ,Daniel Sullivan ,Prashant Salwan., *International Business*, Pearson, 2018 Edition.

QUESTION PAPER PATTERN

Time: 3 Hours

Marks:

75

Part-A=5x6=30Marks–Five Questions with Internal Choice.

Part-B=3x15=45Marks–Three Out of Five–Open Choice.

Note: Questions should be asked from all the **UNITs** with equal weightage

II – M.COM	NGO MANAGEMENT (For the students admitted from the year 2020 onwards)	19EPCM41
SEMESTER - IV		HRS/WK - 6
ELECTIVE -IV(B)		CREDIT-4

Objectives:

1. To impart knowledge on working in NGOs/effective running of NGOs
2. To Give knowledge about Project Development.

Course Outcomes:

At the end of the Course the students should be able to exhibit

- CO1:** Understand the genesis, growth and formation of NGOs.
CO2: Learn the organizational structure of NGOs.
CO3: Determine the marketing Strategies, Schemes available and FCRA Act.
CO4: Classify the formulation of Projects.
CO5: Ascertain the Tax laws related to NGOs

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes.

SEMESTERIV	COURSE CODE: 19EPCM41 PROGRAMME OUTCOMES(PO)					COURSE TITLE: NGO MANAGEMENT					HOURS:6	CREDITS:4
COURSE OUTCOMES						PROGRAMME SPECIFIC OUTCOMES(PSO)					MEAN SCORE OF CO'S	
	PO 1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	3	4	3	3	5	2	4	2	2	4	3.2	
CO2	4	4	4	4	4	3	4	3	5	2	3.7	
CO3	4	4	3	4	4	5	4	3	5	5	4.1	
CO4	5	5	5	5	5	5	5	5	5	5	5	
CO5	4	4	3	3	5	3	2	3	5	4	3.3	
Mean Overall Score											3.8	

Result: The Score of this Course is 3.8 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I Introduction

(20 Hrs)

NGOs - Definition - Meaning - Characteristics- Advantages - Limitations; formation of NGOs Genesis and Growth; Scope of Operation; Skills Required; Collaboration with Government.

UNIT II Organizations and Management:

(20 Hrs)

Administration and Management – Levels of Organization Governing body - Function - By-law - Policies Making; Committees - Scope and Function; Membership - Types - Qualification - Disqualification; Meeting - Quorum - Minutes.

UNIT III Marketing and Financial Management of NGOs: (20 Hrs)

Marketing Strategy for NGOs - Project Mix - Project Addition - Project elimination; Promotion - Need - Methods - Fund Management -Narration- Sources; Grants/Scheme from Government - eligibility- Procedure; Funds from abroad – Procedural guidelines - FCRA - Micro Finance; Maintenance of Accounts - Audit of Accounts.

UNIT IV Project Management: (15 Hrs)

Projects - Definition - Meaning -Objectives - Types; Process of Project Development - Project Writing - Problems in Project Formulation and Management - Evaluation of Projects - Project Audit.

UNIT V NGOs and Tax Laws (15 Hrs)

Income tax 1961 - Income - Persons -Assessment year - Previous year; Section 11 (General Deductions) -Section 13 (Forfeiture of Exemption) - Section 34A & B - Section80G - TDS; Indirect tax liabilities.

TEXT BOOKS::

1. Dr. John Santiago Joseph & Louis Manohar, '*Practical Guide to Participative NGO Management*', KIDS Trust Publications, TN, India.
2. Goel. S.L. Kumar R. (2008), *Administration and Management of NGOs -Text and case Studies*. Deep and Deep PVT Ltd., New Delhi.

REFERENCE BOOKS:

1. Snehlata Chandra:*Non-Governmental Organizations-Structures, Relevance and function:* Kanishka Publishing Distributors, New Delhi., 2008
2. Goyal O.P. *Strategic Management and Policy Issues*, Isha Books, NGOs Publisher, Jaipur. 2008,
3. Ravi Shankar Kumar Singh: *Role of NGOs in Socio – Economic Development:* Abhijeet Publications, New Delhi. 2008,

QUESTION PAPER PATTERN

Time: 3 Hours

Marks: 75

Part - A = 5 x 6 = 30 Marks – Five Questions with Internal Choice.

Part – B = 3 x 15 = 45 Marks – Three Out of Five – Open Choice.

Note: Questions should be asked from all the **UNITs** with equal weightage.

II B. Com (BM)	ADVANCED EXCEL AND TALLY (Offered by Department of Computer Science)	Code: 21ABM401
SEMESTER – IV		HRS/WK: 5
Allied		Credit :4

UNIT-I: Introduction to Advanced EXCEL

Mathematical Functions - Statistical problems- Numerical Methods-Excel solutions- Accessing functions in Excel- Auditing tools.

UNIT-II: Excel with Tables

Data Tables - Setting up Data Tables with one input - Setting up Data Tables with two inputs - XY charts - Access to Data Analysis and Solver - Using range names – Regression.

UNIT-III: Excel with Matrix Applications

Matrix algebra and related functions - Introduction to matrices - Transposing a matrix - Adding matrices - Multiplying matrices- Solving systems of simultaneous linear equations - Summary of Excel’s matrix functions.

UNIT-IV: TALLY ERP for Financial Management

Introduction to Tally - Account Creation- Prepare Trading and Profit and Loss Account and Balance sheet of a company.

UNIT-V: TALLY ERP for Financial Management

Tally Vouchers - Cost category and cost Centre - Bank Reconciliation Statement - Inventory and Stock – Invoicing - Interest Calculation.

Text books:

1. Advanced Modelling in Finance using Excel and VBA - Mary Jackson and Mike Staunton - JOHN WILEY & SONS, LTD, 2001.
2. Self-Learning Guide and Work Book – Tally Solutions Pvt Ltd.

QUESTION PAPER PATTERN:

Time: 3 Hours

Marks: 75

1. Part - A = 10x2 =20 Marks – All the Questions are to be Answered.
2. Part – B = 5x5 = 25 Marks –Five out of Seven - Open Choice.
3. Part – C = 3x10 = 30 Marks – Three out of Five – Open Choice.

Note: Questions should be asked from all Units. Equal importance should be given to all Units

III BBM		CODE -21EBM506
SEM V	RESEARCH METHODOLOGY	HRS/WEEK – 5
Discipline Specific Elective-II(A)		CREDIT - 4

OBJECTIVE:

The course aims at introducing them the basic concepts used in research and to scientific social research methods and their approach.

Unit – I Introduction to Research and Methods (15Hrs)

Research –Meaning and Definition- Types of Research – Research Methods – Problems faced by Researcher – Research Process _ Various Steps in Research Process. Review of literature – Identification Research Gap – social relevance of research - Research Problem – Sources, Identification and Developing Research Problem – Construction of Research Questions – Framing Objectives and hypotheses.

Unit –II Research Design (18 Hrs)

Concepts– Meaning, Definition and types - Variables – Meaning & Definition – Types of Variables. Research Design - Meaning, Definition - types of Research Design – Experimental and non-Experimental Research Design – Characteristic of good Research Design – Relationship between Research Problem and Research Design.

Unit –III Sampling Design and Data Collection (17Hrs)

Sample – meaning and definition- sample size- sampling design – meaning and definition- essentials of good sampling design- methods of sampling- random and non- random sampling- sampling and non- sampling error- reduction of sampling errors Data- types of data- primary data- different methods of collecting primary data- measurement of scale and scaling techniques- construction of questionnaire- secondary data- various sources of secondary data

Unit –IV Data analysis (15Hrs)

Steps in processing the data – editing- coding- classification- content analysis- tabulation- methods of tabulation- Application of statistics in data analysis- descriptive statistics- mean, median, mode, standard deviation- correlation and regression- inferential statistics using Excel- chi-square test- ANNOVA, T- test-,F-Test- tools for testing hypothesis. Application of computer in modern research

Unit –V Report writing (10Hrs)

Research report- meaning-, types of research report- essential of good research report- stages in preparing research report- structure of research report- preliminary pages, main body of the report and reference material- guidelines and mechanics for preparing research report

TEXT BOOKS:

1. C.R. Kothari- Research Methodology- New age international pvt Ltd- 2004
2. Ranjit Kumar – Research Methodology: A step by step guide for Beginners- Sage publications Ltd- - 3rd edition-2011

III B. Com (BM)	ELECTRICAL WIRING (Skill development course) (Offered by Department of Physics)	Code: 21SBM51
SEMESTER – V		HRS/WK: 3
SEC-4		Credit :2

Unit-I:ELECTRICITY GENERATION

(9 Hours)

Fundamentals of electricity - Current, Voltage, resistance - Ohm's law - Power -Kilowatt hour - Watt meter - Electrical measurements - Electric power generation by Thermal, hydro, atomic and nuclear methods - Batteries -Generators - Study of Generator.

Unit-II:ELECTRIC CIRCUITS AND DISTRIBUTION

(9 Hours)

Symbols of electrical parameters - Importance Series, Parallel connections -Ac and DC - Conductors - Inductor, Capacitor and transformer - Distribution methods - single phase and three phase - Star and delta connections - Rules of electric connections - SWG -Motors - Study of motor, series and parallel circuits.

Unit-III: ELECTRICAL WIRING -I

(9 Hours)

Tools - Methods of Joining conductors - House wiring methods - Gilt, wood casing, Tough - Rubber sheathed, conduit or PVC pipe and concealed –Switches - ceiling roze - lamp holders, sockets - Fuse base - Distribution box–Trip switches - Earth connection -Experimental study of house wiring.

Unit-IV : ELECTRICAL WIRING - II

(9 Hours)

Main board preparation - Distribution - Cut - out preparation - Switch board preparation - Power factor - IEE regulations - Safety precautions –Testing the insulation -Experimental study of main, distribution and switchboards.

Unit-V: ELECTRICAL APPLIANCES & SAFETY PRECAUTIONS

(9 Hours)

Tungsten - filament bulb - tube light -mercury and sodium vapour lamp -LED lamp - heater - iron box - table fan - ceiling fan - battery eliminator -electrical requirement to washing machine and refrigerator - procedure to rectify the electrical faults in electrical appliances.

Safety precautions

Precautions in handling tools Electric shock-First aid on electric shock Precautions to be observed while installing different electric appliances in houses.

Text book:

Course material prepared by the Department.

YEAR - II	FINANCIAL ACCOUNTING AND ANALYSIS	CODE – 21ABB34
SEMESTER – III		HOURS / WEEK – 5
ALLIED - 4		CREDIT - 4

Unit- I Book Keeping (15 hrs)

Accounting-Introduction-Meaning and definition-Types of Accounting-Accounting concepts and Conventions- Double entry system- Accounting Rules- Journal-ledger-Subsidiary Books-Trial Balance

Unit-II Final Accounts (15 hrs)

Preparation of Profit and loss A/c and Balance Sheet-Advantages and disadvantages of Accounting- Uses of Financial Statement- Accounting of sole trading concern and non-trading concern

Unit-III: Ratio Analysis (15 Hrs)

Meaning and Definition of Ratio, Classification of Ratios, Uses & Limitations –Meaning and types of Ratio Analysis –Calculation of Liquidity ratios, Profitability ratios and Solvency ratios. (exclude using ratio to prepare Balance sheet)

Unit-IV: Cash Flow Statement (15 hrs)

Meaning and Definition of Cash Flow Statement –Uses of Cash Flow Statement – Differences between Cash Flow Statement and Fund Flow Statement -Limitations of Cash Flow Statement – Procedure for preparation of Cash Flow Statement (as per Accounting Standard – 3 /IAS – 7/ IND AS - 7) (Indirect Method Only).

Unit – V: Budgetary Control (15 Hrs)

Meaning and definition of budget-essential features of budget-budgeting-budgetary control-objectives-essentials of successful budgetary control –classification of budgets-on the basis of time-on the factors of production -on the basis of flexibility–on the basis of functions-zero based budgeting -advantages and limitations of budgetary control-preparation of production, sales, materials, material purchase, production cost, cash and flexible budgets

TEXT BOOKS:

1. Reddy and Hari Prasad, Financial Accounting, Margham Publications, 2016.
2. T.S. Reddy and Murthy -Management accounting- Margam Publications -2013

REFERENCE BOOKS:

1. RL Gupta and Radhasamy , Advanced Accounting- Sultan Chand& sons publications, 2015.
2. H.Y Khan & P.K Jain – Management accounting- McGraw Hill Education Pvt Ltd- 2013

YEAR – II	Competitive Exam and Entrepreneurial Skills	CODE-21AOC41
SEMESTER– IV		HRS/WK-3
IV		CREDIT – 2

Unit-I

10 hrs

Group Discussion: Why Group Discussion is important- Types of Group Discussion-techniques in Group Discussion-Tips for Group Discussion.

Unit-II

10 hrs

Interview Preparation- Common Interview Questions - Questions to Ask Your Employer- What Employers Want- Attitude & Effort - Body Language –Types of Interview: The Mock Interview- Phone Interviews- Behavioural Interviews- Closing the Interview-Thank You Notes & Follow-Ups.

Unit III

15 hrs

The evolution of the concept of entrepreneurship - John Kao’s Model on Entrepreneurship- Idea Generation - Identifying opportunities - Building the Team - Financing entrepreneurial ventures - Managing growth. Women Entrepreneurship – Government schemes for entrepreneurship

Unit-III

15 hrs

Quantitative Aptitude: Time and work -Time and Distance -Heights and Distances Data Interpretation: Tabulation – Bar Graphs – Pie Charts – Line Graphs (MCQ Only)

Unit-V

10 hrs

Logical Reasoning: Sequence and Series -Code based questions on letters of alphabet-Syllogism- Statement and Conclusion. (MCQ Only)

References:

1. Group Discussion: A Practical Guide to Participation And Leadership by Kathryn Sue Young, Julia T. Wood, Gerald M. Phillips and Douglas J. Pedersen (Jun 25, 2006)
2. How To Interview Like A Pro: Forty-Three Rules For Getting Your Next Job Paperback – July 25, 2012-by JD Mary Greenwood (Author)
3. R.S. Aggarwal, Objective Arithmetic , S. Chand & Company, New Delhi , 2005
Govind Prasad Singh and Rakesh Kumar, Text Book of Quickest Mathematics (for all Competitive Examinations), KiranPrakashan, 2012
4. R.S. Aggarwal, Quantitative Aptitude, S. Chand & Company, New Delhi, 2012

YEAR - II	FINANCIAL SOFTWARE - TALLY	CODE –21ABB45
SEMESTER – IV		HOURS / WEEK – 5
ALLIED - 5		CREDIT - 4

Unit – I **(15 Hrs)**

1. Introduction to Tally.
2. Tally Accounting.
3. Prepare Trading and Profit and Loss Account and Balance sheet of a company.

Unit – II **(15 Hrs)**

4. Tally Vouchers.
5. Cost category and cost centre.
6. Bank Reconciliation Statement.

Unit – III **(15 Hrs)**

7. Inventory and Stock.
8. Invoicing.
9. Interest Calculation.

Unit – IV **(15 Hrs)**

10. GST Features.
11. TDS Analysis.
12. Consolidation of Accounts.

Unit – V **(15 Hrs)**

13. Security control.
14. Display and Reporting.
15. Scenario Management and Miscellaneous reports.
16. Tally Audit.

TEXT BOOKS

1. **Tally (Power of simplicity), Shraddha Singh, Version ERP 9, (2016)**, Tally Solutions Pvt Ltd.
2. Genesis Tally Bible 9.0 – V.Sundaramoorthy, GENESIS – VBSE PVT LTD., First Edition

REFERENCE BOOKS

1. Self-Learning Guide and Work Book – Tally Solutions Pvt Ltd.
2. Official guide to financial accounting using Tally ERP 9 (2017), Tally Solutions Pvt Ltd.
3. Tally.ERP 9 in simple steps, Dreamtech Press, (2016)

YEAR - I	BUSINESS ORGANIZATION AND MANAGEMENT	CODE – 21BB101
SEMESTER - I		HOURS / WEEK – 5
CORE THEORY -1		CREDIT - 4

Course Outcomes:

CO1: Understand the basic concepts in business organization and operations of MNC's in India.

CO2: To comprehend different forms of business organization, its merits, demerits and applications

CO3: Understand the basic concepts of management theories

CO4: To understand the managerial functions of planning and organizing

CO5: To understand the managerial functions of directing, coordinating and controlling.

Semester	Course Code	Title of the paper												Hours	Credit
I	21BB101	Business Organization and Management												5	4
Course Outcomes (COS)	Programme Outcomes (POS)					Programme Specific Outcomes (PSOS)								Mean Score Of CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6	PS O7	PS O8		
CO1	5	4	5	4	5	4	5	4	5	4	5	4	3	4.38	
CO2	4	4	4	5	4	5	4	3	3	2	4	5	5	4.08	
CO3	5	5	3	4	5	5	3	5	2	5	4	5	3	4.15	
CO4	3	4	3	4	5	4	4	3	4	4	5	5	5	4.08	
CO5	3	3	4	5	5	4	4	5	5	4	5	4	5	4.31	
Mean Overall Scores												4.20			

This Course is having **VERY HIGH** association with Programme Outcomes and Programme Specific Outcomes

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

YEAR - I	BUSINESS ORGANIZATION AND MANAGEMENT	CODE - 21BB101
SEMESTER - I		HOURS / WEEK – 5
CORE THEORY -1		CREDIT - 4

Unit-I Introduction to Business (20 Hrs)

Business - Meaning – Definition - Characteristics - Objectives - Criteria for success in Modern Business- Classification of Business. Meaning and Evolution of Commerce & Industry - Industrial Revolution- Its Effects. – Liberalization, Privatisation & Globalisation **(LPG)** - Emergence of Indian MNCs & Transnational Corporations-Advantages and Disadvantages of MNC's.

Unit – II Forms of Business Organization (15 Hrs)

Sole Tradership –Partnership – Public Private Partnership (PPP) – Limited Liability Partnership (LLP) -Cooperative Societies - Joint Stock Company-Public Utilities and Public Enterprises - Definition, Characteristics, relative advantages and limitations.

Unit - III Introduction to Management (15 Hrs)

Management- Definition- Functions of Management- Management and Administration-Art or Science- Henry Fayol's Principles of Management – F.W. Taylor's Scientific Management

Unit - IV Planning and Organizing (20 Hrs)

Planning - importance - Process of planning - types of planning - planning methods (Objectives- Policies- Procedures - Strategies & Programmes) – Barriers for effective planning - Decision making - steps in decision making process – Type of decisions MBO - Organization - Importance - Principles of Organizing - Organizational structure type of organization structure - Delegation and Decentralization – Departmentation Span of Management

Unit - V Directing, Co-Ordination and Control (20 Hrs)

Directing –Meaning- Importance- principle.. Leadership-Definition - Qualities of a leader Styles of leadership - Communication - Definition – Process of communication - Barriers to effective communication - Nature of Co -ordination - Problems of effective coordination. Control - Nature – control process - control techniques (traditional and non-traditional).

Text books

1. Prof. C.D.Balaji and Dr.G.Prasad, 2007. Business organization, (1st Ed.), Margham Publications.
2. Gupta C. B, Business Management, Sultan Chand & Sons, New Delhi, 2011
3. Koontz, O'Donnell, Weirich, Essentials of Management, Tata McGraw Hill Publishing Company Ltd., New Delhi, 5th Edition, 1998

Reference books

1. Dr.P.Subba Rao, International Business - text and cases - Himalaya publishing house
2. P. C Tulsian-, Business organization, ST edition - Pearson Education India, 2002
3. Gupta C. B, Business Management, Sultan Chand & Sons, New Delhi, 2011

QUESTION PAPER PATTERN

Time: 3 Hours

Marks: 75

- 1) Part - A = $10 \times 2 = 20$ Marks – All the Questions are to be answered.
- 2) Part – B = $5 \times 5 = 25$ Marks – Answer five out of seven – Open choice.
- 3) Part – C = $3 \times 10 = 30$ Marks – Answer three out of five – Open Choice.

Note: Questions should be asked from all Units. Equal importance should be given to all Units.

YEAR - I	ENTREPRENEURIAL DEVELOPMENT	CODE – 21BB203
SEMESTER – II		HOURS / WEEK – 6
CORE THEORY -3		CREDIT - 4

Course Outcomes:

CO1: To comprehend the nature of entrepreneurial development.

CO2: To understand the significance of creativity and innovations in entrepreneurship

CO3: To know about social entrepreneurship

CO4: To understand the nature of family businesses and its significance

CO5: To understand the financing mechanism for entrepreneurship.

Semester	Course Code	Title of the paper												Hours	Credit
II	21BB203	Entrepreneurial Development												6	4
Course Outcomes (COS)	Programme Outcomes (POS)					Programme Specific Outcomes (PSOS)								Mean Score Of CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6	PS O7	PS O8		
CO1	5	4	5	4	5	4	5	4	5	4	5	4	3	4.38	
CO2	4	4	4	5	4	5	4	3	3	2	4	5	5	4.08	
CO3	5	5	3	4	5	5	3	5	2	5	4	5	3	4.15	
CO4	3	4	3	4	5	4	4	3	4	4	5	5	5	4.08	
CO5	3	3	4	5	5	4	4	5	5	4	5	4	5	4.31	
Mean Overall Scores													4.20		

This Course is having **VERY HIGH** association with Programme Outcomes and Programme Specific Outcomes

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

YEAR - I	ENTREPRENEURIAL DEVELOPMENT	CODE – 21BB203
SEMESTER – II		HOURS / WEEK – 6
CORE THEORY - 3		CREDIT - 4

Unit-I Entrepreneurial Development

The evolution of the concept of entrepreneurship - John Kao's Model on Entrepreneurship
Idea Generation - Identifying opportunities and Evaluation - Building the Team - Financing entrepreneurial ventures - Managing growth- Valuation of a new company - Harvesting and Exit Strategies.

Unit-II Entrepreneurial Creativity and Innovation

Stimulating Creativity - Organisational actions that enhance/hinder creativity -Managerial Responsibilities - Creative Teams - Sources of Innovation in Business - Managing Organizations for Innovation and Positive Creativity.

Unit- III Social Entrepreneurship

Introduction to Social Entrepreneurship - Characteristics and Role of Social Entrepreneurs
Innovation and Entrepreneurship in a Social Context - Start-Up – Early Stage Venture Issues - Creating and Sustaining a Non-profits Organization – financing and risks - Business Strategies and Scaling up.

Unit- IV Family Business and Entrepreneurship

The Entrepreneur - Role and personality - Family Business: Concept, structure and kinds of family firms - Culture and evolution of family firm - Managing Business - family and shareholder relationships - Conflict and conflict resolution in family firms - Managing leadership - succession and continuity - women's issues in the family business - Encouraging change in the family business system.

Unit- V Financing the Entrepreneurial Business

Arrangement of funds - Traditional sources of financing - Loan syndication - Consortium Finance - role played by commercial banks - appraisal of loan applications by financial institutions - Venture capital – Crowd funding

Text book

1. Dr. C. B. Gupta & Dr. N.P Srinivasan, Entrepreneurial Development, Sultan Chand & Sons Publication, 2020 edition.
2. Holt, D. H. (2004). Entrepreneurship new venture creation. New Delhi: Prentice Hall of India.

Reference Books

- Dr. Vasant Desai, Dynamics of Entrepreneurial Development and Management, Sixth Edition- 2011, Himalaya Publishing House.
- Dr.S.S.Khanka, Entrepreneurial Development, Fourth Edition, 2006, S.Chand And Company Limited.

QUESTION PAPER PATTERN

Time: 3 Hours

Marks: 75

- 1) Part - A = $10 \times 2 = 20$ Marks – All the Questions are to be answered.
- 2) Part – B = $5 \times 5 = 25$ Marks – Answer five out of seven – Open choice.
- 3) Part – C = $3 \times 10 = 30$ Marks – Answer three out of five – Open Choice.

Note: Questions should be asked from all Units. Equal importance should be given to all Units.

Syllabus

I M.S.W	INTRODUCTION TO SOCIAL WORK PROFESSION	21PSW11
SEMESTER – I		HRS/WK – 4
CORE – I		CREDIT – 4

OBJECTIVE:

To understand the basic concepts of Social Work and Social Work Profession.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Know the history, philosophy, and fields of Social Work.

CO2: Understand theories, approaches and models of Social Work in practice field.

CO3: Develop attitude towards different dimensions of social problems.

CO4: Discover oneself as professional Social Worker.

CO5: Be relevant to the skills of Social Work in the major fields of Social Work.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER I	COURSE CODE: 21PSW11					COURSE TITLE: INTRODUCTION TO SOCIAL WORK PROFESSION					HOURS:4	CREDITS:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	5	4	4	3	5	5	4	3	5	5	4.3	
CO2	5	3	5	4	5	5	5	3	5	5	4.5	
CO3	5	3	4	4	5	5	5	4	5	5	4.5	
CO4	5	4	5	4	5	5	5	4	4	5	4.6	
CO5	5	3	5	4	5	5	5	4	5	5	4.6	
Mean Overall Score											4.5	

Result: The Score of this Course is 4.5(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **Very High** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Social Work: Concept, Definition and related Concepts: Social Service, Social Policy, Social Legislation, Social Transformation, Social Welfare, Social Security, Social Defense, Social Justice and Social Development. Social Work Theories: Role Theory, Problem Solving and Gestalt Theory.

UNIT II

Evolution of Social Work in UK and USA. Scope of Social Work. Social Work in India: Ancient period: Vedic, Vedantic and non-Vedic ideologies. Medieval period: Zoroastrianism and Islam in India - Mysticism of Bhakti and Sufi Movements - Sikhism. Modern period: Christianity in India - Hindu Reform Movements - Dalit Movements - Gandhian ideology and Sarvodaya movement.

UNIT III

Social Work as a Profession: Objectives, Philosophy, Principles, Methods, Values and Ethics. Professional Social Work and Voluntary Social Work. Interdisciplinary Nature of Social Work & its Relationship with Other Professions. Professional Associations, Problems faced by the Social Work Profession in India.

UNIT IV

Social Work Education in India - Focus, Nature and Content of Social Work Education. Field Work in Social Work Profession: Objectives, Need and Importance - Significance of Field Work Supervision. Problems and Prospects of Social work profession in India. Role of Voluntary Organizations and Government in promoting Social work profession in India. National and International Professional Associations. Social Work Profession and Education in Global perspective.

UNIT V

Fields of Social Work Practice: Family and Child Welfare – Educational Settings - Medical and Psychiatric Social Work – Corporate Settings - Correctional Social Work - Urban, Rural and Tribal Community Development - Ecology and Environment - Disaster or Crisis Management and Rehabilitation - Human Rights - Social Work with Marginalized and Vulnerable sections - Geriatric Social Work. Recording in social work.

TEXT BOOKS:

1. Bradford W. Sheafor Charles J. Horejsi, 2011, Techniques and Guidance for Social Work Practice, Eastern Economy Edition.
2. P. D Mishra, Social Work Philosophy and Methods, Inter India Publications.
3. Samuel H Taylor, 2013, Theory and Practice of Community Social Work, New Delhi.
4. Sanjay Bhattacharya, 2006. Social Work an Integrated Approach, New Delhi: Deep and Deep Publications.
5. Sharma Vivek.UGC NET Tutor Social Work, 2014, Arihant Publications, New Delhi.

REFERENCE BOOKS:

1. Bhattacharya, Sanjay. 2013. Social Work Interventions and Management. New Delhi: Deep and Deep Publications.
2. Chowdhry, D.P. 2001. Introduction to Social Work. New Delhi: Atma Ram.
3. Cox, David & Manohar Pawar. 2006. International Social Work – Issues, Strategies and Programs. New Deli: Vistar Publications.
4. Desai, Murali 2002 Ideologies and Social Work: Historical and Contemporary Analysis, Jaipur: Rawat Publication.
5. Dominelli, Lena. 2004. Social Work: Theory and Practice for a Changing Profession. London:Polity Press

6. Gilbert, Neil. et. al. 2002. An Introduction to Social Work Practice. New Jersey: Prentice Hall.
7. Sheldon, B., & Macdonald, G., 2010 A Textbook of Social Work, London: Routledge.

I M.S.W	SOCIAL CASE WORK	19PSW12
SEMESTER – I		HRS/WK – 4
CORE– II		CREDIT – 4

OBJECTIVE:

To know the basic concepts of a Social Case Work and its Practice.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Acquire knowledge on the foundation of case work

CO2: Diagnose the problems of individuals and treat them effectively

CO3: Gain knowledge on the models and approaches of Social Case Work and its application

CO4: Use various tools and techniques to help the individuals

CO5: Apply the Knowledge of case work in different settings

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER I	COURSE CODE: 19PSW12					COURSE TITLE: SOCIAL CASE WORK					HOURS:4	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	3	5	4	5	5	5	3	4	4	4.3	
CO2	5	3	5	4	4	5	5	4	5	5	4.5	
CO3	4	3	5	4	5	5	5	4	4	4	4.3	
CO4	5	4	5	5	5	4	5	5	4	4	4.6	
CO5	5	4	5	4	5	5	5	3	5	5	4.6	
Mean Overall Score											4.46	

Result: The Score of this Course is 4.46(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **Very High** association with Programme Outcome and Programme Specific Outcome

UNIT I

Case Work: Meaning, Definition, Historical Development; Scope and limitations, its importance and Relationship with other methods of Social Work. Values - Worth and Dignity of Clients; Basic components of Social Work – Person, Problem, Place and Process and Principles of Social Case Work.

UNIT II

Case worker-client Relationship: Meaning and its importance. Characteristics of Professional relationship: empathy, Sympathy, Transference, Counter Transference, Resistance, Sustaining the relationship, Genuineness, Unconditional Positive regard and Self Disclosure.

UNIT III

Case Work Process: Intake and Exploration: Analysis and assessment – Psychosocial Diagnosis, Formulation of goals, Prioritization of Needs, Development of Action Plan, Use of Contracts; Intervention: Counseling and use of Supportive and Reflective Techniques of Direct Influence; Importance of involvement Collateral Contacts in the entire Process.

UNIT IV

Approaches to practice: Psychosocial, Functional, Problem Solving, Crisis intervention; Eclectic Model for Practice. Case work Interviewing: Principles, Techniques and Skills. Casework Recording: Types of Records, Record Maintenance. Recent Techniques in Social Case Work Practice: Indigenous Social Case Work practices.

UNIT V

Practice of Social Casework: Role and functions of Social caseworker in various settings- Medical and Psychiatric Setting - Health Care Centers, Mental Health - De-Addiction & Community Based Rehabilitation, Family and Child Welfare, Educational Setting, Correctional Setting - Homes or Special Schools for delinquents, Observation Homes, Prisons, Corporate Setting, Community Welfare setting. Palliative & Geriatric Care.

TEXT BOOKS:

1. Brad ford W. sheafoe, 2012 Techniques and Guidelines for social work practice, New Delhi.
2. Louise C. Johnson, Stephen J. Yanca, 2011, Social Work Practice A General Approach, PHI Learning Private Limited, New Delhi.
3. P. D Mishra, 2001, Social Work Philosophy and Methods, Inter India Publications.
4. R. K. Upadhyay, 2003, Social Case Work a Therapeutic Approach, Rawat Publications New Delhi.
5. Sanjay Bhattacharya, 2003, Social Work An Integrated Approach, Deep & Deep Publications Pvt. Ltd.

REFERENCE BOOKS

1. Hamilton Gordon (2013). Theory and Practice of Social Case Work – 2nd Edition, Rawat Publications, India.
2. Keats, Daphne (2002) Interviewing – A Practical Guide for Students and Professionals, New Delhi: Viva Books Pvt.Ltd.
3. Payne Malcolm, (2005): Modern social work theory, 3rd edition, Palgrave macmillian, Newyork.
4. Perlman HH (2011), Social Case Work: A Problem Solving Process, Rawat Publications, India.
5. Robert W, Roberts Robert H. Nee, 2000 Theories of Social Casework, unity of Chicago Press, Chicago.
6. Upadhyay, R.K, 2003 Social Casework: A Therapeutic Approach, Rawat Publications, India.

I M.S.W	SOCIAL GROUP WORK	21PSW13
SEMESTER – I		HRS/WK – 4
CORE – III		CREDIT – 4

OBJECTIVE:

To understand the basic concepts of Social Group Work and responsibility of group worker.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Develop theoretical understanding on Group Work as a method of Social Work

CO2: Be exposed to the theories, models and approaches of Social Group Work

CO3: Demonstrate ethical standards in working with the group

CO4: Practice Social Group Work as a method of Social Work in the field

CO5: Utilize programme media in Social Work practice

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER I	COURSE CODE: 21PSW13					COURSE TITLE: SOCIAL GROUP WORK					HOUR S:4	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	4	3	5	4	4	5	3	5	5	4.3	
CO2	4	3	4	4	5	5	5	3	5	5	4.3	
CO3	5	4	5	4	5	5	5	3	5	5	4.6	
CO4	5	4	4	5	5	5	4	3	5	4	4.4	
CO5	4	4	5	5	5	5	5	4	5	5	4.7	
Mean Overall Score											4.46	

Result: The Score of this Course is 4.46(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **Very High** association with Programme Outcome and Programme Specific Outcome

UNIT I

Social Group: Definition, Characteristics, Types of Groups and Functions of a group; Stages of Group development: Forming, Storming, Norming, Performing, Adjourning. Group Process: Bond, Acceptance, Isolation, Rejection, Sub-group formation, Withdrawal and control. Role of Individual in group.

UNIT II

Group Work: Meaning, Definition, Purpose and Models of Group Work; Historical Development of Group Work; Principles of Group Work; Group Work Process: i) Intake and formation ii) Study and assessment iii) Intervention or treatment or programme iv) Evaluation v) Termination vi) Follow up. Difference between Group Process & Group Work Process. Group Work and Therapeutic Approach: Behavior Modification Therapy, Rational Emotive Therapy, Family Therapy. Assertive behavior. Etiquettes and Manners

UNIT III

Roles & Responsibilities of Group Worker & Significance of home visits and collateral contacts, Leadership: Concepts, Definition, Characteristics and functions, qualities of leader, Types and theories of leadership; Training for leadership; Sociometry and Sociogram. Group Morale and ethics. Group Work Supervision: Meaning, purpose, tasks, types and functions.

UNIT IV

Programme Planning: Meaning and Definition of Programme, Principles and Process of Programme Planning and the place agency in programme planning; Programme Laboratory – Values and techniques: Games, Singing, Dancing, Drama & Street play, Puppetry, Mime, Group discussions, Parties, Excursion, Psychodrama, Socio-drama, role play, Brain Storming, Camping – Planning and Conducting Camps.

UNIT V

Group Work Recording: Meaning, purpose, principles and Types of Recording, process and summary Records, Group Work Evaluation: Meaning and its place in Group Work, Steps in Group Work Evaluation and Criteria for good Group Work. Application of Group work method in different settings: Group Work Practice in Different settings: Institution for Children, Family Service agencies, Correctional Settings, Community Development Settings, Community Based Organizations, Educational Institutions, Corporate Organizations, Trade Unions, Clinical Settings, Mental Health Institutions, Home for Aged and others

TEXT BOOKS:

1. Bradford W. Sheafor Charles J. Horejsi, 2011, Techniques and Guidance for Social Work Practice, Eastern Economy Edition.
2. Trecker H.B (1972) Social Group Work: Principles and Practice. 2. Toseland R.W & Riwas R. F (2009) Introduction to Group Work Practice.
3. Siddiqui H.Y (2008) Group Work; Theories and Practice, Rawat Publications.
4. David Capuzzi, 2017, Introduction to Group Work, Rawat Publications, New Delhi.
5. Douglas R. Gross, 2017, Foundation for Group Work, Rawat Publications, New Delhi.
6. P. D Mishra, Social Work Philosophy and Methods, Inter India Publications.
7. P. D. Misra, 2008, Social Group Work, Theory and Practice, New Royal Book Co, Lucknow.

REFERENCE BOOKS

1. Conyne K. Robert, 2013, Group Work Leadership an Introduction for Helpers (Counseling and Professional Identity), SAGE Publications, Inc. UK.
2. Donahue Bill and Bowman Grey, 2012, Coaching Life- Changing Small Group Leaders A Comprehensive Guide for Developing Leaders of Groups and Teams (Groups that Grow), Zondervan, US.
3. Gitterman Alex and Salmon Robert, 2009, Encyclopedia of Social Work with Groups, Routledge New York.
4. Kottler A. Jeffrey and Englar-Carlson Matt, 2009, Learning Group Leadership An Experiential Approach, SAGE Publications, Inc., California.
5. Lindsay Trevor and Orton Sue, 2008, Group Work Practice in Social Work, Learning Matters Ltd., New York.
6. Merchant M. Niloufer and Yozamp J. Carole, 2013, Groups in Community and Agency Settings (Group Work Practice Kit), SAGE Publications, Inc, California.
7. Shulman Lawrence, 2008, the Skills of Helping Individuals, Families, Groups, and Communities (with CD), Brooks Cole, USA.
8. Toseland W. Ronald, Rivas Robert F., 2014, An Introduction to Group Work Practice, Pearson Education Limited, England.
9. Webb Boyd Nancy, 2011, Social Work Practice with Children and Families, A Division of Guilford Publications Inc. New York.

I M.S.W	COMMUNITY ORGANIZATION AND SOCIAL ACTION	19PSW14
SEMESTER – I		HRS/WK : 4
CORE – IV		CREDIT : 4

OBJECTIVE:

To know about Community Organization and Social Action.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Develop theoretical understanding on Community Organization as a method Social Work.

CO2: Be aware of theories, models and approaches of Community Organization.

CO3: Practice Community Organization as a method of Social Work in the field of Social Work.

CO4: Extend theoretical understanding on Social Action as a method of Social Work.

CO5: Apply Social Action as a method of Social Work.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER I	COURSE CODE: 19PSW14					COURSE TITLE: COMMUNITY ORGANIZATION AND SOCIAL ACTION					HOUR S: 4	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	5	5	4	4	5	5	5	4	4	4.6	
CO2	5	5	5	4	5	5	5	5	4	5	4.2	
CO3	5	4	5	4	5	5	5	5	4	5	4.7	
CO4	5	4	5	4	5	5	5	4	4	5	4.6	
CO5	5	5	5	4	4	5	5	4	4	4	4.5	
Mean Overall Score											4.5	

Result: The Score of this Course is 4.5(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT I

Community: Meaning, Types and Characteristics; Community Power Structure and Minority groups. Community Dynamics: Integrative and Disintegrative Processes in the Community. Leadership: Definitions, Types and Qualities; Leadership in different types of Communities, Theories of Leadership.

UNIT II

Community Organization: Concepts, Definition, Objectives, Models, Philosophy, Approaches and Principles; Community Organization as a method of Social work; Community Welfare Councils and Community Chests. Methods of Community Organization: Planning, Education, Communication, Community Participation, Collective Decision Making, Involvement of groups and Organizations, Resource Mobilization, Co-ordination. Skills in Community organization. Awareness Creation based on Social issues.

UNIT III

Phases of Community Organization: Assessment of community using PRA, Study, Assessment, Discussion, Organization, Action, Evaluation, Modification, Continuation; Community study; Community Organization in emergencies like Fire, Famine, Flood, Drought, Earthquake and War; Community Organization at Local, State and National level; Community organization in Rural, Urban, Slum and Tribal Areas.

UNIT IV

Social Action: Definition, Objectives, Principles, Approaches, Methods and Strategies; Social Action as Method of Social Work; Social work and Social action. Roles and Responsibilities of Social Activist. Process of Social Action; Scope for Social Action in India.

UNIT V

Social Reform and Social movements - Various contributions to the theory of Social Action: Mahatma Gandhi, Periyar, Ambedkar, Paulo Freire, Saul Alinsky, Martin Luther King, and Karl Marx. Role of Social Workers in Community Organization and Social Action.

TEXT BOOKS:

1. Asha Ramagonda Patil, 2013, Community Organization and Development an Indian Perspective, Eastern Economy Edition.
2. Christopher, A.J and William, Thomas, 2006, Community Organization and Social Action, Himalaya Publication House, New Delhi.
3. Gangrade, K.D, Community Organization in India, Popular Prakasan, Bombay.
4. Samuel H Taylor, 2013, Theory and Practice of Community Social Work, New Delhi.
5. W. Sheafor Charles J. Horejsi, 2011, Techniques and Guidance for Social Work Practice, Ninth Edition, Bradford Eastern Economy Edition.

REFERENCE BOOKS:

1. Beher A & Samuel J. 2006. Social Watch in India: Citizens Report on Governance and Development, Pune : NCAS
2. Chambers Robert 2005 Ideas for Development, Earth Scan, London
3. Christopher, A.J and William, Thomas, 2006, Community Organization and Social Action, Himalaya Publication House, New Delhi.
4. Delgado, M.&Humm-Delgado, D. (2013). Assets assessments and community social work practice. New York: Oxford University Press.
5. Homan, M.S. (2011). Theoretical frameworks for community change.
6. Macmillan, Wayne: Community organization for social welfare, University of Chicago press.

I – M.S.W	SOCIOLOGY AND PSYCHOLOGY FOUNDATION FOR SOCIAL WORK	21EPS15A
SEMESTER – I		HOURS : 4
ELECTIVE –I (A)		CREDIT : 3

OBJECTIVE:

To understand the concept of Sociology and Psychology for social work profession.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Be exposed to the diverse Sociological theories and its role in Social Work

CO2: Demonstrate professional traits in dealing with the context of social stratification in India

CO3: Gain knowledge on the stages of human development and its influences

CO4: Adopt the effective style of learning; realize the importance of sustainable motivation

CO5: Be aware of application of Social Work knowledge to enhance the mental well being

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER I	COURSE CODE: 21EPS15A					COURSE TITLE: SOCIOLOGY AND PSYCHOLOGY FOUNDATION FOR SOCIAL WORK					HOURS:4	CREDITS:3
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	5	3	5	3	5	5	4	3	5	5	4.3	
CO2	4	4	4	4	5	4	5	3	4	5	4.2	
CO3	4	4	4	4	5	5	5	3	4	4	4.2	
CO4	4	4	5	4	5	5	5	4	5	4	4.5	
CO5	5	3	5	4	5	5	5	3	5	4	4.4	
Mean Overall Score											4.32	

Result: The Score of this Course is 4.32(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT I

Sociological Concepts: Society, Community, Association, Institutions, Social Group – Types and Functions; Cultural Processes: Accommodation, Acculturation, Assimilation, Diffusion, Cultural Conflict, Cohesion, Integration, Cultural Lag, Cultural Change; Social Stratification – Caste and Class System. Social Change: Urbanization, Industrialization, Modernization, Sanskritisation. Social Control and Social Deviance: Norms, Folkways, Mores, Customs.

UNIT II

Social Problems in India: Poverty, Over Population, Beggary, Illiteracy, Unemployment, globalization, Corruption, Housing and Slums, Communicable Diseases, HIV or AIDS, STI. Infidelity, Nepotism, Terrorism, Communal and Caste Issues, Honour Killing, Child Trafficking, Dowry, Mal-Nutrition, Problems of Vulnerable Groups: Women, Children, and Aged; Physically Challenged, Alcoholism and Drug Abuse, Environment Issues: Climate Change.

UNIT III

Psychology: Definition, Psychological Approach to understand Human Behavior. Introduction to Human Growth and Development, Developmental Stages, Developmental tasks. The Beginning of life: Human Reproductive System: Fertilization, Delivery, Pre and Postnatal Care. Developmental Periods: Infancy, Babyhood. Childhood, Puberty Adolescence, Adulthood, Middle Age and Old Age; Physical Intellectual Emotional and Social Development.

UNIT IV

Personality, Perception, Measurement of Intelligence, Self Esteem, Self-Efficacy, Self-Awareness through SWOT Analysis, Johari Window, Attitude, Positive Attitude, Adjustment and Maladjustment, Stress, Frustration, Conflict, Responsible Sexual Behavior, Motivation, learning, instincts and Mental Health.

UNIT V

Abnormal Psychology: Concepts of Normality and Abnormality. Causation of Mental Illness, Neuroses, Psychoses, Classification of Psychological Disorders. Defense Mechanism, Developmental Disorders, Anxiety related Disorders, Conduct Disorders, Epilepsy, Learning Disabilities, Scholastic related Problems. Personality Disorders, Suicidal Tendencies. Rehabilitation.

TEXT BOOKS:

1. C.N. Shankar Rao, 2012, Sociology Principles of Sociology with an Introduction to Social Thought. S.Chand& Company Ltd, New Delhi.
2. Dr. R.N. Sharma, 2010, Abnormal Psychology, Subject Publication.
3. Niraj Ahuja, 2011, A Text Book of Psychiatry, Jaypee Brothers Medical Publishers (Pvt) Ltd.
4. RichardT.Schaefer, 2011, Sociology A Brief Introduction, Tata Mcgraw – Hill Education Pvt ltd, New Delhi.
5. RoshniJain, An Introduction to Sociology, AITBS Publishers, India.
6. Margarete Parrish. 2012. Social work perspective in Human Behaviour,New Delhi, 2012.

REFERENCE BOOKS:

1. Antony Giddens. 2001. Sociology. Polity Press. Cambridge.
2. Bhusan Vidya & D.R. Sachdeva. 2005. An Introduction to Sociology. Kitab Mahal Publications. Allahabad.
3. Carson (2012). Abnormal Psychology. (15th ed). Pearson Education
4. Hurlock, Elizabeth (2001): Developmental Psychology, Tata McGraw Hill, New York.
5. Mangal, S.K. (2006): An Introduction to Psychology, Sterling Publishers Pvt. Ltd.
6. Misra, Girishwar Misra (2011): Handbook on Psychology in India, Oxford University Press, New Delhi.
7. Park, K (2015): Park's Textbook of Preventive and Social Medicine, Banarsidas Bhanot Publishers, Jabalpur.
8. Priya, Ritu and Shweta A.S. (2010). Status and Role of AYUSH Services and Use of Local Health Traditions under the NRHM: A Health Systems Study across 18 States (co-author: Shweta Awasthi Saxena), National Health Systems Resource Centre.
9. Sarason & Sarason (2011). Abnormal Psychology - The Problem of Maladaptive Behaviour (12th ed). Pearson Education.

I – M.S.W	FAMILY AND MARITAL COUNSELLING	19EPS15B
SEMESTER – I		HOURS : 4
ELECTIVE –I (B)		CREDIT : 3

OBJECTIVE:

To know about the importance of family and marital counselling and its theoretical parts.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Be enriched to work with dysfunctional family system and be aware of methods to resolve

CO2: Be provided with conceptual understanding of family as a system and changes involved and its reflection on family relationship

CO3: Be provided with theoretical perception on family welfare management.

CO4: Be facilitated to develop skills and insight of social worker in resolving issues.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER I	COURSE CODE: 19EPS15B					COURSE TITLE: FAMILY AND MARITAL COUNSELLING					HOURS:4	CREDITS:3
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	4	3	4	3	4	4	4	3	4	4	3.7	
CO2	4	3	3	3	4	3	4	4	4	4	3.6	
CO3	5	4	3	4	5	5	5	4	4	4	4.3	
CO4	5	4	5	3	4	5	5	3	4	5	4.3	
Mean Overall Score											3.975	

Result: The Score of this Course is 3.975(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT I

Family definition, Marriage, Types of families, Emerging families, Family ecology, Family functions, Family norms, Family patterns, Family structure, Family practices. Family as system, Family development tasks. Changing pattern of family in India. Communication in family: Importance, patterns of communications, factors affecting communications in families.

UNIT II

Theoretical foundations for counseling: Cognitive – Developmental cognitive behavioral, Humanistic Theories, Existential counseling, Adlerian Systems theory, Post modern theories.

UNIT III

Understanding the Dysfunctional family: Factors contributing to dysfunctional family system, broken families, single parent families. The impact of broken families on children.

UNIT IV

Marriage and family; aims and types of marriage. Factors contributing to marital conflicts. Separation and divorce, Stress, Lack of adequate child care, inflexible work environment, infertility, Adoption, surrogate mothers Family Violence: Wife battering, Husband abuse, Child abuse, Elder abuse, Parent abuse. Family Intervention: Genogram, Methods of assessment, Rehabilitation, Crisis intervention, strengths and resilience

UNIT V

Counseling: Definition, Family counseling; Marital Therapy; Pre-marital Counseling; approaches to marital Therapy.

TEXT BOOKS:

1. Colin Feltam, Windy Dryden, 2010 Brief counseling A Practical Integrative Approach, Tata McGraw – Hill publishing company limited, New Delhi.
2. Randy J Larsen. Personality psychology, New Delhi, 2011
3. Robert L. Gibson, Marianne H. Mitchell, 2009, Introduction to Counseling and Guidance, PHI Learning Private Limited, New Delhi.
4. Samuel T. Gladding, 2009, Counseling A Comprehensive Profession, Pearson, New Delhi.
5. Sister Mary Vishala, 2006. Guidance and Counseling (for teachers, parents & students), S. Chand & Company Limited, New Delhi.
6. UGC NET/ SET Social Work Trueman's Specific series, 2016, Danika Publishing Company.

REFERENCE BOOKS:

1. Augustine Meier, and Micheline Boivin (2010), Counseling & Therapy Technique, Theory and Practice (Sage).
2. Desai and Raju(2000) Gerontological Social Work in India: Some issues and perspectives, BR Publishers, New Delhi.
3. Egan, G. (2013). The skilled helper - A Problem Management Approach to Helping. Brooks or Cole Publishers.
4. FonseaMabe: Counseling for marital happiness, Leensufala, Bombay. Indian Social Institute: The family in the change and challenge of the seventies sterling publications, New Delhi.
5. Nelson-Jones (2010). The theory and practice of counseling and Therapy (5th Edition). Sage Publication.
6. Nelson-Jones(2008).Basic Counseling Skills. Sage Publications.
7. Rosemary A Thompson (2016). Counseling Techniques-Improving relationships with others, ourselves, our families, and our environment, 3rd ed. Routledge.

I – M.S.W	CONCURRENT FIELD WORK PRACTICUM - I	20PSWF1
SEMESTER – I		HRS/WK : 10 *
CORE PRACTICAL – I		CREDIT : 4

OBJECTIVE:

To know about different field of Social Work Profession through observation visits and to learn about street theatre.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Be exposed to different fields of Social Work

CO2: Understand the role of professional Social Worker in a structured agency

CO3: Understand and reflect on diverse needs and problems of the target groups

CO4: Appraise on the theoretical framework, approaches, models and practices

CO5: Develop positive framework about the profession

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER I	COURSE CODE: 20PSWF1					COURSE TITLE: CONCURRENT FIELD WORK PRACTICUM – I					HOUR S: 10	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	4	5	4	5	5	5	3	4	5	4.5	
CO2	5	4	4	3	5	5	4	3	4	4	4.1	
CO3	4	4	5	4	5	5	5	3	5	5	4.5	
CO4	5	4	5	4	5	5	4	3	5	5	4.5	
CO5	5	4	5	3	5	5	4	3	4	5	4.3	
	Mean Overall Score										4.38	

Result: The Score of this Course is 4.38(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

Field Work is very important element in the curriculum of Social Work. Extension activities are being promoted to develop the community towards different aspects of development. Observation visits and Group Project on current social issues are expected to be organized as the field work requirements in the first semester. To execute these extension activities towards the needy, the students of Social Work are prepared to develop their skills by observation visits to Community, Medical & Psychiatric and Industrial settings.

Field work practical components are scheduled every week equivalent to theory classes. To improve their physical fitness as well as mental capacity and to equip the students on the conceptual development of social issues, ten days street theatre training programme is being organized.

Field Work Components:

1. Observational Visits -The first year students during the first semester go for observational visits to various settings: Medical & Psychiatric, Rural Community Setting, Slum Visits, Industrial Setting, Correctional Setting and Tribal Setting.
2. Street Theatre training for a week
3. Group Project on Current Issues.

Every week the students write a report of their activities and submit to the concerned field work supervisor on Mondays. The supervisor conducts individual and group conference every week regularly.

At the end of the semester Viva Voce is conducted by an external examiner and marks are awarded.

The CA Mark – 40 and the SE Mark - 60.

Marks Allotments

S. No	Activity	Internal Marks	External Marks
1	Observation Visit, Street Theatre Training and Group Project	40	
2	Presentation, Quality in Components, Communication		60
	Total	100	

* Number of hours spent for two days in a week by a student in the field.

I – M.S.W	RURAL SOCIAL WORK PERSPECTIVES (RURAL CAMP)	19PSWE1
SEMESTER – I		HRS: ONE WEEK
EXTENSION - I		CREDIT : 2

OBJECTIVE:

To get Community experience and Organizing skills through Rural Camp.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Experience to the village setup.

CO2: Understand the social problems and attaining solution.

CO3: Set their leadership qualities.

CO4: Be experienced in organizing programme and create awareness to the people.

CO5: Identify their ability to cope up with the society.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER I	COURSE CODE: 19PSWE1					COURSE TITLE: RURAL SOCIAL WORK PERSPECTIVES (RURAL CAMP)					HOURS : 1 WEEK	CREDITS:2
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	3	3	4	2	5	5	5	3	5	4	3.9	
CO2	4	3	4	3	4	5	5	3	4	5	4	
CO3	4	3	5	3	5	5	5	3	5	5	4.3	
CO4	4	3	5	3	5	5	5	3	5	5	4.3	
CO5	5	4	5	4	5	5	5	4	5	5	4.7	
Mean Overall Score											4.24	

Result: The Score of this Course is 4.24(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

The main objective of the rural camp will be to enable the students experience rural life and group living. The students with the support and guidance from the faculty will involve themselves in all the

planning and executing activities of the camp. This includes identification of the village, pilot visits for identification of projects in the village and liaison with various NGOs and Government officials. The entire class will be divided into various committees to facilitate division of work and participation of each student. A camp leader elected from the student group, will co-ordinate along with the camp in-charge faculties for efficient execution of the camp. A periodic evaluation of the camp will be conducted in the department. The students are expected to document and submit a report on their experiences and learning in the Rural Camp during the Viva-voce which is conducted internally. After the Internal Viva-voce, the students are awarded with 2 credits.

Tasks during Rural Camp:

1. Selection of a theme for the rural camp
2. Identification of a suitable village-Pilot study
3. Formation of committees and allocating work
4. Planning the programmes to be executed during the camp
5. Implementation of the programmes.

Skill Development:

Co-operating, planning, participation, adaptability, accommodating, co-ordination, organizing, networking, leadership skills, fund raising, accounting, self-evaluating skills and documenting skills.

Marks Allotments

- | | | |
|-------------------------------|---|----------|
| 1. Submission of Report | - | 20 Marks |
| 2. Presentation & Performance | - | 20 Marks |
| 3. Completion of Components | - | 20 Marks |
| 4. Skills Acquired | - | 20 Marks |
| 5. Learning Content | - | 20 Marks |

I – M.S.W	SOCIAL WORK RESEARCH AND SOCIAL STATISTICS	19PSW21
SEMESTER – II		HRS/WK : 4
CORE– V		CREDIT : 4

OBJECTIVE:

To understand the concept of Social Work Research and Social Statistics.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Develop the theoretical understanding of Social Work Research.

CO2: Employ suitable research design and formulate research hypothesis.

CO3: Adopt suitable sampling technique, tool and method of data collection.

CO4: Identify appropriate statistical tests for data analysis and gain insights for data interpretation.

CO5: Develop skills to write research proposal and prepare research report.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER II	COURSE CODE: 19PSW21					COURSE TITLE: SOCIAL WORK RESEARCH AND SOCIAL STATISTICS					HOURS:4	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	4	5	4	5	4	4	4	5	4	4	4.3	
CO2	3	5	4	4	4	4	4	5	3	3	3.9	
CO3	2	4	3	4	2	3	3	4	3	3	3.1	
CO4	2	4	3	3	2	3	3	4	3	3	3	
CO5	4	5	4	4	4	4	3	4	3	3	3.8	
Mean Overall Score											3.62	

Result: The Score of this Course is 3.62 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT I

Social Work Research: Meaning, Definition, Types – Qualitative, Quantitative and Mixed, Purpose of Research, Social Research and Social Work Research. Scientific Method: Nature, Characteristics, Purpose and Steps in Research Process; Concepts: Operationalization of Concepts, Variables and its Types, Hypothesis: Sources, Formulation, Attributes of Hypothesis and Types. Review of the Literature.

UNIT II

Research Design and Sampling: Types of Research Design: Concept and Types. Identification and Formulation of Research Problems. Sampling: Definition, Principles, Types and procedures; Population and Universe; Measurement of Scales: Meaning, Concept; Levels of Measurement; Validity and Reliability.

UNIT III

Sources and Methods of Data Collection: Sources: Primary and Secondary; Quantitative Method Research Tools: Observation, Survey Methods: Interview Guide, Interview Schedule, and Questionnaire: Construction of Questionnaire or Interview Schedule – Concept, Types of Questions. Qualitative Method: Focused Group Discussion and Case Studies. Pilot Study and Pre-testing.

UNIT IV

Data Processing and Analysis: Editing, Coding, Code Book preparation, Frequency distribution, Tabulation; Diagrammatic and Graphical Representation of Data: Types, Report writing and Referencing; Agencies involved in Social Research; Ethical Considerations of Social Work Research. Research Proposal Writing.

UNIT V

Social Statistics: Statistics: Meaning, Use and its Limitations in Social Work Research, Descriptive and Inferential Statistics, Measures of Central Tendency: Arithmetic Mean, Median and Mode, Measures of Dispersion: Range, Standard Deviation and Mean Deviation. Tests of significance: 't' Test, Chi-Square Test, ANOVA. Correlation: Meaning, Types and Uses. Karl Pearson's Coefficient of Correlation and Rank Correlation, Spearman's Rank Correlation. Manual Calculation.

TEXT BOOKS:

1. Annie E. Fortune, William J. Beird, 2017. Research in Social Work, 3rd edition, Rawat Publications.
2. Dr. N. Arumugam, Research Methodology for Life Sciences, Saras Publications.
3. P. Ravi Lochanan, 2013, Research Methodology with Business Correspondence and Report Writing, Margham Publications.
4. PC. Vainketesh, 2012, Essentials of Research Methodology, Mark Publishers.
5. Professor D. K. Karyap, 2017 The Hand Book of Social Work Research and Methods, Shikar Publications.
6. Robert C. Bogdan Sari KnoppBiklen, Qualitative Research for Education an Introduction to Theories and Methods, Fifth Edition.

REFERENCE BOOKS:

1. Ahuja R, 2010, Research Methods, Rawat Publications, Jaipur.
2. Alston M, Bowles W, 2012, Research for Social Workers, An introduction to methods, 3rd Edition, Australian Publications, Australia.
3. Babbie E, 2013, The Practice of Social Research, 13th Edition Cengage Learning, USA.
4. Chakraborty D, 2009, Research Methodology, SAURABH Publishing, New Delhi.
5. Dawson C, 2010, Introduction to Research Methods, A practical guide for anyone undertaking a Research Project, Viva Books, New Delhi.
6. Gupta B L, 2010, Research studies in Staff Development, Mahamaya Publishing house, New Delhi.
7. Pawar B S, 2009, Theory building for Hypothesis Specification in Organizational Studies, Response Books, New Delhi.
8. Rajathi A, Chandran P, 2010, SPSS for you, MJP Publications, Chennai
9. Tripathi P C, 2010, Research Methodology in Social Sciences, Sultan Chand and Sons, New Delhi.

I – M.S.W	SOCIAL WELFARE ADMINISTRATION	21PSW22
SEMESTER – II		HOURS : 4
CORE– VI		CREDIT : 4

OBJECTIVE:

To know about social welfare schemes and administrative system and applications of legislation.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Gain insight on HSO, NGO.

CO2: Be able to register the human service organizations and can administer it effectively.

CO3: Understand the different administration process.

CO4: Develop an understanding on various social legislations and its implementation.

CO5: Practice social legislations for the betterment of the society.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER II	COURSE CODE: 21PSW22					COURSE TITLE: SOCIAL WELFARE ADMINISTRATION					HOUR S:4	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	3	4	4	5	5	4	3	4	4	4.1	
CO2	5	3	5	3	4	5	4	3	4	5	4.1	
CO3	5	3	5	4	4	5	4	3	4	5	4.2	
CO4	4	3	4	3	3	4	3	2	2	3	3.1	
CO5	4	3	4	3	4	4	3	3	4	4	3.6	
Mean Overall Score											3.82	

Result: The Score of this Course is 3.82 (High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Human Service Organizations – Features – Purpose – Historical Development – Principles - Functions - Non-Government, Non-Profit making and Self –Governing. Types of Human Service Organizations –By Orientation, Levels of operation and Focus. National Policy on Voluntary Sector, 2007. Organizational structure and characteristics of Human Service Organizations. Approaches to Organizational Management – Bureaucratic model, Human Relations model and System Theory.

UNIT II

Basic Administration Processes: Planning, Organizing, Staffing and Directing, Controlling, Reporting and Budgeting (POSDCORB). Elements of Directing – Supervision, Motivation, Leadership, Communication, Monitoring and Evaluation. Elements of Democratic Administration: Delegation, Decentralization and Participation.

UNIT III

Personnel Administration: Manpower planning, Job design, Induction, Training, Staff welfare and Service conditions. Management by Objectives as applied to Human Service Organizations. Supervision. Organizational Climate. Public Relations and Networking.

UNIT IV

Financial Administration: Budgeting, Accounting and Auditing. Banking Procedures & Practices. Maintenance of books of Accounts and Financial Documents and Records. Mobilization of Financial Resources, Grants in Aid. Administrative skills – Writing reports, letters and minutes of meetings. Maintaining Records and Data Banks.

UNIT V

Procedures in Registering an Organization - Societies Registration Act, 1860, Indian Trust Act, 1882, Section 3 & 25 of Indian Companies Act, 1956. Foreign Contribution and Regulation Act, 1976. Exemption from Income Tax. Administrative Structure – Memorandum, Bye laws, Constitution, Functions and responsibilities of governing board, committees and office bearers. Administrative structure at the Central, State and Local level. Social Welfare Departments. Programme of Central Social Welfare Board and State Social Welfare Board.

TEXT BOOKS:

1. Bradford W. Sheafor Charles J. Horejsi, 2011, Techniques and Guidance for Social Work Practice Ninth Edition, Eastern Economy Edition.
2. D. Paul Chowdhry Social Welfare Administration
3. P. D Mishra, Social Work Philosophy and Methods, Inter India Publications.
4. Roger A. Lohmann, Nancy Lohmann, 2015, Social Administration, Rawat Publications.
5. Sanjay Bhattacharya, 2017, Social Welfare Administration and Development, Rawat Publications.
6. Suresh Chandra Anne Karen Trollope, 2015, Non-Governmental Organization Origin and Development, Rawat Publications.

REFERENCE BOOKS:

1. Allison, M. & Kaye, J. 2005. Strategic Planning for Nonprofit Organizations, 2nded. New York: John Wiley & Sons.
2. Batra, Nitin. 2004. Administration of social Welfare in India. Jaipur: Raj Publishing House.
3. Bhattachary, Sanjay. 2009. Social Work Administration and Development. New Delhi: Rawat Publication.
4. Harihar Bhattacharya, Parthasarkar and Angshuman Kar (eds) (2009) The Politics of Social Exclusion in India: Democracy at the Crossroads, Routledge.
5. P. Subba Rao, 2017. Management and Organization behavior (Text and Cases) Himalaya publishing House.
6. Samvel.C. Certo and S. Trevis Certo. Modern Management. Prentice Hall of India Pvt Ltd. 2007.
7. Sooryamoorthy R and Gangrade K.D. 2006. NGOs in India-A cross Sectional study New Delhi: Rawat Publication.

I – M.S.W	SOCIAL POLICY AND SOCIAL LEGISLATIONS	21PSW23
SEMESTER – II		HOURS : 4

CORE – VII	CREDIT : 4
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OBJECTIVE:

To know about kinds of social policy and Social legislations and applications in community.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Learn about social policy and Indian Constitution.

CO2: Understand the policies and programmes in India.

CO3: Learn about social legislations legal system.

CO4: Know about legislations concerned with family, child, and so on.

CO5: Understand the significance of various Legislations.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER II	COURSE CODE: 21PSW23					COURSE TITLE: SOCIAL POLICY AND SOCIAL LEGISLATIONS					HOURS: 4	CREDITS: 4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	3	5	3	4	5	5	4	4	4	4.2	
CO2	5	3	5	3	5	5	5	4	4	5	4.4	
CO3	5	3	5	3	5	5	5	4	4	5	4.4	
CO4	5	3	5	3	5	5	5	4	4	5	4.4	
CO5	5	3	5	3	4	5	5	4	4	4	4.2	
Mean Overall Score											4.32	

Result: The Score of this Course is 4.32(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT I

Social Policy: Meaning, Scope, Objectives and Types. Indian Constitution: Sources, Historical Development, Fundamental Rights, Fundamental Duties and Directive principles of State Policy.

UNIT II

Policies and Programmes in India – Education, Health, Housing, Environment, Employment, Family, Child, Women, Elderly, Disabled and Backward Classes, Nithi Aayog.

UNIT III

Social Legislation: Meaning and Scope, Social Legislations in India, Indian Penal Code, Family Courts, LokAdalat, Free Legal Aid, Public Interest Litigation.

UNIT IV

The Special Marriage Act 1955, Dowry Prohibition Act 1961, Hindu Adoption and Maintenance Act 1956, Juvenile Justice (Care and Protection of Child) Act 2015, Child Labour Abolition (Prohibition and Regulation) Amendment Act 2016, Bonded Labour Abolition Act 1976, Protection of Civil Rights Act 1955, Protection of Consumer Act 1986, Right to Information Act 2005.

UNIT V

Prevention of Immoral Traffic Act 1986, 2014 Amendment of Transplantation of Human Organs Act 1994, Tamil Nadu Prohibition of Eve Teasing Act 1988, Tamil Nadu Prohibition of Ragging Act 1998, Domestic Violence Act 2005, Mahatma Gandhi National Rural Employment Guarantee Act 2005, Right to Education 2009, Protection of Children from Sexual Offences (POCSO) Act 2012, The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013, Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Amendment Act, 2015

TEXT BOOKS:

1. J. Jayapalan, Constitutional History of India, MS Publications, Chennai
2. K. Shanmugavelayutham, 1998, Social legislation and social change, Chennai.
3. M. Laxmikant, 2018, Indian Polity 4th Edition, MC Graw Hill Education Media Private Ltd, Chennai.
4. Paul Spicker, 2010, Social policy themes and approaches, 7th edition, New Delhi, Rawat Publications.
5. Vivek Sharma, UGC NET Tutor Social Work, 2014, Arihant Publications New Delhi.

REFERENCE BOOKS:

1. Gaikwad, P. E. (2004) Law Basic Concepts. Pune: YASHADA.
2. Gangrade, K.D. Social Legislation in India (Vol-1 & Vol.2), Delhi: Concept Publishing Co.
3. Gaur K. D. (2004) A Text Book on the Indian Penal Code, Delhi: Universal Law Publication Co. Ltd.
4. Mathew, P. D. (1993) Constitution of India Simplified, New Delhi: Indian Social Institute.
5. Purohit, B. R. & Joshi, Sandeep (Ed) (2003) Social Justice in India, Jaipur: Rawat Publication.
6. Shah, Ghanshyam (1998) Social Justice- A Dialogue. Jaipur: Rawat Publication.

I – M.S.W	COUNSELING: THEORY AND PRACTICE	CODE: 21PSW24
SEMESTER – II		HRS/WK : 4
CORE– VIII		CREDIT : 4

OBJECTIVE:

To understand the theories of Counselling and its application in different fields.

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Understand counseling as a professional practice.

CO2: Acquire knowledge on the process and theories related to counseling.

CO3: Know about the practice of counseling in different setting.

CO4: Gain knowledge on family and marital counseling.

CO5: Learn the ethical principles and professional guidelines for counseling practice.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER II	COURSE CODE: 21PSW24					COURSE TITLE: COUNSELING: THEORY AND PRACTICE					HOUR S:4	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	4	5	4	4	4	4	3	4	4	4.1	
CO2	5	3	4	3	4	5	5	4	4	4	4.1	
CO3	4	3	5	3	4	5	5	4	4	5	4.2	
CO4	5	4	4	3	5	5	5	3	4	5	4.3	
CO5	5	4	5	4	4	5	5	4	4	5	4.5	
Mean Overall Score											4.24	

Result: The Score of this Course is 4.24(Very High)

Association Scale	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT I

Introduction to Counseling: Meaning, Definition, Types, Needs, Importance of Counseling and Professional Counseling. Basic Principles of Counseling: Participation, Individualization, Confidentiality, Communication, Acceptance, Self-Confidence, Self-Awareness and other Principles governing the Counseling Relationship. Qualities of Counselor.

UNIT II

Counseling Process: Interview and its Significance in Counseling – Use of Observation in Counseling and Understanding of Emotions in Counseling. Theories of Counseling: Psychoanalytic, Adlerian, Client Centered, Behavioral, Rational Emotion, Reality, Gestalt, Transactional analysis and Electric Theories.

UNIT III

Counselor as Professional; Ethical standards in Counseling; Relevance of counseling as a Social Work Practice; Role of Professional Social Worker in counseling field. Alternative Therapies: Art, Music, Recreation, Laughter, Play and Yoga – Counseling amidst COVID19 Pandemic Situation.

UNIT IV

Family and Marital Counseling: Family System – Factors affecting Communication in families – Marriage and family; Aims and types of Marriage; factors contributing to marital conflicts – Family Counseling; Infertility Counseling; Marital Therapy; Pre – Marital Counseling – Approaches to Marital therapy

UNIT V

Counseling in different settings: School Counseling, Career Counseling, Industrial Counseling, Alcoholic and De-Addiction Counseling, Crisis and Trauma Counseling, Supportive Counseling with Persons Living with HIV, TB Patients, Persons with Disabilities, Counseling against Suicidal thoughts and Community Counseling. Application of counseling theory in Social Work Practice - Techniques and Strategies in Counseling. Barriers to Effective Counseling Sessions; Counseling Evaluation.

TEXT BOOKS:

1. Colin Feltam, Windy Dryden, 2010. Brief Counseling a Practical Integrative Approach, Tata McGraw – Hill publishing company limited, New Delhi.
2. Baumgardener S, Crothers M 2015, Positive Psychology, Dorling Kindersley.
3. Robert L. Gibson, Marianne H. Mitchell, 2009, Introduction to Counseling and Guidance, PHI Learning Private Limited, New Delhi.
4. S. Narayana Rao, 2007, Counseling and Guidance, Tata McGraw – Hill publishing company limited, 2nd Edition, New Delhi.
5. Samuel T. Gladding, 2009, Counseling A Comprehensive Profession, Pearson, New Delhi.
6. Seligmam M 2013, Authentic Happiness, Atria Books
7. Snyder, Lopez, & Pedrotti, 2011, Positive Psychology: The Science and Practical explorations of human strength 2nd Edition, Sage Publications.
8. Sister Mary Vishala, 2006, Guidance and Counseling (for teachers, parents & students), S. Chand & Company Limited, New Delhi.

REFERENCE BOOKS:

1. Egan, Gerard, 2006 The skilled helper: A problem management and opportunity, Development Approach to helping, Wadsworth publishers, Boston, USA
2. Mcleod & John, 2003 Introduction to Counseling, Open university press, UK
3. Neukrug. E, 2012 Counseling theory and practice.
4. Palmer, 2004 Counseling, The BAC Counseling reader, British Association for Counseling, Vol. 1 & 2, Sage publications , New Delhi, India
5. Randy J Larsen. Personality psychology, New Delhi, 2011
6. Rao, Narayana, 2003 Counseling and Guidance, Tata McGraw Hill, New Delhi. India.
7. Sanders, 2002. First steps in Counseling, PCCS Books Ltd, UK.
8. Seligmam M, 2011, Flourish: A New Understanding of Happiness and Wellbeing: and How to Achieve Them. Nicholas Brealey Publishing, London, Boston

I – M.S.W	DISASTER MANAGEMENT	21EPS25A
SEMESTER – II		HRS/WK : 3
ELECTIVE – II (A)		CREDIT : 3

OBJECTIVE:

To understand the concept of Disaster Management and Role of Social Worker in the field.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Be exposed to the disaster.

CO2: Learn the process of disaster management.

CO3: Understand the phases of disaster management.

CO4: Learn about Disaster Management Authority and Acts.

CO5: Gain knowledge on Role of Social Workers and Voluntary Agencies in disaster management.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER II	COURSE CODE: 21EPS25A					COURSE TITLE: DISASTER MANAGEMENT					HOURS: 3	CREDITS: 3
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	4	2	3	4	4	4	4	3	3	3	3.4	
CO2	4	2	3	4	4	4	4	3	3	3	3.4	
CO3	4	2	3	4	4	4	4	3	3	3	3.4	
CO4	4	2	3	4	4	4	4	3	3	3	3.4	
CO5	5	3	4	5	5	5	5	4	4	4	4.4	
Mean Overall Score											3.6	

Result: The Score of this Course is 3.6(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT I

Disaster: Meaning, Concept and related Concepts, Disaster, Risk, Hazard. Models of Disaster - Crunch Model and Release Model. Types and Effects of Disaster. Natural Disaster: Meteorological:

Storm, Cyclone. Topological: Avalanche. Telluric: Earthquake. Manmade disasters. Effects: Physical, Social, Economic, Psychological, Spatial.

UNIT II

Participatory Assessment of Disaster Risk Steps - Preparation, Hazard Assessment, Vulnerability Assessment, Capacity Assessment, Key Informant Interviews and Action Planning.

UNIT III

Disaster Management and Phases: Pre-disaster: Prevention, Preparation, Education Vulnerability and Preparedness. Actual Disaster: Contingency, Short-Term and Long Term Plans. 4 Rs: Rescue, Relief, Recovery and Resettlement. Post disaster: Rehabilitation and Commemorations.

UNIT IV

Disaster Management Act 2005, National Disaster Management Authority and National Institute of Disaster Management. Functions of District, State and National Disaster Management Authority. Resources Mobilization, Working with Other Professionals, Working with Government and Voluntary Organizations.

UNIT V

Role of Social Workers and Voluntary Agencies in disaster both at the International and National level, Role of Media in disaster, Psycho Social Support and Mental Health Services, Case Studies on Bhopal Gas Tragedy 1984, Chernobyl Disaster 1986, Tsunami 2004, Thanae 2011, Vardha 2016, Ghaja 2018 Cyclones and Riots

TEXT BOOKS:

1. Damon Coppola. 2015. Introduction to International Disaster Management. 3rd Edition. Butterworth – Heinemann.
2. KsyamaSagarMeher, Disaster Management New Edition, Neeraj Publications.
3. Sulphey M.M. 2016. Disaster Management, Kindle Edition. New Delhi: PHI Learning Pvt. Ltd.
4. V. Jay Nichol, 2015, Environmental Studies and Disaster Management, Rawat Publication, New Delhi.
5. Varun Dutt Sharma, 2009, Environmental Education and Disaster Management, CBS Publication and distributors, New Delhi.

REFERENCE BOOKS:

1. Abarquez I and Murshed Z .2004. Community-Based Disaster Risk Management: Field Practitioners' Handbook. New Delhi: Asian Disaster Preparedness Center
2. Anderson M and Woodrow P. 1998. Rising from the Ashes: Development Strategies in Times of Disaster. London: ITDG Publishing,
3. Blaikie P, Cannon T, Davis I and Wisner B. 2004. At risk: Natural hazards, people's Vulnerability and Disaster. London: Routledge.
4. Carter I. 2002. Preparing for disaster, PILLARS Guide, Tearfund UK.
5. Carter I. 2003. Mobilizing the community, PILLARS Guide, Tearfund UK.
6. Heijmans A and Victoria L 2001. Citizenry-Based and Development-Oriented Disaster Response. Philippines: Centre for Disaster Preparedness.
7. Tearfund UK. 2004. Development and Risk Reduction in the Indian State of Andhra Pradesh: A case study

I – M.S.W	ENVIRONMENTAL SOCIAL WORK	19EPS25B
SEMESTER – II		HRS/WK : 3
ELECTIVE - II (B)		CREDIT : 3

OBJECTIVE:

To understand the concept of Environmental Social Work.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Be exposed to the disaster management.

CO2: Understand the natural resources.

CO3: Be equipped with knowledge about biodiversity.

CO4: Understand the environmental social issues.

CO5: Be exposed to the field based visit and cause and effects of environment.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER II	COURSE CODE: 19EPS25B					COURSE TITLE : ENVIRONMENTAL SOCIAL WORK					HOURS: 3	CREDITS: 3
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	5	4	4	5	5	5	4	4	4	4.5	
CO2	4	3	4	3	4	5	5	4	4	4	4	
CO3	3	3	3	4	4	4	3	3	4	4	3.5	
CO4	5	4	4	4	4	5	5	4	4	4	4.3	
CO5	5	4	4	4	5	5	4	5	4	4	4.4	
Mean Overall Score											4.14	

Result: The Score of this Course is 4.14(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERYHIGH** association with Programme Outcome and Programme Specific Outcome

UNIT I

Introduction to Environment and Environmental Studies: Definition and Components of Environment, Relationship between the different components of Environment, Man and Environment relationship, Impact of technology on Environment, Environmental Degradation, Multidisciplinary

nature of the Environment studies, its scope and importance in the present day Education System.

UNIT II

Natural Resources: Renewable and non-renewable resources, Natural resources and associated problems, Forest resources, Water resources, Mineral resources, Food resources, Energy resources, Land resources, Role of an individual in conservation of natural resources, Equitable use of resources for sustainable lifestyles.

UNIT III

Biodiversity and its conservation Definition: genetic, species and ecosystem diversity, Bio-geographical classification of India, Value of biodiversity, Biodiversity at global, national and local levels, Threats to biodiversity, Conservation of biodiversity.

UNIT IV

Social Issues and the Environment from unsustainable to sustainable development, Urban problems and related to energy, Water conservation, rain water harvesting, watershed management, Resettlement and rehabilitation of people; its problems and concerns. Case studies, Climate change, global warming, Environmental Protection Act 1986, Public awareness Population growth, Role of Information Technology in Environment and Human Health. Role of Social Workers in Environmental Protection

UNIT V

Field Work: Visit to a local area to document Environmental assets – River or Forest or Hill or Mountain. Visit to a local polluted site – Urban or Rural or Industrial or Agricultural. Study of simple ecosystems – Pond, River, hills slopes.

TEXT BOOKS:

1. Ksyama Sagar Meher, Disaster Management New Edition, Neeraj Publications.
2. M.M. Sulphey, Disaster management.
3. Mel gray , John coates and Tiani Hetherington, 2013 , Environmental social work, New York.
4. V. Jay Nichol, 2015, Environmental Studies and Disaster Management, Rawat Publication, New Delhi.
5. Varun Dutt Sharma, 2009, Environmental Education and Disaster Management, CBS Publication and distributors, New Delhi.

REFERENCE BOOKS:

1. Aravind Kumar. 2008. Environmental Resource Management. Daya Publishers. New Delhi:
2. Asthana. D.K. 2001. Environmental Problems and solutions. S. Chand publishers. New Delhi.
3. Benny Joseph. 2005. Environmental studies. Tata McGraw Hill Publishers. New Delhi:
4. Mohan I. 2002. Environmental Problems in 21st Century. Anmol Publishers. New Delhi.
5. Prabhakar V.K.2001. Environment and Agricultural Pollution. Encyclopedia of Environmental Pollution and Awareness in 21st Century Series. Anmol Publishers. New Delhi.
6. Purushotham Reddy. 2003. Environmental education. Neel Kamal Publishers, New Delhi.
7. Ravichand. M. 2007. Environmental Management. Concept Publishers. New Delhi.

I – M.S.W	CONCURRENT FIELD WORK	20PSWF2
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SEMESTER – II	PRACTICUM - II	HOURS : 10*
CORE PRACTICAL - II		CREDIT : 4

OBJECTIVE:

To practice the theoretical knowledge in the field of NGO/Hospital/Company settings.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Be exposed as a social worker in different settings.

CO2: Be exposed to different NGO, agency and company.

CO3: Be known to handle the client as a case worker.

CO4: Understand the group work process.

CO5: Organize Community organization programme.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER II	COURSE CODE: 20PSWF2					COURSE TITLE: CONCURRENT FIELD WORK PRACTICUM - II					HOURS : 10	CREDITS: 4
	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)						
COURSE OUTCOMES (CO)	PO 1	PO 2	PO 3	PO 4	PO 5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	5	4	5	5	5	5	5	4	5	5	4.8	
CO2	5	4	5	5	5	5	4	4	5	5	4.7	
CO3	5	4	5	4	5	5	5	4	5	5	4.7	
CO4	4	3	5	4	5	5	5	3	5	5	4.4	
CO5	5	3	4	5	4	5	5	3	5	5	4.4	
Mean Overall Score											4.6	

Result: The Score of this Course is 4.6(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

The first year students during the second semester go for practice based social work for two days in a week and expected to spend a minimum of 10 hours per week in the field. The first year students

are placed in villages or hospitals or schools or NGOs or government offices or counseling centers or welfare organizations or service organization for a semester.

During the placement they have to practice all the primary methods of social work. One has to complete 5 cases in casework, two group following all the stages of group work practice with at least 10 sessions which include the formation, naming, fixing of objectives, organizing programmes based on the objectives, evaluation, sociometry and sociogram. In the community students are expected to conduct one programme or solve an issue of the community following the principles of community organization and social action. The community organization programme is being organized by each student to promote extension activities towards different villages, institutions and organizations.

Every week the students write a report of their activities and submit to the concerned field work supervisor. The supervisor conducts individual and group conference every week regularly. At the end of the semester Viva- Voce is conducted by two examiners, one being an external examiner and the other would be the supervisor. 20 marks are being awarded by the internal faculty supervisor, 20 Marks are awarded by the Agency Supervisor and 60 marks are being awarded by the external examiner.

Marks Allotments

S. No	Assigned Work	Internal	External
		Faculty	External Examiner
1	Case Work, Group Work, Community Organization Programme	40	
2	Presentation, Quality in Components, Communication		60
	Total	100	

* Number of hours spent for two days in a week by a student in the field.

I – M.S.W	LIFE SKILLS FOR SOCIAL WORK	19PSWS1
SEMESTER – II		HOURS: 1

SKILL	CREDIT: 2
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OBJECTIVE:

To develop the skills which are needed for social work profession.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Be exposed to their personal skills and development.

CO2: Be determined with the communication and writing skill.

CO3: Be capable of understanding human behavior.

CO4: Be equipped with the professional skills for their future development.

CO5: Learn the ethics and role of social worker.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER II	COURSE CODE: 19PSWS1					COURSE TITLE: LIFE SKILLS FOR SOCIAL WORK					HOURS:1	CREDITS:2
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	4	3	4	4	4	5	4	4	4	4	4	
CO2	4	3	4	4	4	4	3	4	4	4	3.8	
CO3	4	4	3	4	4	4	5	4	4	4	4	
CO4	5	4	5	4	4	4	5	4	4	4	4.3	
CO5	4	3	4	3	4	4	3	3	4	3	3.5	
Mean Overall Score											3.92	

Result: The Score of this Course is 3.92(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcome and Programme Specific Outcome

COMPONENTS:

1. One Day Workshop on Life Skills which covers understanding self through a SWOT, Communication, Presentation skill, Interpersonal Skills such as Group Decision Making and Negotiation Skills.
2. Practical Exercises on Communication.
3. Conducting and Staging Two Street Plays in the Society or service and educational institutions by the students in group on relevant current issues of the society.
4. Awareness Creation Programme by the students in the Society or Service and educational institutions.

At the end of the semester Viva- Voce is conducted internally by two examiners by the faculty of the department. The students will be awarded with one credit.

Marks Allotments

Submission of Report	-	20 Marks
Presentation & Performance	-	20 Marks
Completion of Components	-	20 Marks
Skills Acquired	-	20 Marks
Learning Content	-	20 Marks

SPECIALISATION PAPER – I

COMMUNITY DEVELOPMENT SPECIALIZATION

II – M.S.W	RURAL AND TRIBAL COMMUNITY DEVELOPMENT	19PSW31A
SEMESTER – III		HOURS : 6
CORE – IX		CREDIT : 4

OBJECTIVE:

To understand the concept of Rural and Tribal Community and its Development.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Be exposed to the rural community.

CO2: Be determined to the development of the community.

CO3: Be capable of understanding human behavior.

CO4: Be committed to work with the tribal community.

CO5: Be equipped with skills to work with the community.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: 19PSW31A					COURSE TITLE: RURAL AND TRIBAL COMMUNITY DEVELOPMENT					HOUR S: 6	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	4	5	3	4	5	5	4	4	4	4.3	
CO2	5	4	5	3	5	5	5	4	5	5	4.6	
CO3	5	4	5	3	5	5	5	5	4	5	4.6	
CO4	5	3	5	3	5	5	5	4	5	5	4.5	
CO5	5	4	5	3	4	5	5	5	5	4	4.5	
Mean Overall Score											4.5	

Result: The Score of this Course is 4.5(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Rural Community: Meaning, Characteristics. Assessment of Needs and Problems in the Community. Participatory Rural Appraisal – Meaning, Characteristics, Principles, Tools, Steps and Limitations. Rural Organization and Rural Development. Rural Problems: Poverty, Illiteracy, Unemployment, Problems related to agriculture, Community Health.

UNIT II

Community Development: Meaning, Objectives, Principles, and Models; methods; Earlier experiments in rural developments - Sriniketan Experiment and Marthandam Experiment. Rural Extension, Millennium Development and Sustainable Development Goals. Rural Development Administration and Panchayat Raj Institutions (PRI), 73rd Amendment and its Salient Features, Features of Tamil Nadu Panchayat Act 1994. Rural development Agencies: DRDA & BDO.

UNIT III

Rural Development Programmes: A) Area Based - Drought Prone Area Programme (DADP), Intensive Agriculture Area Programme (IAAP) and High Yield Variety Programme, MP's & MLA's Area development programme. B) Target Based programmes: IRDP, TRYSEM, SGSY, and Employment Assurance Scheme, MGNREGA. C) Welfare Programmes: Minimum Needs Programme, ICDS, and Five year Plans and Strategies for Rural Development. Community Participation.

UNIT IV

Tribes: Definition, Concept, Characteristics of the Tribal Community; Nomadic and De- Notified Tribes; Regional Distribution of Tribes and Nehru's Panchasheel Principles of Tribes. Social System of Tribes: Socio economic conditions; Cultural and religious aspects; status of women: Status of Children; Tribal leadership and Political Participation -Local, State, and National levels.

UNIT V

Problems of Tribes: Child Marriage, Poverty, Ill-Health, Illiteracy, Exploitation and atrocities on tribes. Tribal Resettlement and Rehabilitation and its related problems. Tribal Movements and Tribal Revolt, Naxalpari Movement. Tribal Development Programmes: Tribal Development Policies, Tribal Area Development Programme; Tribal Sub-Plans, Need and Importance of Social Work practice in Tribal areas. Problems in implementation of tribal development programmes.

TEXT BOOKS:

1. Alison Gilchrist, Marilyn Taylor, Short Guide to Community Development.
2. Asha Ramagonda Patil, 2013, Community Organization and Development An Indian Perspective, PHI Learning Private Limited, Delhi.
3. Dr. P. V. Ramana Rao, Rural Development and Poverty Alleviation Programmes – NGNREGS, Aryan Publication, New Delhi.
4. Margaret Ledwith, 2006, Community Development – A Critical Approach, Rawat Publication Jaipur.
5. Samuel H. Taylor and Robert W. Roberts, 2013, Theory and Practice of Community Social Work, Rawat Publications, Jaipur.

REFERENCE BOOKS:

1. Christopher, A J. and Thomas William. 2006. Community Organization and Social Action. New Delhi: Himalaya Publishing House.
2. Dutt & Sundaram. 2013, Indian Economy, Sultan& Chand, New Delhi.
3. Kumar, Somesh. 2004. Participatory Method in Community Work. New Delhi: Himalaya Publisher.
4. Sachinanda and Purnendu, 2001 Fifty Years of Rural Development in India, Firma KLM Pvt Ltd., Kolkata.
5. Suresh Chandra, Anne Karen Trollope, 2015, Non-Governmental Organizations, Rawat Publications,
6. William, A. Thomas and A. J. Christopher. 2011. Rural Development – concept and recent approaches. Jaipur: Rawat Publications.

SPECIALISATION PAPER – I**HUMAN RESOURCE MANAGEMENT SPECIALIZATION**

II – M.S.W	HUMAN RESOURCE MANAGEMENT	20PSW31B
SEMESTER – III		HOURS : 6
CORE-IX		CREDIT : 4

OBJECTIVE:

To understand the concept of Human Resource Management and related concepts.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Be exposed to the concept of human resource management.

CO2: Be determined to the process of human resource planning.

CO3: Be equipped with the knowledge on training and development.

CO4: Be capable of handling with administrative structure.

CO5: Learn the human resource development.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: 20PSW31B					COURSE TITLE: HUMAN RESOURCE MANAGEMENT					HOURS : 6	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	3	5	3	5	5	4	4	5	5	4.4	
CO2	5	3	5	3	5	5	4	4	5	5	4.4	
CO3	5	3	5	3	5	5	4	4	5	5	4.4	
CO4	5	3	5	3	5	5	4	4	5	5	4.4	
CO5	5	3	5	3	5	5	4	4	5	5	4.4	
Mean Overall Score											4.4	

Result: The Score of this Course is 4.4(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT I

Human Resource Management: Concept, Scope, Objectives, Principles of HRM, Evolution, Approaches, Structure, Policies and Functions of Human Resource Management. **Principles**, Emerging trends of Competencies and Roles of HR Professionals.

UNIT II

Human Resource Planning: Concept, Objectives, Need, Process. Job Analysis: Uses, Content. Job Description, Job Specification. Recruitment: Meaning, Sources and Methods of Recruitment. Selection: Meaning, Steps, Application Blank, Psychological test, Interviews and Physical Examination. Talent Acquisition: Goals, Policies, Sources and Methods. Placement and Induction. Compensation Management: Compensation structure, Factors influencing Compensation Plans and Policies. **Incentive Schemes**, Rewards and Recognition

UNIT III

Training and Development: Meaning, Importance, Purpose, Types and Methods. Wages and Salary Administration: Definition, Objectives, Process of Wage Determination, Methods of Wage payment, Principles of Wages, Factors influencing Wage and Salary administration, Fringe Benefits. Concept of Wage and Salary – Wage Theories – Types of wages – wage differentials – wage regulators – Incentive Schemes.

UNIT IV

Performance Appraisal Systems; – Transfers and Promotions – Discharge, and Superannuation Dismissal, Key Result Areas (KRA), Key Performance Indicators (KPI). Employee Retention and Separation: Attrition and Retention – Concept, - Employee benefit plans. Disciplinary procedures – Domestic enquiry – Grievance Procedure — Retirement: Exit Interview, Retirement Benefits – Voluntary Retirement Scheme.

UNIT V

Contemporary trends in HRM: Corporate Social Responsibility, Benchmarking, Core Competency, Business Process Outsourcing (BPO), Business Process Reengineering (BPR), Competency Mapping, Balanced Score Card, Skill Matrix, People Capability Maturity Model (PCMM), Quality Circle, Total Quality Management (TQM) and Total Productivity Maintenance (TPM), Six Sigma and Lean Sigma, 5S Model, and Kaizen. International Organization for Standardization (ISO)

TEXT BOOKS:

1. BPP Learning Media, 2009, Human Resource Management, Viva Books, New Delhi.
2. Dr. S.S.Khanka, 2003 Human Resource Management text and cases S. Chand and Company Pvt. Ltd., New Delhi.
3. K. Aswathappa, 2008, Human Resource Management text and cases, Tata McGraw – Hill publishing company limited, New Delhi.
4. P. Subba Rao, 2016, Personnel and Human Resource Management Himalaya Publishing House, New Delhi.
5. VSP Rao, 2010, Human Resource Management text and cases, New Delhi: Excel Books.

REFERENCE BOOKS:

1. Andrew J. Dubrin, 2012 Essentials of Management, New York: Thomson Southwestern.
2. Bernadin John H, 2012, Human Resource Management, New York: McGraw Hill.
3. Ivancevich, 2012, Human Resource Management, New York: McGraw Hill.
4. Luis R.Gomez-Mejia, David B.Balkin, Robert L Cardy. 2012, Managing Human Resource. New Delhi: PHI Learning.
5. MonirTayeb. 2007,International Human Resource Management. New York: Oxford University Press.
6. Robert L. Mathis and John H. Jackson, 2007,Human Resource Management, New Delhi: Cengage Learning.
7. Uday Kumar Haldar, Juthika Sarkar.2012, Human Resource management. New Delhi: Oxford University Press.
8. Wayne Cascio, 2007, Managing Human Resource, New York: McGraw Hill.

SPECIALISATION PAPER – I

MEDICAL AND PSYCHIATRY SPECIALIZATION

II – M.S.W	MEDICAL SOCIAL WORK	20PSW31C
SEMESTER – III		HOURS : 6
CORE - IX		CREDIT : 4

OBJECTIVE:

To understand the concept of Medical social Work and role of Medical Social Worker.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Be exposed to the importance of medical social work.

CO2: Understand health care model and alternative system of health.

CO3: Be equipped with hospital administration.

CO4: Understand communicable and non-communicable disease.

CO5: Be applicable to work in hospital setting.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: 20PSW31C					COURSE TITLE: MEDICAL SOCIAL WORK					HOUR S: 6	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	4	5	4	5	5	5	4	4	4	4.5	
CO2	4	4	4	3	4	4	4	4	5	4	4	
CO3	4	4	4	4	4	5	5	4	4	5	4.3	
CO4	5	4	5	5	4	5	5	4	4	5	4.6	
CO5	4	3	4	4	4	5	4	4	5	5	4.3	
Mean Overall Score											4.34	

Result: The Score of this Course is 4.34(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT I

Medical Social Work: concept, Definition, Need of medical social work –Role and functions of medical social worker. The meaning of health, hygiene, illness and handicap: medicine through the ages; changing concept of health: concept of patient as a person. Health Indicators and Health Statistics. Historical development in Medical Social Work in the West and in India. Trends, Scope and Limitations of Medical Social Work practice in India. Health Indicator and Health Statistics

UNIT II

Health care models - medical health prevention and promotion model, integrative model and development model; holistic approach to health: alternative system of health – Ayurvedic, Yoga, Naturopathy, Unani, Sidha and Homeopathy (AYUSH) – Health Care Systems, Overview of Human Anatomy.

UNIT III

Organization and Administration of Medical Social Work department in Hospital. Present practice and equipment of medical social work in various setting. a) Government Hospital, Corporate and Private, Specific Disease Hospitals, Specialized Clinics, Community Health Centers, Blood Banks, Eye Banks, Health Camps b) Schools for the Physically and Mentally challenged, Sheltered Workshops, Residential institutions for Physically and Mentally Challenged.

UNIT IV

Communicable and Non Communicable diseases - TB, STD, AIDS, Polio. Diarrhoeal diseases. Malaria, typhoid, leprosy, leptospirosis. Major non communicable diseases - cancer, diabetes, hypertension, cardio disorders, neurological disorders, and asthma; physically challenged, Nutritional disorders, Occupational health problems, Women's health problems, Pediatric health problems and Geriatric health problems.

UNIT V

Medical social work practices in different in Settings. Outpatient unit, ICU, Maternity and Pediatric ward, STD and HIV clinic, Cardiology department, TB sanatorium and Cancer hospitals. Role of Medical Social Worker in Organ Transplantation and Palliative Care unit. Supportive services and networking for practice of medical social work, teamwork in medical setting. Skills and techniques used in medical social work practice. Fund Mobilizing in Medical Social Work.

TEXT BOOKS:

1. Danna R. Bodenheimer. 2015, Real World Clinical Social Work: Find Your Voice and Find Your Way, New Social Worker Press.
2. Park K (2009) Preventive and Social Medicine.
3. Goel S.L (2007) Health Education: Theory and Practice.
4. Tabish S.A (2001) Hospital and Health services administration.
5. Goel S.L (2004) Health Care Management and Administration
6. John Webb, 2002, Medical Social Work: the Reference Book Paperback, Trafford Publishing.
7. Judith L. M. McCoyd, Toba Schwaber Kerson. Social Work in Health Settings: Practice in Context.
8. K. Park. 2013, Park Text Book of Preventive and Social Medicine, M/S BanarsidasBhanot Publishers.
9. Sarah Gehlert, Teri Browne, Handbook of Health Social Work.
10. Sharma Vivek. 2014. UGC NET Tutor Social Work, Arihant Publications New Delhi.

REFERENCE BOOKS:

1. Bradshaw & Bradshaw, 2004 Health Policy for Health Care Professional, Sage Publications, New Delhi.
2. Goel S.L (2004) Health Care Management and Administration.
3. Goel S.L (2007) Health Education: Theory and Practice.
4. Pondicherry Aids Control Society, 2007 Pregnancy, Byword books Private Limited.
5. Sarah Ghelert, 2006 Hand book of Health Social Work, John Wiley & Co., London
6. Sirohi, Anand, 2005 Modern Perspectives in Social Work, Dominant Publishers, New Delhi.
7. Tabish S.A (2001) Hospital and Health services administration.

SPECIALISATION PAPER - II**COMMUNITY DEVELOPMENT SPECIALIZATION**

II – M.S.W	URBAN COMMUNITY DEVELOPMENT	19PSW32A
SEMESTER – III		HOURS : 6
CORE - X		CREDIT : 4

OBJECTIVE:

To understand the concept of Urban Community Development and development scheme.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Be exposed to the urban communities.

CO2: Be aware of slum legislation.

CO3: Understand urban community development.

CO4: Be capable of handling urban administrative structure.

CO5: Learn the role of stake holders in urban community development.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: 19PSW32A					COURSE TITLE: URBAN COMMUNITY DEVELOPMENT					HOUR S: 6	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	4	5	3	4	5	5	4	4	4	4.3	
CO2	5	4	5	3	5	5	5	4	5	5	4.6	
CO3	5	4	5	3	5	5	5	5	4	5	4.6	
CO4	5	3	5	3	5	5	5	4	5	5	4.5	
CO5	5	4	5	3	4	5	5	5	5	4	4.5	
Mean Overall Score											4.5	

Result: The Score of this Course is 4.5(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Urbanization: Concept, Characteristics and Theories. Related Concepts: Corporation, Municipality, Town, City, Metropolis, Megapolis, Suburbs, Satellite Town, Smart Cities, Hinterland, Agglomeration, and Urbanism. Urbanization and Social Problems Urban Problems: Pollution, Crime, Accidents, Commercial Sex Work, Drug Addiction, Housing, Human Trafficking, Juvenile Delinquency, Urban Traffic Problems and Suicide.

UNIT II

Slums: Definition, Causes, Characteristics, Socio-Psychological Issues of Slum Dwellers, Effect of Industrialization and Globalization on Slum. Displacement and Rehabilitation. Slum Clearance Board and its functions. Tamil Nadu Slum Area (Clearance and Improvement) Act 1971. National Slum Development Programme. Urban Development Policy, Town planning and Rules of town planning. Urban Services and Urban Deficiencies, Housing and Urban Development Corporation (HUDCO).

UNIT III

Urban Community Development: Meaning, Scope. Early Development Interventions: SPARK Mumbai, People Project of Action Aid, Oxfam, Unorganized Workers' Federation, National Domestic Workers Movement, National Slum Dwellers Federation. Welfare Extension Projects of Central Social Welfare Board. Problems in implementation of Urban Community Development Programmes.

UNIT IV

Urban Municipal Administration- Structure, Composition, Functions and Current issues. Democratic functioning of Urban local bodies, 74th Constitutional Amendment, Governance and Citizen's Participation. E-Governance in Urban Development, National Urban Information System (NUIS).

UNIT V

Urban Community Development Programme: Five Year Plans and Urban Development. Major National Missions: JNNURM (AMRUT), Housing for all 2022. Institutions and Government departments for Urban Development: CMDA, TNHB, TNSCB, CMWSSB. Urban Training Institutions: TNIUS, NIUA. Role and skills of Community Development Worker in Urban Community Development. Mechanisms to address Urban Social Concerns: 108 Service, Women Helpline, Child helpline.

TEXT BOOKS:

1. Asha Ramagonda Patil, 2013, Community Organization and Development in Social Work an Indian Perspective, PH Learning Private Ltd Delhi.
2. Dr. P. V. Ramana Rao, 2018 Rural Development and Poverty Alleviation Programmes, Aryan Publications New Delhi.
3. Jacob Z. Thudipara, 2017, Urban community development second edition, Rawat Publications, New Delhi.
4. Margaret Ledwith, 2006, Community Development a Critical Approach, Rawat Publications, Jaipur.
5. Samuel H Taylor, 2017, Theory and Practice of Community in Social Work, Rawat Publications, Jaipur.
6. Sharma Vivek. 2014. UGC NET Tutor Social Work, Arihant Publications New Delhi.

REFERENCE BOOKS:

1. Ashish Bose, 2001 India's Urbanization, Institute of Economic Growth, McGraw Hill, New Delhi.
2. Bala, 2000. Trends in Urbanization in India, Patel enterprises, New Delhi
3. Bhattacharya B, 2000 Urban Development in India, Shree Publishing House, New Delhi.
4. Census of India Government of India Publication, 2011.
5. H.U.Bijlani, 2013, Urban Problem, Centre for Urban Studies, Lipa, New Delhi
6. Harper Collins, 2014, Transforming our Cities.
7. Mitra. Urbanization and Urban System in India, Oxford University Press, New Delhi.

SPECIALISATION PAPER – II

HUMAN RESOURCE MANAGEMENT SPECIALIZATION

II – M.S.W	LABOUR LEGISLATIONS AND LABOUR WELFARE	20PSW32B
SEMESTER – III		HRS/WK : 6
CORE - X		CREDIT : 4

OBJECTIVE:

To get knowledge on Labour Legislations and Labour Welfare Related Acts.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Understand labour system.

CO2: Be aware of working environment and legislations.

CO3: Learn about the labour classification.

CO4: Understand the wage legislation.

CO5: Learn about the social legislation.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: 20PSW32B					COURSE TITLE: LABOUR LEGISLATIONS AND LABOUR WELFARE					HOURS :6	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	3	5	4	5	5	4	4	4	5	4.4	
CO2	5	4	4	3	5	5	4	3	4	4	4.1	
CO3	5	3	5	4	5	5	4	4	4	5	4.4	
CO4	5	4	4	3	5	5	4	3	4	4	4.1	
CO5	4	4	4	3	4	4	2	4	4	4	3.7	
Mean Overall Score											4.14	

Result: The Score of this Course is 4.14(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Labour- Concept, Labour Legislation, Concept, Objectives, Importance and Principles. Industrialization – Labourers at various occupations. Characteristics of Indian Labour - Labour Problems in India - Labour Welfare: Concept, need, objectives, principles, theories, scope, limitations. Classification Administration of labour, - Central and State level . Labour Welfare Officer :Qualifications, Roles and Responsibilities.

UNIT II

Legislations relating to working condition and safety: The Factories Act 1948, The Mines Act 1952, The Motor Transport Workmen Act 1961, Plantation Labour Act 1951, TamilNadu Shops and Establishment Act 1947.c.

UNIT III

Contract Labour (Regulations and Abolition) Act 1970, The Apprentice Act 1961, Tamilnadu Industrial Establishment (National and Festival Holidays) Act 1958 and the Amendment of this Act, 2017, Labour Code on Industrial Relations Bill 2019.

UNIT IV

Wage Legislations: Workmen’s Compensation Act 1923, Payment of wages Amendment Act 2017, Minimum wages Act 1948, Payment of Bonus Act 1965, Equal Remuneration Act1976.

UNIT V

Social Security Legislations : Employees State Insurance Act 1948, Employees Provident Fund Act 1952, Payment of Gratuity Act 1972, Maternity benefit Act 1961.

TEXT BOOKS:

1. Punekar Deodhar Sankaran, 1992, Labour Welfare Trade Unionism and Industrial Relations, Himalaya Publishing House.
2. RC Saxena, K Nath, 1996, Labour Problems and Social Welfare, Co Meeru Publications.
3. RC Saxena. 1998. Labour Relations in India. Prakashan Kendra.
4. SC Srivastava, 1995, Industrial Relations and Labour Laws, Vikas Publishing House, Pvt Ltd.
5. Shama Vivek. 2014. UGC NET Tutor Social Work, Arihant Publications New Delhi.

REFERENCE BOOKS::

1. BabuSharath and Rashmi Shetty. 2007. Social Justice and Labour Jurisprudence. New Delhi: SAGE Publication.
2. Kapoor, N.D. 1993. Elements of Industrial Law. New Delhi: Sultan Chand & Sons.
3. Kapoor, N.D. 1995. Hand Book of Industrial Law. New Delhi: Sultan chand & Company.
4. Ramaswamy, E.A. & Uma Ramaswamy. 1981. Industry and Labour: An Introduction New Delhi: Oxford University Press.
5. Vaidyanathan, S. 1986. Factory Laws Applicable in Tamilnadu, Vols: 1,2,3, Madras:Madras Bood Agency.

SPECIALISATION PAPER II

MEDICAL AND PSYCHIATRY SPECIALIZATION

II – M.S.W	MENTAL HEALTH AND SOCIAL WORK	20PSW32C
SEMESTER – III		HOURS : 6
CORE - X		CREDIT : 4

OBJECTIVE:

To understand the concept of mental health and kinds of disorders.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Be exposed to the mental health.

CO2: Learn about stress and coping mechanism.

CO3: Gain knowledge about psychiatric assessment.

CO4: Understand the neurotic and psychotic disorder.

CO5: Learn about the childhood disorder.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER II	COURSE CODE: 20PSW32C					COURSE TITLE: MENTAL HEALTH AND SOCIAL WORK					HOUR S:6	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	4	4	5	4	5	4	4	5	4	5	4.4	
CO2	4	4	4	5	4	4	5	4	4	4	4.2	
CO3	5	4	5	4	4	5	5	4	4	4	4.4	
CO4	4	4	4	3	4	5	5	4	4	4	4.1	
CO5	5	4	5	4	5	5	5	4	4	5	4.6	
Mean Overall Score											4.34	

Result: The Score of this Course is 4.34(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Mental Health: Meaning, Definition. History and Scope of Psychiatric Social Work; Changing Perspective of Psychiatric Social Work; Mental Health and Wellbeing in India. India view of Mental Health and Well Being. Attitudes and Beliefs Pertaining to Mental Illness in Ancient, Medieval and Modern Times.

UNIT II

Stress and Coping: Stress and Mental Health Factors influencing Stress among Children, Adolescents, Women, Workers, Elderly and related to Physical Illness, Coping with Stress, Emotions and Crisis.

UNIT III

Psychiatric Assessment and Intervention: History Taking and Mental Status Examination, Psycho Social and Multidimensional Assessment of Mental Disorders in Psychiatric Social work. Common Mental Disorders - Symptoms, Causes and Treatment of Neurosis, Psychosis, Psycho Physiological Disorders, Personality Disorders. 2017 Amendment of Mental Health Act 1987.

UNIT IV

Neurotic and Psychotic Disorder: Anxiety, Phobia, Obsessive Compulsive Disorder, Posttraumatic Stress Disorder and Psycho Somatic Disorder. Alcoholism, Drug abuse and Suicide. Mental Retardation and Alzheimer's disease, sexual deviation, epilepsy, culture bound syndrome.

UNIT V

Childhood Disorders: Autism and Infantile Schizophrenia, Attention Deficit and Hyperactivity Disorder, Behaviour and Habit Disorder, Disorders associated with Eating, Speech and Sleep, Scholastic backwardness, Identity Crisis. National Mental Health Programmes.

TEXT BOOKS:

1. Colin Pritchard, Mental Health Social Work.
2. Jacqueline Corcoran, Mental Health in Social Work: A Casebook on Diagnosis and Strengths Based Assessment (DSM 5 Update) with Pearson eText -- Access Card Package,
3. K. Park, 2013, Park Text Book of Preventive and Social Medicine, M/S BanarsidasBhanot Publishers.
4. Niraj Ahuja, 2011, A Text Book of Psychiatry, Jaypee Brothers Medical Publishers (pvt) Ltd.
5. Randy J. Larsen, David M. Buss, 2011, Personality Psychology, Tata McGraw – Hill Edition.

REFERENCE BOOKS:

1. Abelin, T. Brzenski and V.D. Car stairs. Measurement in Health Promotion and Protection. Copenhagen: WHO.
2. Bhugra ,Gopinath, Vikram Patel, 2005 Handbook of Psychiatry- A South Asian Perspective. Byword Viva Publishers Pvt.Ltd., Mumbai
3. Francis, C. M. 1991. Promotion of Mental Health with Community Participation. Kerala: The Center for Health Care Research and Education.
4. Jay, Pee. 1994. Diagnostic and Statistical Manual of Mental Disorders (DSM IV). New Delhi: Oxford Press.
5. Kappur. M. Sheppard. Child Mental Health-Proceedings of the Indo-US symposium.
6. Mane P. &Gandevia K. 1994. Mental Health in India Issues and Concerns; Tata Institute of Social Sciences, Mumbai.

7. WHO, 2004 The ICD-10 Classification of Mental and Behavioral Disorders, Diagnostic Criteria for Research, AITBS Publishers and Distributors, Delhi
8. World Health Organization. Geneva. 1992. The ICD 10 Classification of Mental and Behavioral disorders, Clinical Description and Diagnostic Guidelines; Oxford University. Press

II – M.S.W	HUMAN RIGHTS	ECHR901S
SEMESTER – III		HRS / WEEK : 2
INTERDISCIPLINARY		CREDIT : 2

OBJECTIVE:

To get knowledge on human rights.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Gain Knowledge about Emergence of Human Rights.

CO2: Knowledge relating to various Declaration on Human Rights.

CO3: To know the various Covenants for protecting Human Rights.

CO4: To know the various Covenants for protecting Human Rights.

CO5: To Evaluate Certain issues on Human Rights.

UNIT I

Historical Development - Origin - Meaning – Nature – Scope and Classification of Human Rights – Theories of Human Rights.

UNIT II

Universal Declaration of Human Rights -1948- Geneva Convention of 1949 - International Human Rights in Domestic Court.

UNIT III

International Covenant on Civil and Political Rights 1966 – International Covenant on Economic, Social and Cultural Rights – International Covenant Supervision and Punishment of the Crime of Apartheid.

UNIT IV

Women's Rights - Women Conference - CEDAW - Protection of Women from Domestic Violence Act - 2005 – Present Position of Women in India – Child Labour - Legislation to Protect Child Labour in India – Child Abuse – Problem of Refugees – Capital Punishment.

UNIT V

The Protection of Human Rights Act. 1993 – National Human Rights Commission – State Human Rights Commission – Minorities Rights Commission – National Commission for Women.

TEXT BOOKS:

1. Sharma, N.R., Human Rights in the World, Jaipur, 1999.

REFERENCE BOOKS:

1. Adil-ul Yasin and Archana Upadhyay, Human Rights, New Delhi, Akansha Publishers, 2004.
2. AnuSaksena, Human Rights and Child Labour in Indian Industries, Delhi, Shipra Co-op Book Society, 1998.
3. RajindarSachar, Huma Rights: Perspectives and Challenges, New Delhi, Gyan Publishing House, 2005.
4. Kaarthikeyan D.R., Human Rights: Problems and Solutions, New Delhi, Gyan Publishing, House, 2004.
5. Misha, R.C., Governance of Human Rights: Challenges in the Age of Globalization, Delhi, Publications, 1999.

QUESTION PAPER PATTERN

Max Marks – 75 Time - 3 Hours

Section – A Choose the Correct Answer (10 x 1 = 10 Marks)

Section – B Answer any Five of the following (5 X 5 = 25 Marks)

Section – C Write an Essay on any Two of the following (2 x 20 = 40 Marks)

II – M.S.W	COMPUTER APPLICATION IN SOCIAL WORK	19EPS33A
SEMESTER – III		HOURS : 6
ELECTIVE – III (A)		CREDIT : 4

OBJECTIVE:

To understand the basics of computer, its applications and SPSS in the field of Social Work research.

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Be exposed to the fundamentals of computer.

CO2: Gain Knowledge on office applications.

CO3: Understand the usage of SPSS in the field of Social Work research.

CO4: Be capable of creating data file and to develop practical knowledge.

CO5: Be aware of applications of Statistical Calculation.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: 19EPS33A					COURSE TITLE: COMPUTER APPLICATION IN SOCIAL WORK					HOUR S:6	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	3	5	5	3	5	2	4	3	4	3.9	
CO2	5	3	5	5	3	5	2	5	3	4	4	
CO3	5	3	5	5	3	5	2	5	3	4	4	
CO4	5	3	5	5	3	5	2	4	3	4	3.9	
CO5	5	3	5	5	3	5	2	4	3	4	3.9	
Mean Overall Score											3.94	

Result: The Score of this Course is 3.94(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Fundamentals of a Computer: Meaning, Characteristics, basic operations – input, storage, processing, output, ALU and control. Devices of a computer hardware, software, types of software – application, system, utility. Meaning of programme. Computer language – machine, assembly high level. Assembler, interpreter and compiler, operating system.

UNIT II

Office Applications: MS Office (MS Word, MS Excel or Spreadsheets, PowerPoint). Internet and browsing E-Mail, Use of Internet in Research. Practical – creating document, excel, power point and mail merge.

UNIT III

Statistical Package for Social Sciences: Basics of Statistical analysis – population, sample, case, case number, variable, variable level, types of variable – numeric, string, alphanumeric, system missing value, user defined missing value, code book and code sheet, types of statistics, statistical tests, types of analysis. Structure of SPSS windows.

UNIT IV

Creating data file, syntax file and output file: Defining data, Variable name, Variable label Values, value labels. Editing data file, adding cases, adding variables, saving files, retrieving data files, printing data file. Recoding of data. Practical – creating data file, syntax file, Output file, Recoding of Data. Exporting output file to Ms-Word.

UNIT V

Analysis of data: Univariate and Bivariate Analysis, charts and diagrams. Editing of table and charts, exporting tables and charts in Word document. Interpretation of data, Application of Statistical Calculation and Test, Measurement of Central Tendency, Dispersion, 't' test, Chi-square Test. Application of Correlation, Regression. ANOVA. Practical – Creating frequency table, Cross tables, Charts, Statistical tests – Chi square test, t test.

TEXT BOOKS:

1. Alexis Leon, 2013, Computer Applications in Business, Vijay Nicole imprints Pvt Ltd.
2. Computer Literacy Programme (CLP), 2011. Vijay Nicole Imprints Private Ltd.
3. Saxena, Sanjay. 1999. A First Course in Computers. Vikas Publishing House Pvt. Ltd. New Delhi.
4. Sharma Vivek. 2014. UGC NET Tutor Social Work, Arihant Publications New Delhi.
5. V. Rajaraman, 2001, Fundamentals of Computers, Eastern Economy Edition.

REFERENCE BOOKS:

1. Foster, J.J. 1998. Data Analysis Using SPSS for Windows. Sage Publications Ltd. London.
2. Kelle, V. 1998. Computer Aided Qualitative Data Analysis. Theory, Methods and Practice. Sage Publications Ltd. London.
3. Mansfield, Ron. 1997. The Compact Guide to Microsoft Office Professional. Sybex Computer Books Inc. USA.
4. Saxena, Sanjay. 1999. A First Course in Computers. Vikas Publishing House Pvt. Ltd. New Delhi.
5. Sundarajan, K. 1998. Internet. Kandadasan Pathippagam. Chennai.
6. Taxali, R.K. 1998. PC Software for Windows Made Simple. Tata MC Graw-Hill Publishing Company Ltd. New Delhi.

II – M.S.W	CORPORATE SOCIAL RESPONSIBILITY	19EPS33B
SEMESTER –III		HRS/WK : 6
ELECTIVE – III (B)		CREDITS: 4

OBJECTIVE:

To understand the concept of corporate social responsibility.

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Understand the concept of CSR.

CO2: Be exposed to the CSR implementation.

CO3: Understand CSR in different settings.

CO4: Learn the models in CSR.

CO5: Gain the CSR guidelines.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: 19EPS33B					COURSE TITLE: CORPORATE SOCIAL RESPONSIBILITY					HOURS: 6	CREDITS: 4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	4	4	4	4	4	3	4	4	4	4	
CO2	5	4	5	4	4	5	4	4	5	4	4.4	
CO3	5	4	5	4	5	5	4	4	4	4	4.4	
CO4	5	4	4	4	4	5	4	5	4	4	4.3	
CO5	5	4	5	5	4	5	3	4	4	4	4.3	
Mean Overall Score											4.28	

Result: The Score of this Course is 4.28(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Definition, Concepts, Overview of Corporate Social Responsibility. Needs to be Social responsibility; Corporate Social Responsibility in Indian context and International; Business ethics and Corporate

Social Responsibility; Phases of CSR. Legal Provisions and specification on CSR, Companies Act; Difference between CSR and CSI (Corporate Social Initiatives).

UNIT II

Skills and Techniques in CSR: Corporate Community Participation and Role and Skills of Social Worker in CSR; Corporate Perspective on building successful partnership; Tools and Techniques; Roles and skills: Advocacy, Administration, Marketing, Mediating, Budgeting, Organizing, Documenting, Presenting, Public speaking, Teaching, Supervising and Reporting.

UNIT III

Carroll's model, Prakash Seithi's model, Keith Devis model, and Carroll model, The 3 C-SR model, The 3 C model

UNIT IV

CSR in notable industries Ashok Leyland, Hyundai Foundation, Srinivasan Service Trust, Titan Foundation, Tata Sustainability Group, A.M.M.Foundation, CPCL, Wipro Foundation, Infosys Foundation, NIIT.

UNIT V

UN Global Compact – UNDP, Global Reporting Initiative. The Tata Code for Community Initiatives, The CSR Guidelines for Central Public Sector Undertakings by the Ministry of Corporate Affairs, The Company's Act 2013.

TEXT BOOKS:

1. C. A Kamal Garg, 2014, Corporate Social Responsibility, Bharat Law House Private Ltd.
2. David Vogel, The Market for Virtue: The Potential and Limits of Corporate Social Responsibility.
3. K.N. Ajith. Corporate & Social responsibility.
4. Madhumita Chatterji, Corporate Social Responsibility.
5. Matthew Hirschland, 2007, Corporate Social Responsibility and shaping of global public policy (Political Evolution and Institutional Change), Palgrave Macmillan.

REFERENCE BOOKS:

1. An Analytical Review of 'CSR' Spending in India" Socio Research and Reform Foundation (SRRF), Delhi, 2013.
2. Avinash K. Dixit and Barry. J. Nalebuff (2010) Thinking Strategically, The competitive Edge
3. Baxi C.V. & Rupamanjari S. R. (2012). Corporate Social Responsibility, A Study of CSR practices in Indian Industry. Vikas Publishing House Pvt.ltd, New Delhi.
4. Benn & Bolton, 2011. Key concepts in corporate social responsibility. Australia: Sage Publications Ltd.
5. Burchell Jon (Ed) 2008. The Corporate Social Responsibility Reader, Routledge, New York
6. Reddy, Sumati and Stefan Seuring. (2004). Corporate Social Responsibility: Sustainable Supply Chains. Hyderabad: ICFAI University Press.
7. Werther, W. B. & Chandler, D. (2011). Strategic corporate social responsibility. Thousand Oaks, CA: Sage

I – M.S.W	CONCURRENT FIELD WORK PRACTICUM – III	19PSWF3
SEMESTER – III		HRS/WK : 10 *
CORE PRACTICAL – III		CREDIT : 4

OBJECTIVE:

To get exposure in the field of professional settings based on the specialization.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Gain social workers professional knowledge on different settings.

CO2: Learn about human resource management.

CO3: Be exposed on role of medical social worker in hospital settings.

CO4: Understand the community problem.

CO5: Organize group work and community organization programme.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: 19PSWF3					COURSE TITLE: CONCURRENT FIELD WORK PRACTICUM – III					HOURS :10	CREDITS :4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	4	5	3	5	5	4	3	5	5	4.4	
CO2	5	4	5	4	5	5	5	4	5	5	4.7	
CO3	5	4	5	4	5	5	5	4	5	5	4.7	
CO4	5	4	5	4	5	5	5	4	5	5	4.7	
CO5	5	3	5	4	5	5	5	4	5	5	4.6	
Mean Overall Score											4.62	

Result: The Score of this Course is 4.62(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

The second year students during the third semester go for practice based social work for two days in a week and expected to spend a minimum of 10 hours per week in the field. The students are placed in villages or hospitals or schools or NGOs or government offices or counseling centers or welfare

organizations or service organization or industries according to their field of specialization for a semester.

During the placement they have to practice all the primary and secondary methods of social work in their respective fields of specialization. During the placement the students are expected to learn about the vision, mission, philosophy, administration, strategies, programmes, activities, achievements and also involve with the activities of the organization to whatever extent possible.

The students also undertake any assignments given to them by the agency, they may also undertake any research for the organization. The community organization programme is being organized by each student to promote extension activities towards different villages, institutions and organizations.

Every week the students write a report of their activities and submit to the concerned field work supervisor. The supervisor conducts individual and group conference every week regularly. At the end of the semester Viva- Voce is conducted by two examiners, one being an external examiner and the other would be the supervisor. 20 marks are being awarded by the internal faculty supervisor, 20 Marks are awarded by the Agency Supervisor and 60 marks are being awarded by the external examiner.

* Number of hours spent for two days in a week by a student in the field.

Marks Allotments

Specialization - Community Development

S. No	Assigned Work	Internal	External
		Faculty	External Examiner
1	Organization Profile, Group Work, Community Organization Programme	40	
2	Presentation, Quality in Components, Communication		60
	Total		100

Specialization – Human Resource Management

S. No	Assigned Work	Internal	External
		Faculty	External Examiner
1	Organization Profile, Role of Human Resource Management Department, Community Organization Programme	40	
2	Presentation, Quality in Components, Communication		60
	Total		100

Specialization - Medical and Psychiatric

S. No	Assigned Work	Internal	External
		Faculty	External Examiner
1	Organization Profile, Case Work, Community Organization Programme	40	
2	Presentation, Quality in Components, Communication		60
	Total		100

II – M.S.W	NATIONAL SOCIAL WORK PERSPECTIVES – AN ACADEMIC VISIT	19PSWE2
SEMESTER – III		HRS: NIL
EXTENSION – II		CREDIT : 2

National Social Work Perspectives – An Academic Visit is a part and parcel of the field work to training in social work education. It is compulsory for final year students as a part of social work training. Students will be visiting various reputed organization at the national level related to their field of Specialization and understand the functioning of such successful organizations. The students need to prepare the report of the Academic Visit and present it during the Viva. Vice-voce examination is conducted internally for 100 marks. After the Internal Viva-voce, the students are awarded with 2 credits.

OBJECTIVE:

To get national level exposure by visiting different atmosphere.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Experience group dynamics.

CO2: Be exposed to the various socio-cultural patterns.

CO3: Understand the functioning of successful organizations.

CO4: Gain awareness on implementation and execution of tasks.

CO5: Be exposed to different atmosphere.

SEMESTER III	COURSE CODE: 19PSWE2					COURSE TITLE: NATIONAL SOCIAL WORK PERSPECTIVES – AN ACADEMIC VISIT					HOURS : Nil	CREDITS: 2
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	3	4	3	5	5	5	4	5	5	4.4	
CO2	4	3	4	3	4	4	4	3	3	4	3.6	
CO3	5	3	4	3	4	4	4	3	4	4	3.8	
CO4	5	5	5	5	5	5	4	4	5	5	4.8	
CO5	5	3	4	3	5	5	5	4	5	5	4.4	
Mean Overall Score											4.2	

Result: The Score of this Course is 4.2(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

Academic Visit Process

The students are involved in the entire planning of the Academic Visit- beginning from the selection of the places for visit, getting prior permission, drafting the schedule for the entire visits & arranging for travel and accommodation. Two faculties would be in charge for the Visit. They would be guiding the students in the whole process of planning and execution and also accompanying them for the visits.

Tasks to be carried out

1. Actively take part in the process of planning for the Academic Visit.
2. Formation of committees, allocation and execution of concerned responsibilities.
3. Respecting individuality and accommodating oneself for the cause of the group.
4. Implementing the suggestions and guidance of the Faculty.

Skills to be acquired

Skills in Planning, Organizing, Execution, Group Living, collateral contacting, Rapport Building, Budgeting, Accounting, Time Management, Leadership etc.

Marks Allotments

Submission of Report	-	20 Marks
Presentation & Performance	-	20 Marks
Completion of Components	-	20 Marks
Skills Acquired	-	20 Marks
Learning Content	-	20 Marks

II – M.S.W	CHILD WELFARE AND SOCIAL WORK	19SPS34A
SEMESTER –III		HOURS: NIL
SELF STUDY– I (A)		CREDITS: 2

OBJECTIVE:

To recognize child welfare concepts and welfare services.

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Understand basic theoretical knowledge on child welfare concepts and Institution working for child Welfare

CO2: Equip them with the knowledge on welfare services of children

CO3: Be enabled to work in the different field based legislations related to children

CO 4: Create knowledge on various issues related to children

CO5: Address the problems of women and children

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: 19SPS34A					COURSE TITLE:CHILD WELFARE AND SOCIAL WORK					HOUR S: Nil	CREDIT S:2
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	4	5	5	4	5	5	4	4	5	4.6	
CO2	5	4	5	4	4	5	5	4	4	5	4.5	
CO3	5	4	5	4	4	5	5	4	4	5	4.5	
CO4	5	4	5	4	4	5	4	4	4	5	4.4	
CO5	4	4	4	5	4	5	4	4	4	5	4.3	
Mean Overall Score											4.46	

Result: The Score of this Course is 4.46(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Child: meaning, demographic profile of children in India – rural & urban, its place in family and society; status of girl child; concept of socialization; factors influencing socialization; role of family

in socialization; parental socialization during childhood and adolescence; role of peers in socialization, role of school in socialization; impact of television on children.

UNIT II

Problems of Children: childhood diseases and immunization; behaviour disorders of children; causes, consequences and prevention of child malnutrition, nutritional disorders, neglected children and abused children, child workers, child trafficking, child prostitution, HIV/AIDS affected and infected children

UNIT III

Child Education and Problems: Children with disabilities, School dropouts; Rural – Urban and gender differences – Problems in school settings. School Social Work: Concept, Need, Objectives, and Functions. – Child friendly schools initiative. Child Participation.

UNIT IV

Internationals and National instruments to promote and protect rights of children united Nations Charter of Children's Rights and Constitutional directives, Child welfare policies and programmes for children. Legislations relevant for protecting the rights of children-The Children (Pledging of Labour) Act 1935 - Employment of Children Act, 1938 – Minimum Wages Act 1948 - Child Labour (Prohibition and Regulation) Act 1986 – Juvenile Justice Act 2001.

UNIT V

Role and Functions of Professional Social worker in Family setting, Institutional settings, Child Guidance Clinic, Children's hospital, Foster care and adoption, Rehabilitation settings. Child help line services, School Social work – Current research studies in India on Child Rights, Child related services and issues – Specific skills required for Social Work intervention with the children.

TEXT BOOKS:

1. Chowdhry, Paul D (2000): Child Welfare Manual, Atma Ram & Sons Publishers, New Delhi.
2. Lawrence Shulman, 2015, Social Work Practice in Child Welfare, NASW Press.
3. Philip Popple, 2005, Child Welfare Social Work, Pearson Publications.
4. Proactive Child Protection Social Work Second Edition. 2014, Sage Publications India Private Ltd.
5. Sharma Vivek. 2014. UGC NET Tutor Social Work, Arihant Publications, New Delhi.
6. UGC NET/ SET Social Work Trueman's Specific series, 2016, Danika Publishing Company.

REFERENCE BOOKS:

1. Bhat, Bilal (2011): Rehabilitation of Child Labour: Problems and Prospects. Shipra Publications, Delhi.
2. Chowdhry, Paul D (2000): Child Welfare Manual, Atma Ram & Sons Publishers, New Delhi.
3. Deb, Sibnath and Aparna Mukherjee (2009): Impact of Sexual Abuse on Mental Health of Children. Concept Publishing Company, New Delhi.
4. Goonesekere, Savitri (2000): Children, Law and Justice: A South Asian Perspective. Sage Publication, New Delhi.
5. Lieten, G. K., (2004). Working children around the world: Child rights and child reality. Institute for Human Development, New Delhi and IREWOC Foundation, Amsterdam.

II – M.S.W	CARING THE PERSONS WITH DISABILITIES	19SPS34B
SEMESTER –III		HOURS: NIL
SELF STUDY– I (B)		CREDITS: 2

OBJECTIVE:

To identify the forms of disability and the welfare schemes..

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Identify forms of disabilities.

CO2: Learn to diagnose and assess the functional abilities.

CO3: Be exposed to rehabilitative measure.

CO4: Understand the approaches in rehabilitation.

CO5: Be determined to the role of the social worker in this setting.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: 19SPS34B					COURSE TITLE:CARING THE PERSONS WITH DISABILITIES					HOUR S: Nil	CREDIT S:2
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	4	5	4	5	5	5	4	4	5	4.6	
CO2	5	4	5	4	4	5	4	5	4	4	4.4	
CO3	4	4	4	3	5	4	5	4	4	4	4.1	
CO4	5	4	4	4	3	5	5	4	3	4	4.1	
CO5	5	4	4	5	4	4	4	3	3	4	4	
Mean Overall Score											4.24	

Result: The Score of this Course is 4.24(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Definition of impairment, Disability, handicap: Types of various Disabilities: magnitude, Causes and consequences.

UNIT II

Identification, Assessment of functional abilities and differential diagnosis. Myths and misconceptions, societal attitudes, reactions of parents, family members and ways of coping. Prevention of disabilities at primary, secondary and Tertiary levels, Intervention strategies at individual, family and community levels.

UNIT III

Agencies involved in the field of rehabilitations, Multidisciplinary rehabilitation team and their roles, Educational Institutes, Vocational Rehabilitation centers, State and Central Government Agencies, National and International non- governmental organizations,(AICB NAB &CBM etc.)National policies and welfare programmes.

UNIT IV

Accessibility and Assistive devices, Accessible India Campaign, Inclusive India campaign, CBR, (Community based rehabilitation).

UNIT V

Acts related to Persons with disabilities. Persons with Disability Act-2016, Rehabilitation Council of India Act-1992, National Trust Act-1999, united Nation Convention on the Rights of Persons with Disabilities (UNCRPD)

TEXT BOOKS:

1. Albrecht G.L, et al (2001) Hand Book of disability Studies, Sage, London.
2. Dr. Rumi Ahmed, Rights of Persons with Disability, White Falcon Publishing Solutions LIP.
3. Dr. S. Alice Mathew, 2016, Learning Disability and Remediation, Neelkamal Publications.
4. UGC NET/ SET Social Work Trueman's Specific series, 2016, Danika Publishing Company.
5. Upali Chakravarti, Disability and Care Work, Sage Publications India Private Ltd.

REFERENCE BOOKS::

1. Albrecht G.L, et al (2001) Hand Book of disability Studies, Sage, London
2. Blaxter M. (1976), The meaning of disability: A sociological study of impairment, London: Heinemann.
3. Grant, (2005) Learning disability: A lifecycle approach to valuing people, Open University Press, London
4. Hegarty Seamus & Mithu Alur, (2002) Education and Children with special needs, sage, London,
5. Karanth, Pratibha & Joe Rozario, (2003) Learning disability in India, Sage, London
6. Mani M.N.G & Jaiganesh.M.B, (2010). Source Book on disability, Coimbatore: UDIS Forum.
7. Moore, (2005) Researching disability issues, Open University Press, London.
8. Samus, H & Patri.A (eds). Women disability and identity, New Delhi: Sage publications.

SEMESTER –III		HOURS: Nil
SELF STUDY – I (C)		CREDITS: 2

OBJECTIVE:

To understand the Hospital Administration.

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Be clear about the hospital and its classification.

CO2: Be exposed to planning and process.

CO3: Understand the hospital administration.

CO4: Understand the staffing and recruitment process.

CO5: Gain knowledge on hospital budgeting.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: 19SPS34C					COURSE TITLE: HOSPITAL ADMINISTRATION					HOURS : Nil	CREDITS: 2
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	4	2	5	3	5	5	4	3	4	5	4	
CO2	5	3	5	4	5	5	5	4	4	4	4.4	
CO3	5	3	5	4	5	5	5	3	5	5	4.5	
CO4	5	3	5	4	5	5	5	3	5	5	4.5	
CO5	4	3	4	4	4	5	4	3	4	5	4	
Mean Overall Score											4.28	

Result: The Score of this Course is 4.26(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT I

Meaning of hospital, Evaluation of Hospital from charity to modern hospital classification of hospitals, General, special, public, Trust, Teaching-cum Research Hospital, Small or Large Size Hospital.

UNIT II

Planning a Hospital, The planning Process, Choosing a Site, Location and Access, Building Space Utilization, Physical Facilities- residential facilities requirements of various types of wards, out patient's services and in-patients services emergency services in Hospital - Medico legal case - Different departments required in the hospital.

UNIT III

Hospital Administration -Meaning, Nature and Scope Management of Hospitals- principles of Management need for Scientific management . Human resource management in Hospital personnel policies - Condition of Employment Promotional and Transfers - Performance appraisal. Working hours levels rules and benefits - safety conditions - salary and wages policies, Training and development.

UNIT IV

Staffing the hospital - selection and requirement of medical professional and technical staff -social workers -physiotherapist and occupational therapist Pharmacist - Radiographers - Lab technicians - dieticians - records officers - mechanics - electricians. Roles of Medical Records in Hospital Administration Content and their needs in the patient care system.

UNIT V

Hospital Budget - Department budget as a first step - specific elements of a department at budget including staff salary - supply cost- projected replacement of equipment - energy expenditures - contingency funds. Uses of computers in Hospital purchase centralization Shared Building system purchase agreements.

TEXT BOOKS:

1. B. M. Sakharkar, 2004,Principles of Hospital Administration and Planning, Jaypee Publications.
2. Benjamin Robert, et al 1983, Hospital Administration Desk Book Newjerky Prentice hall
3. DC Joshi, 2008,Hospital Administration, Jaypee Publications.
4. Joydeep Das Gupta, 2009, Hospital Administration and Management, a Comprehensive guide, Jaypee Publications.
5. Goal S L 1981, Health care Administration A Text Book New Delhi Sterling Publishers Pvt.

REFERENCE BOOKS:

1. Davies Rlawelyn etal. 1966, Hospital planning & administration Geneva WHO
2. Rabick& Jonathan etal. 1983, Hospital Organization and Management London Spectrum Publishers. 5. Who Expert Committee 1975, Role of Hospital in programme of Community health protection WHO technical Report service.
3. WHO Expert Committee.1968. Hospital Administration WHO technical Report Services No.395.

II – M.S.W	WORKING WITH ELDERLY PEOPLE	19SPS34D
SEMESTER –III		HOURS: NIL

SELF STUDY – I (D)	CREDITS: 2
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OBJECTIVE:

To understand the functions and theories of ageing and kinds of service rendered to the aged people.

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Understand the functions and theories of ageing.

CO2: Learn about the policies and Programme for the elder people.

CO3: Be exposed to family context and relationship.

CO4: Understand the kinds of service rendered to the aged people.

CO5: Be Determined to the family intervention techniques.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: 19SPS34D					COURSE TITLE:WORKING WITH ELDERLY PEOPLE					HOURS: Nil	CREDITS: 2
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	4	4	5	4	5	5	5	4	4	5	4.5	
CO2	5	4	5	4	4	5	5	4	3	4	4.3	
CO3	4	4	4	3	4	4	5	4	4	4	4	
CO4	4	3	4	3	4	5	4	4	5	4	4	
CO5	5	4	4	3	4	5	4	4	3	4	4	
Mean Overall Score											4.16	

Result: The Score of this Course is 4.16(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT I

Ageing: Definition, Concept– Dimensions of Ageing: Physiological, Psychological, Social and Functional – Theories of Ageing: Biological, Psychological & Social. Problems of Ageing: Social, Economic and Psychological–Demographic Aspects of Population, Ageing-National and International Trends – Status of the Aged in India – Ageing and Development.

UNIT II

Policies and Programmes: UN- Principles, International Plan of Action and Programme on Ageing. Government Policies and Programmes and welfare Schemes for the Elderly in India.

UNIT III

Family Context– Intimate Ties or Partnership in Later Life, Transitions in Marital Status: Widowhood, Divorce and Remarriage, Inter-Generational Relations: Common Medical and Psychiatric Problems of Old age, Institutionalization and Related Problems.

UNIT IV

Services for the Aged: Geriatric Clinics, Old Age Homes, Facilities & Services for the Terminally Ill, Recreational Centres, Day Care Centre, Information and Referral Services, Preventive and Supportive Services.

UNIT V

Application of CW, GW, Research & CO with Elderly: Gerontology and geriatrics, Case Work, Group Work, Research and Counseling. Family Intervention Techniques, Health Promotion, Disability Management, Role of Social Workers

TEXT BOOKS:

1. A. Murphy, 1994, Working with Elderly People, Souvenir Press Ltd.
2. Anne Murphy, 1994, Working with Elderly people a Care workers Hand Book, Thomas Cook Touring Handbook.
3. Desai Murli & Raju Siva, 2000, Gerontological Social Work in India: Some Issues & Perspectives.
4. Sharma Vivek. 2014. UGC NET Tutor Social Work, Arihant Publications, New Delhi.
5. UGC NET/ SET Social Work Trueman's Specific series, 2016, Danika Publishing Company.

REFERENCE BOOKS:

1. Bob G Knight, Psychotherapy with Older Adults, Sage, New Delhi, 2004.
2. Desai Murli & Raju Siva. 2000. Gerontological Social Work in India: Some Issues & Perspectives.
3. Irudhaya Rajan, S., Mishra. India's Elderly Burden or Challenge, Sankara Sarma, P. Sage, New Delhi, 1999.
4. Kumudini Dandekar, The Elderly in India, Sage, New Delhi, 1996.
5. Ward, The Ageing Experience: An introduction to Social Gerontology, Harpen & Rere New York, 1984.

II – M.S.W	WOMEN AND DEVELOPMENT	19SPS34E
SEMESTER –III		HOURS: NIL

SELF STUDY – I (E)	CREDITS: 2
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OBJECTIVE:

To understand the functions of women development.

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Understand the functions of women development.

CO2: Learn the importance of women education.

CO3: Be exposed to gender analysis and relationship.

CO4: Understand the women problems and circumstances.

CO5: Be aware of the role of state and national level commission in women's development.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: 19SPS34E					COURSE TITLE: WOMEN AND DEVELOPMENT					HOURS: Nil	CREDITS: 2
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	4	4	4	3	4	4	5	3	4	4	3.9	
CO2	4	4	5	4	3	4	4	3	4	4	3.9	
CO3	4	3	4	4	3	5	4	3	4	4	3.8	
CO4	4	3	5	4	3	4	4	4	4	4	3.9	
CO5	4	4	5	4	4	5	4	3	4	4	4.1	
Mean Overall Score											3.98	

Result: The Score of this Course is 3.98(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Concept of development with reference to women: Women in development, women and development, Gender in development – meaning, strategic and practical needs, Patriarchy and patriarchal structures in India. Feminism and its types. Women's movements.

UNIT II

Education : Differences between male and female children in enrolment and educational achievement, problems in education of the girl child, participation in higher education; NGO and Government efforts to improve women's education. Employment: work participation of women, trends, exploitation of women, multiple roles of women. Health issues of women in India: Health problems, maternal health, maternal mortality, family planning choices and access to health services. HIV/AIDS and impact on women in India.

UNIT III

Gender analysis and its framework: Moser Framework, Social Relations Framework (SRF) (Kabeer), Harvard Framework, Gender Analysis Matrix (Parker), Women's Empowerment Framework (Longwe). Gender Census, Sex Ratio, WID, WAD, GAD. Gender Mainstreaming, Gender budgeting. Self Help Groups: benefits, procedures and best practices.

UNIT IV

Women in difficult circumstances: sex work, female headed households, women and displacement, women and disasters or riots and war, violence against women, transgender. Legal rights of women (salient features only): Marriage, divorce, maintenance, inheritance, adoption, employment, maternity benefits.

UNIT V

International conventions and efforts: CEDAW, Beijing Conference, International organizations and policies. Development programmes for women - Government policies and programmes for women-State and Center; Constitutional provisions; reservations for women. Best practices, Conventions, Committees, Policies and programmes. Role of National and State Women's Commissions

TEXT BOOKS:

1. Anjali Gandhi, 2012, Women's Work Health and Empowerment, Aakar Books Publishers.
2. Dr. Grishma, 2017, Women Empowerment Challenges and Strategies, Books clinic Publishing
3. JaynalUd Din Ahmed, Women Entrepreneurship in India, New Century Publication.
4. Kanhere U S (1995) Women and Socialization, Mittal Publishers, New Delhi.
5. Sharma Vivek. 2014. UGC NET Tutor Social Work, Arihant Publications, New Delhi.

REFERENCE BOOKS:

1. Bhasin, K (1984), Women and media – analysis, alternatives and actions, Kali for Women, New Delhi
2. Blumberg and Dwaraki (1980), India's educated women : options and constraints, Hindustan Publishing corporation, New Delhi
3. Devendar, Kiran (1985), Status and position of women in India, Shakthi Books, New Delhi
4. Hamilton r (1992) The liberation of women: a study of patriarchy, George Allen and Unwin, London
5. ICSSR (1985) Status of women in India- report of the National Commission, Allied publishers, New Delhi
6. Kanhere U S (1995) Women and Socialization, Mittal Publishers, New Delhi
7. Kaushik, Susheela (1993) Women's Oppression : patterns and perspective, Shakti Books, New Delhi
8. LWF (1990) Women's Human Rights, Lutheran World Foundation, Geneva.
9. Neera Desai (1987) Women and society in India, Ajanta Publications, New Delhi
10. Usha Rao (1983), Women in Development Society, Ashish Publishing house, New Delhi.

II – M.S.W	COMPENSATION MANAGEMENT	19SPS34F
SEMESTER –III		HOURS: NIL

SELF STUDY – I (F)	CREDITS: 2
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OBJECTIVE:

To know about the concept of compensation management and employee benefits.

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Understand the meaning of compensation.

CO2: Learn the managing compensation and its structure.

CO3: Be exposed to employer compensation and bonus.

CO4: Understand to manage the employee benefits.

CO5: Be aware of the employee benefits.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: 19SPS34F					COURSE TITLE: COMPENSATION MANAGEMENT					HOURS: Nil	CREDITS: 2
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	4	3	4	4	3	4	3	4	4	3	3.6	
CO2	4	3	4	3	4	4	4	3	4	3	3.6	
CO3	4	3	4	4	3	4	3	4	4	4	3.7	
CO4	4	3	4	4	4	3	4	4	3	4	3.7	
CO5	4	4	4	3	4	4	4	3	4	4	3.8	
Mean Overall Score											3.68	

Result: The Score of this Course is 3.68(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT I

Introduction: Compensation meaning, objectives, nature of compensation, types of compensations, compensation responsibilities, Compensation system design issues: Compensations Philosophies, compensation approaches, decision about compensation, compensation- base to pay, individual Vs team rewards, Perceptions of pay Fairness, legal constraints on pay systems.

UNIT II

Managing Compensation: Strategic Compensation planning, determining compensation-the wage mix, Development of a Base Pay System: Job evaluation systems, the compensation structure- Wage and salary surveys, the wage curve, pay grades and rate ranges, preparing salary matrix, government regulation on compensation, fixing pay, significant compensation issues, Compensation as a retention strategy

UNIT III

Variable Pay and Executive Compensation: Strategic reasons for Incentive plans, administering incentive plans, Individual incentive plans-Piecework, Standard hour plan, Bonuses, Merit Pay, Group incentive plans- Team compensation, Gain sharing incentive Plans, Enterprise incentive plans-Profit Sharing plans, Stock Options, ESOPs, executive compensation elements of executive compensation and its management, International compensation Management.

UNIT IV

Managing Employee Benefits: Benefits- meaning, strategic perspectives on benefits-goals for benefits, benefits need analysis, funding benefits, benchmarking benefit schemes, nature and types of benefits, Employee benefits programs- security benefits, retirement security benefits, health care benefits, time-off benefits, benefits administration

UNIT V

Employee benefits required by law, discretionary major employee benefits, creating a work life setting, employee services- designing a benefits package.

TEXT BOOKS:

1. B. D. Singh (2017). Compensation and Reward Management. Excel Books.
2. Bishwant Gosh. Compensation and Reward Management, 2012, Sterling Publishers.
3. D. K. Bhattacharya, 2009, Compensation Management, Oxford University Press.
4. Richard I Henderson, 1997, Performance Appraisal and Compensation Management, Oxford University Press.
5. Sharma Vivek. 2014. UGC NET Tutor Social Work, Arihant Publications. New Delhi.

REFERENCE BOOKS:

1. Dr. Kanchan Bhatia(2014), “ Compensation Management” published by Himalaya Publishing House, ISBN-13: 978-9352022151
2. Henderson (2007), “Compensation Management in a Knowledge - based World” published by Pearson Education India, ISBN-13: 978-8131711101
3. J. Martocchio Joseph (2018), “Strategic Compensation: A Human Resource Management Approach” published by Pearson Education, ISBN-13: 978-9332584839

II – M.S.W	SUMMER PLACEMENT	19SPS34G
SEMESTER – III		HOURS: NIL
SELF STUDY – I (G)		CREDITS: 2

At the end of first year, the students can go for non-supervised summer placement for a period of 30 days during summer vacation in an agency or industry related to his or her specialization so as to utilize the Summer Vacation fruitfully to develop the professional self in oneself. Two credits are allotted for this and viva-voce will be conducted in the third semester. This is to motivate students to engage in self-learning.

OBJECTIVE:

To experience with management operation and work settings.

COURSE OUTCOMES (COs):

After completing this course, students will:

CO1: Be exposed to the industry and social welfare organization.

CO2: Be experienced with management operation and work settings.

CO3: Be applying theoretical knowledge into practical.

CO4: Carry out research project.

CO5: Learn the ethics and role of social worker.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: 19SPS34G					COURSE TITLE: SUMMER PLACEMENT					HOURS: Nil	CREDITS: 2
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	3	5	4	5	5	4	3	5	5	4.4	
CO2	5	4	5	4	5	5	4	3	5	5	4.5	
CO3	5	4	5	4	5	5	4	3	5	5	4.5	
CO4	4	5	4	5	5	4	4	4	4	4	4.3	
CO5	5	3	5	4	5	5	5	3	5	5	4.5	
Mean Overall Score											4.44	

Result: The Score of this Course is 4.44(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

Process:

1. The learner must volunteer to locate a setting (own choice) about two months in advance and explore the possibilities of a 4 week practice learning practice placement.
2. The practice learning setting should preferably have a professionally trained social worker on the team of a staff.
3. The department will provide official letter for undertaking training in any organization.
4. The learner is to record the learning and submit a comprehensive report (in the format provided by the department) at the beginning of the third semester both to the department (compulsory) and to the setting (on requirement).
5. Each student is expected to attend the viva-voce examination in the third semester and two credits are allotted to those who finish the viva-voce examination.

MODEL QUESTION PAPER FOR SELF STUDY PAPERS**SECTION – A (10X2=20)****Answer ALL Questions**

1. What is the meaning of Compensation?
2. List out the objectives of compensation.
3. What is base to pay?
4. Define Job evaluation.
5. Mention any government regulation on compensation.
6. What is compensation structure?
7. What is bonus?
8. What is Individual incentive?
9. What is Merit Pay?
10. Mention any two Employee Benefits plan.

SECTION – B (5X6=30)**Answer ANY FIVE Questions**

11. Explain about the Compensation system design issues.
12. Elaborate the compensation approaches.
13. Brief about the compensation approaches.
14. Explain benefit schemes, nature and types of benefits.
15. What are the International compensations Management?
16. Brief about benefits administration.

SPECIALISATION PAPER III**COMMUNITY DEVELOPMENT SPECIALISATION**

II – M.S.W	PROJECT MANAGEMENT	19PSW41A
SEMESTER – IV		HOURS : 6
CORE – XI		CREDIT : 4

OBJECTIVE:

To understand the concept of project and project identification and implementation.

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Learn the concept of project cycle management.

CO2: Understand the project identification and implementation.

CO3: Be aware of project design.

CO4: Understand the CSR.

CO5: Determine the role of central and state governments in advocacy.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER IV	COURSE CODE: 19PSW41A					COURSE TITLE: PROJECT MANAGEMENT					HOURS: 6	CREDIT: 4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	3	5	3	4	5	4	5	4	4	4.2	
CO2	5	3	5	3	5	5	4	5	4	5	4.4	
CO3	5	3	5	3	5	5	4	5	4	5	4.4	
CO4	5	4	5	3	5	5	4	4	4	5	4.4	
CO5	5	3	5	3	4	5	4	4	4	4	4.1	
Mean Overall Score											4.3	

Result: The Score of this Course is 4.3(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Planning: Meaning, Process, Reasons, Usefulness, Types, Barriers, Importance. Development Cycle in Planning – Existing Development Cycle and Desired Development cycle. Project Cycle – Meaning, Phases – Identification, Design, Implementation, Evaluation. Project Cycle Management – Meaning and the Importance. Concept Note – Meaning, Outline.

UNIT II

Project Identification – Need Assessment, Tools for Need Assessment – Listening, Interviewing, Focus Groups, Community Mapping, Priority Fixing. Capacity Assessment – Meaning, Types of Assets in Capacity Assessment. Assets and Capacity. Appreciative Inquiry – Discover, Dream, Design and Deliver.

UNIT III

Project design – Meaning. Process of Project Designing – Stakeholder Analysis, Research including Problem Analysis, Log Frame, Risk Analysis, Action Planning, Budgeting. Implementation – Meaning, Phases, Factors Affecting the Implementation. Monitoring Reviewing and Evaluation – Meaning, Purposes, Differences, Indicators, Reporting

UNIT IV

Corporate Social Responsibility – Meaning, Importance, Theory and Models of CSR. Social Auditing – Meaning, Uses, Principles, Stages – Social Book Keeping, Social Accounting and Social Auditing. Methodology and Process of Social Auditing.

UNIT V

Advocacy: Meaning, Approach, Role and Practice; National & International Funding Agencies; State and Central Government Projects; Project Proposal Writing.

TEXT BOOKS:

1. Blackman, Rachel. 2003. Project Cycle Management. UK: Tearfund.
2. Clifford. Gray Erik W. and Larson Gautam. V. Dasai. 2013. Project Management IV Edition. McGraw Hill Education India Pvt. Ltd. New Delhi.
3. Gopala Krishnan. P, V.E Ramamoorthy, 2014, Text Book of Project Cycle Management, Trinity Publications.
4. Harwey Maylor, 2012, Project Cycle Management 3rd Edition, Dorling Kindersley Private Limited Noida.
5. Thomas Ericson, 2015, Project Management 2nd Edition, Global Academic Publishers and Distributors, New Delhi.

REFERENCE BOOKS:

1. Crooks, Bill. 2003. Capacity Self Assessment. UK: Tearfund.
2. Desai, Vasanth. 1988. Rural Development. Vol. I to VI. Bombay: Himalaya Publishing House.
3. Gordon, Graham. 2002. Practical Action in Advocacy. UK: Tear fund
4. Kadekodi, G.K. and K. Chopra. 1999. Operationalizing Sustainable Development New Delhi: Sage Publications. India Pvt. Ltd.
5. Pareek, Udai. 1982. Education and Rural Development in Asia. Oxford and IBH Publications. New Delhi.
6. Vasanth Desai, Project Management, Himalaya Publishing House, Private Limited, Mumbai.

SPECIALISATION PAPER – III**HUMAN RESOURCE MANAGEMENT SPECIALISATION**

II – M.S.W	ORGANIZATIONAL BEHAVIOUR	19PSW41B
SEMESTER – IV		HOURS : 6
CORE– XI		CREDIT : 4

OBJECTIVE:

To be exposed to organization and personal behaviour.

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Understand the concept of organizational behaviour.

CO2: Learn the process of organizational development.

CO3: Be exposed to organization and personal behaviour.

CO4: Understand the group behavior at work place.

CO5: Be aware of role of behavioral scientist in industry.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER IV	COURSE CODE: 19PSW41B					COURSE TITLE: ORGANIZATIONAL BEHAVIOUR					HOURS :6	CREDIT S:4
	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)						
COURSE OUTCOMES (CO)	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	4	5	4	5	5	5	4	5	5	4.7	
CO2	5	4	5	4	3	5	5	3	5	5	4.4	
CO3	5	4	5	3	5	5	5	4	5	5	4.6	
CO4	5	4	5	4	5	5	5	4	5	5	4.7	
CO5	5	4	5	4	5	5	5	4	5	5	4.7	
Mean Overall Score											4.62	

Result: The Score of this Course is 4.62(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Organizational Behaviour: Brief History, Definition, Characteristics, and Models. Contributions of the Behavioral Sciences. Human Behaviour at Work: Theories of Motivation – Motivating Human

- Systems Theory, Emotional quotient at Work. Emerging perspectives on Organizational Behavior
- Dimensions of Organizational Behavior.

UNIT II

Inter-Personal and Intra-Personal behavior: Physical and intellectual ability, Emotional Intelligence, Attitude, Job Satisfaction, Job Involvement and organizational commitment, Personality, Perception, Assertiveness, Learning : Process and Theories, Transactional Analysis, Johari window. Motivation: Concept, theories and Techniques. Morale: Meaning and importance, Factors, Measures and techniques of promoting positive morale.

UNIT III

Foundation of Group Behaviour at Workplace: Concept, Types of Groups, Group Structure, Group Dynamics: Decision Making, Team work, Communication, Leadership - Meaning, Roles, Skills, Styles, Theories, Types of Leadership, Power and Politics - Quality of work life – Work Life Balance – Employee Empowerment and Employee Engagement.

UNIT IV

Organizational Conflict: Concepts, causes and types – Conflict resolution strategies. Organizational change: Concept, forces of change and resistance to change, Managing organizational change and diversity. Organizational Culture and Climate. Organizational Development: Concept, Definition, theories and practice: Organizational Development and Organizational Behaviour, OD Intervention techniques: Sensitivity Training. Quality Circles. Survey Feedback, Management of change. Individual behaviour, Foundations of individual behaviour.

UNIT V

Organizational Dynamics: Stress and Burn Out: Concepts, Causes, Consequences - Coping mechanism and strategies. Gender Sensitivity. Dysfunctional Behaviours: Absenteeism, Alcoholism, Fatigue, Monotony, Accidents and Boredom; Role of Behavioural Scientist in Industry. Employee Coaching and Mentoring. Employee Counseling: Concept, objectives, need, functions, techniques and advantages.

TEXT BOOKS:

1. Aswathappa K. 2012. Organizational behaviour. Himalaya Publication house. Mumbai.
2. Dr. S. S. Khanka. Organizational Behaviour, S. Chand Company Pvt, Ltd 2008.
3. Fred Luthans. Organizational Behaviour, Mc Graw Hill International Edition 2011.
4. John W. Newstorm. 2007. Organizational Behaviour Human Behaviour at Work, Tata Mc Graw Hill.
5. P. Subha Rao. Personnel and Human Resource Management, Himalaya Publishing House, 2016.

REFERENCE BOOKS:

1. Fred Luthans. Organizational Behaviour, Mc Graw Hill International Edition, 2002.
2. Hellriegel Don and Slocum John W., Jr, 2004 Organizational Behaviour, New Delhi, Thomson South-Western.
3. Khanka, S S., 2008 Organizational Behaviour, New Delhi, S.Chand and Co., Ltd.
4. Kumar Arun and Meenakshi N, 2009 Organizational Behaviour- A Modern Approach, NIILM Center for Management Studies, New Delhi.
5. Nalini. R. 2011. Social work and the workplace. New Delhi: Concept Publications
6. Nelson, Debra L and James Compbell, 2007 Organizational Behaviour- Foundations, Realities and Challenges, New Delhi, Thomson South-Western.
7. Paul Hersey Kenneth H. Blanchard, Dewey E. Johnson. Management of Organizational Behaviour Utilizing Human Resource, Prentice Hall of India Pvt Ltd, 2001.
8. Robbins Stephen. P. et al. 2012. Organizational behaviour. New Delhi. Pearson publications.

SPECIALISATION PAPER – III

MEDICAL AND PSYCHIATRY SPECIALIZATION

II – M.S.W	PSYCHIATRIC SOCIAL WORK	20PSW41C
SEMESTER – IV		HRS/WK : 6
CORE– XI		CREDIT : 4

OBJECTIVE:

To be exposed equipped with clinical setting and methods of psychological treatments.

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Learn the psychiatric social work.

CO2: Be equipped with clinical setting.

CO3: Be exposed to methods of psychological treatments.

CO4: Understand the children mentality.

CO5: Be aware of the role of social worker in rehabilitation Centre.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER IV	COURSE CODE: 20PSW41C					COURSE TITLE:PSYCHIATRIC SOCIAL WORK					HOUR S:6	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	4	5	4	5	5	5	4	4	4	4.5	
CO2	5	4	5	4	5	5	4	4	4	4	4.4	
CO3	5	4	5	5	5	5	4	5	4	4	4.6	
CO4	4	5	4	5	4	5	4	5	4	4	4.3	
CO5	5	4	4	5	4	5	4	5	4	4	4.4	
Mean Overall Score											4.44	

Result: The Score of this Course is 4.44(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Psychiatric Social Work: Concept, Definition, Limitations and difficulties faced in psychiatric social work practice, Magnitude of Mental Health Problems; Analysis of mental health problems among vulnerable groups such as women, aged, socio-economically disadvantaged, urban and rural population and disaster victims in India. Scope of Social Work in Mental Health.

UNIT II

Present Practice and equipment of Psychiatric Social Work in various Clinical Setting. Mental health institutions, Government and Private Hospital and Psychiatric Clinic, Half way homes, Day care Centers, Sheltered Workshops, Department of Preventive and Social Medicine.

UNIT III

Psychiatric Social Work Practices: Psychoanalytical, Psycho-Social, Transactional analysis, Life span approach, Family Centered Treatment, Tasks Centered, Therapeutic Intervention in Psychiatric illness: Psycho Surgery, Occupational therapy, Cognitive Behavior Modification therapy, Play therapy, Music therapy.

UNIT IV

Child Mental Health and Social Work practice; development and psychological perspectives in child mental health; social work practice in child guidance clinic; Prevention and treatment intervention in family, school, neighborhood and community settings. Psychiatric Social Work Practice in Crisis intervention centers and with special groups such as rape victims and HIV or AIDS patients.

UNIT V

Psychological Rehabilitation: Concept, Principles, Process and Programmes; Role of Social Workers. Mental health policies and legislation in India; national mental health programmes. Research – Single Case Evaluation; Qualitative and Action research on mental health issues; monitoring and evaluation of programmes; Mental Health Care Models: TTK, SCARF, NIMHANS and BANYAN. Role and Functions of Psychiatric Social Worker

TEXT BOOKS:

1. Dr. R.N. Sharma, 2010, Abnormal Psychology, Subject Publication.
2. Niraj Ahuja, 2011, A Text Book of Psychiatry, Jaypee Brothers Medical Publishers (pvt) Ltd.
3. Randy J. Larsen, David M. Buss, 2011, Personality Psychology, Tata McGraw – Hill Edition.
4. Robert L. Solso, 2001, Cognitive Psychology, Delhi: Pearson Education.
5. Verma, Ratna, 1991 Psychiatric Social Work in India, Sage Publications, New Delhi
6. Patricia Casey, Brenden Kelly Fish's Clinical Psychopathology, third edition
7. Niraj Ahuja A Short Textbook of Psychiatry. Seventh edition.

REFERENCE BOOKS:

1. Daver, Bhargavi, 2001 Mental Health from a Gender Perspective, Sage Publications, New Delhi
2. Dhanda, Amita, 1999 Legal Order and Mental Disorder, Sage Publications, New Delhi
3. Ian Mathews(2000) Social Work and Spirituality, Learning Matters Ltd. Exeter, UK
4. Kapur, Malavika, 1997 Mental Health in Indian Schools, Sage Publications, New Delhi
5. Patricia Casey, Brendan Kelly Fish's Clinical Psychopathology, third Edition Niraj Ahuja A Short Textbook of Psychiatry. Seventh Edition.
6. WHO, 1991 Innovative Approaches in Mental Health Care, Psychosocial Interventions and Co-management, Geneva.

SPECIALISATION PAPER – IV

COMMUNITY DEVELOPMENT SPECIALIZATION

II – M.S.W	COMMUNITY DEVELOPMENT MANAGEMENT	19PSW42A
SEMESTER – IV		HRS/WK : 6
CORE– XII		CREDIT : 4

OBJECTIVE:

To learn the strategies to develop the community.

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Understand the concept of NGO.

CO2: Learn the strategies to develop the community.

CO3: Be exposed to self-help groups and panchayat system.

CO4: Understand about the structure of NGOs and their management aspects.

CO5: Be aware of entrepreneurship Training and Development of Entrepreneurs.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER IV	COURSE CODE: 19PSW42A					COURSE TITLE: COMMUNITY DEVELOPMENT MANAGEMENT					HOURS: S:6	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	3	5	3	4	5	5	5	4	4	4.3	
CO2	5	3	5	3	5	5	5	5	4	5	4.5	
CO3	5	4	5	3	5	5	5	5	4	5	4.6	
CO4	5	3	5	3	5	5	5	4	4	5	4.4	
CO5	5	3	5	3	4	5	5	4	4	4	4.2	
Mean Overall Score											4.4	

Result: The Score of this Course is 4.4(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Introduction to NGO: Concept and Characteristics, Types of NGOs – Classification; Role of NGOs in National Development; History of NGO Sector in India and World. Registration of NGO under Tamil Nadu Societies Registration Act 1975. Tax Regulations concerning NGOs: Specific Tax Exemptions (Section 12A, Section 35AC, Section 80G & 80GG of Income Tax Act. Foreign Contributions: Legal Regulations (Foreign Contribution Regulations Act)

UNIT II

Government Schemes for the NGO Sector: Grant – in Aid schemes and other concessions of the Government of India and Tamil Nadu State Government; Schemes for the Welfare of the Children, Youth, Women, Aged and Differently Abled. International Agencies and NGOs: UN and its Agencies, World Bank, Asian Development Bank and other International Donor Agencies, Networking and Partnership with Government and other agencies.

UNIT III

Self Help Groups & Federation of SHGs at the Panchayats, Cluster, Block and District. Role of state, banks in SHGs. Maintenance of records in SHGs. Grading and Evaluation of SHGs. Role of SHGs in local Issue Tackling. Leadership in SHGs. Problems faced by SHGs. SHGs and Economic development. Role of NGOs in SHGs. Role of social workers in SHGs. Micro Finance- Meaning and Characteristics- Working of Micro Finance- Philosophy of Micro Finance- Role of Social Worker in Micro Finance.

UNIT IV

Water shed Management – Meaning, Objectives, and Implementation. Economic Benefits, Social Benefits. Role of NGOs in Water Shed Management. Role of Social Workers in Water Shed Management. Waste Land Development – Meaning and Characteristics. Identification of Waste Land, Role of NGOs in Waste Land Development. Community Based Organizations for Sustainable Development – Meaning, Characteristics- Community Participation

UNIT V

Entrepreneurship – Meaning, Characteristics. Problems of Entrepreneurship. Women Entrepreneurs, Rural Entrepreneur. Personality and Dynamics of Entrepreneurs. Training and Development of Entrepreneurs. Role of TN Small Industries Development Corporation (SIDCO), National Bank for Agriculture and Rural Development (NABARD) and Khadi and Village Industries Commission (KVIC) in Entrepreneur development. Role of Social Workers in Entrepreneur development.

TEXT BOOKS:

1. Asha Ramagonda Patil, 2013, Community Organization and Development an Indian Perspective, Eastern Economy Edition,
2. Jayashree. 2005. Entrepreneurial Development. Chennai: Marghan.
3. Suresh Chandra Annie Karen. 2015. Non Governmental Organizations Origin and Development, Rawat Publications. Jaipur.
4. Samuel H Taylor, 2013, Theory and Practice of Community Social Work, New Delhi.
5. W. Sheafor Charles J. Horejsi, 2011, Techniques and Guidance for Social Work Practice, Ninth Edition, Bradford Eastern Economy Edition.

REFERENCE BOOKS:

1. Daniel A.V. 2011. Strategies for Agricultural Development Bombay: Vora.
2. Daniel, Lazer. 2008. Micro Training Poverty and Eradication. New Delhi: New Century Book House.
3. Desai Vasant. 2004: Dynamics of Entrepreneurial Development. New Delhi: Sultan anand& sons.
4. Giriappa. S. 2011. Water the Efficiency in Agriculture. Calcutta: Oxford Press.
5. Gupta C.B. 2004: Entrepreneurial Development. New Delhi: Sultan Anand& Sons.
6. Sharma, R. K. 2011. Entrepreneurship Development. Bombay: Himalaya Publishing House
7. Upendra, Nath Roy. 2005. People Participation in Watershed Management. New Delhi: Kanishka Publisher.
8. Usharani, K. 2008. Marketing Strategies, Finance Viability of Self Help Group. New Delhi: Sarop& Sons.

SPECIALISATION PAPER – IV**HUMAN RESOURCE MANAGEMENT SPECIALIZATION**

II – M.S.W	INDUSTRIAL RELATONS	20PSW42B
SEMESTER – IV		HRS/WK : 6
CORE– XII		CREDIT : 4

OBJECTIVE:

To understand the relationship between the industries and employer & employee.

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Understand the concept of industrial relation.

CO2: Understand the relationship between the industries.

CO3: Be exposed trade union and bargaining system.

CO4: Understand the industrial disputes.

CO5: Gain Knowledge on industrial legislations.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER IV	COURSE CODE: 20PSW42B					COURSE TITLE: INDUSTRIAL RELATONS					HOURS :6	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	4	5	4	5	5	4	3	5	5	4.5	
CO2	5	4	5	4	5	5	5	3	4	5	4.5	
CO3	5	4	5	4	5	5	4	3	5	5	4.5	
CO4	5	4	5	4	5	5	5	3	4	5	4.5	
CO5	4	5	4	3	5	5	4	4	4	4	4.2	
Mean Overall Score											4.44	

Result: The Score of this Course is 4.44(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT I

Industrial Relations: Meaning, Definition, Scope, Need and Factors Influencing IR Evolution of IR- Characteristics and Participants of IR. Approaches to IR- Maxian, Giri, Webbs, Dunlop. Influence of Socio-Economic, Political and Technical Forces on Industrial Relations; IR at Shop Floor and Plant. International Labour Organization: History - Aims and Objectives - Structure - Functions. Influence of ILO on Indian Industrial Relations - Labour welfare practices in India.

UNIT II

Trade Unions: Meaning, General features- Principals of Union- Major trade unions in India- Problems and Weakness of trade union- Measures to Strengthening the Functioning of trade union. Trade Union: Origin and Growth of trade union movement in India - Theories - Functions - Administration of Unions - Leadership - Membership and Finance - management relations: Impact of Liberalization, Privatization and Globalization.

UNIT III

Collective Bargaining: Main Features –Importance- Contents and Coverage of Collective Bargaining: Concept, Goals, Principles, Prerequisites. Bargaining Strategies - The factors influencing Collective bargaining - Skills of an effective bargaining agent. Workers Participation in Management: Concept - Aims and objectives - Scope - Levels of Participation, Forms of Participation in India- Conditions essential for working of the Scheme of workers' participation in Management.

UNIT IV

Industrial Dispute: Meaning, Concept, Instruments of Coercion – Strike, Picketing, Bandh, Strikes and Lock – Out; Dispute Settlement Mechanisms: Bipartite Approach – Negotiation, Mediation, Works Committee, Significance of Employers' Federations; Tripartite Approach - Conciliation, Arbitration, Adjudication - Court of Enquiry, Labour Courts, Industrial Tribunal, National Tribunal, Awards; industrial democracy – Workers Participation.

UNIT V

Industrial Relations Legislation: Indian Trade Union Act 1926, Industrial Disputes Act 1947, Industrial Employment (Standing Orders) Act 1946, The Industrial Relation Code – 2019. Emerging Trends in Union - Employee Discipline, Domestic enquiry proceedings, Grievance Redressal Machinery, Case Studies on Industrial Dispute.

TEXT BOOKS:

1. B. Nandhakumar, Vijay Nicole, 2015, Industrial Relations Labour Welfare and Labour Laws, Imprints Private Limited, Chennai.
2. M. Sivakumar, 2011, Industrial Relations and Labour Welfare, Lakshmi Publications, Chennai.
3. P. R. N. Sinha, Indu Bala Sinha, Seema Priyafarshini Shekhar, 2020, Industrial Relations, Trade Unions and Labour Registration, Pearson.
4. S C Srinivastava, 2007, Industrial Relations and Labour Laws, Vikas Publishing House Private Limited, New Delhi.
5. Yoder, Dale. 1976. Personnel Management and Industrial Relations. New Delhi: Prentice Hall of India Pvt. Ltd.

REFERENCE BOOKS:

1. Johnson, T. L. 1981. Introduction to Industrial Relations. Britain: MacDonald & Eneer. Great
2. Mamkootam. Kuriakose. 1982. Trade Unions. Myth and reality. New Delhi: Oxford University press.
3. Mamoria, C. B. and Mamoria Satish. 1984. Industrial Labour. Social Security and Industrial peace in India. Allahabad: Kitab Mahal.
4. Punekar, S. D. et. al. 1981. Labour welfare. Trade Unions and Industrial Relations. Bombay: Himalaya Publishing House.
5. Ramassamy. E. A. and Uma Ramasamy. 1981. Industry and Labour An introduction. New Delhi: Oxford University Press.
6. White, K. Head. 1977. Industrial Relations. London: Hodder & Sought.
7. Yoder, Dale and Paul, D. Stanbhas, 1985. Personnel Management and Industrial Relations. New Delhi: Prentice Hall of India Pvt. Ltd.

SPECIALISATION PAPER – IV

MEDICAL AND PSYCHIATRY SPECIALIZATION

II – M.S.W	COMMUNITY HEALTH	20PSW42C
SEMESTER – IV		HRS/WK : 6
CORE– XII		CREDIT : 4

OBJECTIVE:

To understand the concept of community health and occupational health diseases.

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Gain knowledge on health and hygiene.

CO2: Enlighten with occupational health disease.

CO3: Be exposed to health care delivery system.

CO4: Be aware on health education.

CO5: Understand the community health and its work process.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER II	COURSE CODE: 20PSW42C					COURSE TITLE: COMMUNITY HEALTH					HOUR S:6	CREDIT S:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	4	4	4	5	5	5	4	4	4	4.4	
CO2	4	4	5	4	4	5	5	4	5	4	4.4	
CO3	4	4	5	4	5	5	4	4	4	4	4.3	
CO4	4	4	4	4	4	5	4	4	4	4	4.1	
CO5	5	4	5	4	5	5	4	5	4	5	4.6	
Mean Overall Score											4.36	

Result: The Score of this Course is 4.36(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Concept of Health: Meaning, Definition, Historical Development, Factors Influencing Health-Social and Preventive medicine. Organization and Administration of Health Care at the Center, State, District, Municipality and Village Level; Health Planning in India; Health Committees; Five Year Plan in Relation to Health Care. Emerging need for Palliative & Geriatric Care.

UNIT II

Community Health Care - Changing Concepts; Primary Health Care for All; Health Status and Health Problems; Health Care Systems - Primary Health Centre; Private Health Systems Indigenous Systems; Voluntary Health Systems; Role of Social Worker in Community Health.

UNIT III

Health Legislation; ESI Act 1948 and its amendment 1975, Medical Termination of Pregnancy Act 1971. Doctors Patients and the Consumer Protection act 1986, PWD & Equal opportunities Act 1995, Reproductive health Act, Narcotic Drugs and Psychotropic substances Act 1985, Environmental Protection Act 1986.

UNIT IV

Community Health care needs Assessment: Assessing Community Health needs-Moralizing core groups and Community Participation- Training of multipurpose health workers in community health Programs. Health Policies, Health Care Programmes in India: State and Central Insurance Scheme, Rashtriya Arogya Nithya, National Health Policy 1983, Population Problems and control.

UNIT V

Health Programmes at the National level: National control of blind program, welfare program for physically challenged, national health Programmes: family welfare, maternal and child health, ICDS, schools health programme, UIP, NMEP, NLEP, Diarrhea Disease control program. The Prenatal Diagnosis Technique (Regulation and Prevention of Misuse) Act, 1994.

TEXT BOOKS:

1. Govt. of India (2002): National Health Policy, New Delhi, Ministry of Health and Family Welfare, New Delhi.
2. James F. McKenzie, Robert R. Pinger, Denise M. Seabert An Introduction to Community and Public Health.
3. James F. McKenzie, Robert R. Pinger, Jerome E. Kotecki, An Introduction to Community Health.
4. K. Park, 2013, Park Text Book of Preventive and Social Medicine, M/S Banarsidas Bhanot Publishers.
5. Pondicherry Aids Control Society, 2007. Pregnancy, Byword books Private Limited.

REFERENCE BOOKS:

1. Jim Yong Kim et al (2000): Dying for Growth: Global Inequality and the Health of the Poor, Cambridge, Common Courage Press. Chapters 2&3.
2. Levant, Ronald F. 1984. Family Therapy. New Delhi: Prentice Hall of India Pvt. Ltd.
3. Mackintosh, M and M.Koivusalo (Ed.) (2005): Commercialization of Health Care: Global and Local Dynamics and Policy Responses, New York, UNRISD and Palgrave-Macmillan.
4. Mane P. and Gandevia K. 1992. Mental Health in India, Issues and Concerns. Bombay: Tata Institute of Social Sciences.
5. World Health Organization 1990. Schizophrenia Information for Families – A Manual prepared by the World Schizophrenia Fellowship for Publication in Cooperation with the WHO.
6. World Health Organization 1992. Innovative Approaches in Mental Health Care. Psycho Social Interventions and Case Management. Geneva: WHO.

II – M.S.W	CONCURRENT FIELD WORK PRACTICUM – IV	19PSWF4
SEMESTER – IV		HOURS/ WEEK : 10 *
CORE PRACTICAL – IV		CREDIT : 4

OBJECTIVE:

To gain practical knowledge in different settings.

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Be applicable of practical knowledge in different settings.

CO2: Learn the role of HR manager in industries.

CO3: Learn the role of social worker in NGO settings.

CO4: Understand the role of medical social worker.

CO5: Be aware of organizing programme.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER IV	COURSE CODE:19PSWF4					COURSE TITLE: CONCURRENT FIELD WORK PRACTICUM – IV					HOURS :10	CREDITS:4
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	4	5	3	5	5	4	3	5	5	4.4	
CO2	5	4	5	4	5	5	5	4	5	5	4.7	
CO3	5	4	5	4	5	5	5	4	5	5	4.7	
CO4	5	4	5	4	5	5	5	4	5	5	4.7	
CO5	5	3	5	4	5	5	5	4	5	5	4.6	
Mean Overall Score											4.62	

Result: The Score of this Course is 4.62(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

In the final semester the students go for practice based social work for two days in a week and expected to spend a minimum of 10 hours per week in the field.

The students are placed in villages or hospitals or schools or NGOs or government offices or counseling centers or welfare organizations or service organization or industries according to the fields of specialization for a semester where MSW supervisor is available.

During the placement the students are expected involve with the activities of the organization to whatever extent possible.

The students make effort to get exposure and experience to relate the theoretical knowledge what they have gained in the class room and try to practice them. The students also undertake any assignments given to them by the agency; they may also undertake any research for the organization. The community organization programme is being organized by each student to promote extension activities towards different villages, institutions and organizations.

Every week the students write a report of their activities and submit to the concerned field work supervisor. The supervisor conducts individual and group conference every week regularly. At the end of the semester Viva- Voce is conducted by two examiners. 20 marks are being awarded by the internal faculty supervisor, 20 Marks are awarded by the Agency Supervisor and 60 marks are being awarded by the external examiner.

* Number of hours spent for two days in a week by a student in the field.

Marks Allotments**Specialization - Community Development**

S. No	Assigned Work	Internal	External
		Faculty	External Examiner
1	Organization Profile, Group Work, Community Organization Programme	40	
2	Presentation, Quality in Components, Communication		60
	Total	100	

Specialization – Human Resource Management

S. No	Assigned Work	Internal	External
		Faculty	External Examiner
1	Organization Profile, Role of Human Resource Management Department, Community Organization Programme	40	
2	Presentation, Quality in Components, Communication		60
	Total	100	

Specialization - Medical and Psychiatric

S. No	Assigned Work	Internal	External
		Faculty	External Examiner
1	Organization Profile, Case Work, Community Organization Programme	40	
2	Presentation, Quality in Components, Communication		60
	Total	100	

II – M.S.W	RESEARCH PROJECT	JPSW1016
SEMESTER – IV		HRS/WK : 8
CORE PROJECT		CREDIT : 6

OBJECTIVE:

To understand the importance of research, factors in collecting reviews for the research projects.

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Understand the importance of research.

CO2: Determine the factors in collecting reviews for the research projects.

CO3: Be aware of writing research proposal

CO4: Determine the findings for chosen topic.

CO5: Finds suggestion and conclusion for the research projects.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER IV	COURSE CODE: JPSW1016					COURSE TITLE: RESEARCH PROJECT					HOURS :8	CREDITS :6
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	4	5	4	4	4	4	4	5	4	4	4.2	
CO2	2	5	4	3	4	4	4	5	4	4	3.9	
CO3	4	5	4	4	4	4	4	4	4	4	4.1	
CO4	3	5	2	4	4	4	3	5	5	5	4	
CO5	4	5	3	4	4	4	4	5	5	5	4.3	
Mean Overall Score											4.1	

Result: The Score of this Course is 4.1(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

The students are placed under a supervisor for the research project work. The students are encouraged to start the project work in the third semester itself. Review meeting of three stages will be held in 20 days interval to monitor and guide the Students' Research Project.

Schedule for Review Meetings

- Review Meet I – Finalization of Topic, Tool and Proposal
 Review Meet II – Introduction and Review of the Literature
 Review Meet III – Data Analysis, Interpretation, Findings and Suggestions

In the fourth semester the students complete the research study and submit the final copy for valuation. At the end of the semester Viva- Voce is conducted by an external examiners.

Research Report Format (The Research Project Report should be typed in Times New Roman Font, 12 font size with 1.5 line space)

1. Outer Cover
2. Title Page
3. Certificate
4. Preface
5. Acknowledgement
6. Table of Contents
7. List of Tables
8. List of Figures
9. List of Plates (if any)

{(The above nine items are the preliminaries of the research report, which should be numbered in Roman small numbers at the bottom of the page e. g. i, ii, iii.) Arabic numbers are used for the following items.}

- Chapter I : Introduction
1. A brief General Introduction
 2. Statement of the Research Problem
 3. Need / Significance / Importance of the Study
- Chapter II : It consists of Review of Literature (with an appropriate title)
 This chapter ends with General and Specific Objectives
- Chapter III : Methodology
 This chapter describes the various steps used in carrying out the research task.
 It is described in the past tense.
1. Chapter Introduction
 2. Field of Study.
 3. Pilot Study
 4. Research Design
 5. Selection of Sample
 6. Tools of Data Collection
 7. Sources of Data
 8. Pre testing
 9. Actual Data Collection
 10. Definition of Terms
 11. Analysis
 12. Limitations
 13. Organisation of the Report
- Chapter IV : Analysis and Interpretation
 This chapter presents the analyzed data either by a table or a chart and not both for the same variable. The variable name is given as a sub title, introduction of the variable, presentation of data (table No. and table title) analysis then

- interpretation of data. Interpretation is not mere description of the numbers into words but giving meaning for the data distribution.
- Chapter V : Main Findings (Percentage in brackets) and Suggestions
- Chapter VI : Summary and Conclusion
- Bibliography : It is arranged in the alphabetical order by the author's name. Author's surname, year, title, place, publisher
- Appendix

MODEL QUESTION PAPER FOR CIA

**ST.JOSEPH'S COLLEGE OF ARTS & SCIENCE, (AUTONOMOUS)
CUDDALORE-1.**

I CIA EXAMINATION**CLASS : I-MSW (shift-1)****SUBJECT : Social Policy and Social Legislations****TIME : 2hrs****MARKS: 50****PART - A**Answer **ALL** Questions

(10X2=20)

1. What is Social Policy?
2. List any two Objectives of Social Policy.
3. Who is the father of Indian Constitution? In which year the constitution was passed by the Constituent Assembly?
4. List any two Characteristics of Indian Constitution.
5. List any two policies and Programmes for the welfare of Women in India.
6. List few features of National Health Policy, 2002.
7. Write a note on National Policy for Children, 2013.
8. What is Social Legislation?
9. Write a note on Indian Penal Code.
10. What is Public Interest Litigation?

PART – BAnswer **ALL** Questions

(5X6=30)

11. Bring out the Evolution of Indian Constitution in detail.
12. Critically examine the Fundamental Rights guaranteed in the Indian Constitution.
13. Enumerate various policies and programmes for the Education in India.
14. Explain in detail about Family Court and various cases heard in the Family court today.
15. Write in short about few famous legislations in India.

MODEL QUESTION PAPER FOR SEMESTER**ST. JOSEPH'S COLLEGE OF ARTS & SCIENCE (AUTONOMOUS)****19PSW42C – COMMUNITY HEALTH****Time: 3 Hours****Max Marks :75****SECTION – A (10X2=20)**Answer **ALL** Questions

1. Define Health.
2. What is meant by health system?
3. Give the meaning of community.
4. What is Indigenous system of health?
5. Mention any two impact of ESI Act.
6. Define vital statistics.
7. List out any four programmes under National Health Policy.
8. List the advantages of Health Polices.
9. Mention any two preventive measures for blindness.
10. List the salient feature of NLEP.

SECTION - B (5X5=25)Answer **ALL** Questions

11. a. Elaborate the Emerging need for palliative & Geriatric care.
(or)
b. Explore the importance of vital health statistics.
12. a. Narrate the concept of Public health development in India.
(or)
b. Give details of pediatric health problems in India.
13. a. Highlight the salient features of consumer protection Act with respect to patients.
(or)
b. Elaborate the Medical negligence liability under the consumer protection act.
14. a. What should be done to elicit community to solve health problems?

(or)

- b. Describe the objectives of health polices.
15. a. Enumerate the welfare programmes for the physically challenged.
(or)

b. Explain in detail about School Health Programme.

SECTION – C (3X10=30)

Answer any **THREE** Questions

16. Illustrate the health problems in a rural community and suggest measures in eradicating the problems.
17. Share your views from the field work Experience in community medicine.
18. Discuss the functions of Environment Protection Act.
19. Highlight the salient features of MTP Act 1971.
20. Briefly explain about Diarrhea Disease Control Programme.

II – M.S.W	BLOCK FIELD WORK PRACTICUM (INTERNSHIP)	19PSWF5
SEMESTER – IV		HRS : 1 Month
EXTENSION – III		CREDIT : 3

OBJECTIVE:

To practical knowledge in different settings (NGO, Hospital and Industries).

COURSE OUTCOMES (COs)

After completing this course, students will:

CO1: Be applicable of practical knowledge in different settings.

CO2: Learn the role of HR manager in industries.

CO3: Learn the role of social worker in NGO settings.

CO4: Understand the role of medical social worker.

CO5: Be exposed to various skills in different settings.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER IV	COURSE CODE: 19PSWF5					COURSE TITLE: BLOCK FIELD WORK PRACTICUM					HOURS :1 Month	CREDIT S:3
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	4	5	4	5	5	4	3	5	5	4.5	
CO2	5	3	5	4	5	5	5	3	5	5	4.5	
CO3	5	3	5	4	5	5	5	3	5	5	4.5	
CO4	5	3	5	4	5	5	5	3	5	5	4.5	
CO5	5	4	5	4	5	5	5	4	5	5	4.7	
Mean Overall Score											4.54	

Result: The Score of this Course is 4.54(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

The last month of the fourth semester the students go for block field placement training according to their fields of specialization (24 working days).

The student has to be part of the organization and take part in all the activities of the organization and undertake the assignments given to him.

After completion of one month placement the student submits an activity sheet, attendance certificate, daily reports to the department.

Every week the students write a report of their activities and submit to the concerned field work supervisor. The supervisor conducts individual and group conference every week regularly. At the end of the semester Viva- Voce is conducted by two examiners. 20 marks are being awarded by the internal faculty supervisor, 20 Marks are awarded by the Agency Supervisor and 60 marks are being awarded by the external examiner.

Block Field Work Practicum Marks Assessment

S. No	Assigned Work	Internal	External
		Faculty	External Examiner
1	Selecting the Agency, Report Submission, Agency Profile	40	
2	Presentation, Quality in Components, Communication		60
	Total	100	

THEORY EXAMINATION EVALUATION COMPONENT**Continuous Internal Assessment (CIA) (25)**

Assignment	-	5 Marks
Seminar	-	5 Marks
Two written Examination	-	15 Marks
Total	-	25 Marks

Question Pattern (Written Examination)

Part – A (10X2=20)
(Answer all the Question)

Part – B (6X5=30)
(Answer all the Questions)

External Examination (75 Marks)**Question Pattern**

Time: 3 Hours

Max. Marks: 75

Section – A (10X2=20)
(Answer all the Question)
Two Questions from each unit

Section – B (5X5=25)
(Answer either a or b from each Question)
Five Questions from each unit

Section – C (3X10=30)
(Answer any three from five Questions)
Five Questions from each unit

FIELD WORK PRACTICUM EVALUATION COMPONENT

S. No	Activity	Internal Marks	External Marks
1	Observation Visit, Street Theatre Training Programme & Group Project	40	
2	Presentation, Quality in Components, Communication		60
	Total	100	

CONCURRENT FIELD WORK PRACTICUM EVALUATION COMPONENT**Concurrent Field Work Practicum - I**

S. No	Assigned Work	Internal	External
		Faculty	External Examiner
1	Case Work, Group Work, Community Organization Programme	40	
2	Presentation, Quality in Components, Communication		60
	Total	100	

Concurrent Field Work Practicum - II**Specialization - Community Development**

S. No	Assigned Work	Internal	External
		Faculty	External Examiner
1	Organization Profile, Group Work, Community Organization Programme,	40	
2	Presentation, Quality in Components, Communication		60
	Total	100	

Specialization – Human Resource Management

S. No	Assigned Work	Internal	External
		Faculty	External Examiner
1	Organization Profile, Role of Human Resource Management Department, Community Organization Programme,	40	
2	Presentation, Quality in Components, Communication		60
	Total	100	

Specialization - Medical and Psychiatric

S. No	Assigned Work	Internal	External
		Faculty	External Examiner
1	Organization Profile, Case Work, Community Organization Programme,	40	
2	Presentation, Quality in Components, Communication		60
	Total		100

Concurrent Field Work Practicum - III**Specialization - Community Development**

S. No	Assigned Work	Internal	External
		Faculty	External Examiner
1	Organization Profile, Group Work, Community Organization Programme	40	
2	Presentation, Quality in Components, Communication		60
	Total		100

Specialization – Human Resource Management

S. No	Assigned Work	Internal	External
		Faculty	External Examiner
1	Organization Profile, Role of Human Resource Management Department, Community Organization Programme	40	
2	Presentation, Quality in Components, Communication		60
	Total		100

Specialization - Medical and Psychiatric

S. No	Assigned Work	Internal	External
		Faculty	External Examiner
1	Organization Profile, Case Work, Community Organization Programme	40	
2	Presentation, Quality in Components, Communication		60
	Total		100

SELF STUDY PAPERS EVALUATION COMPONENT

2 Written Examination	– 60 Marks
2 Seminars	– 20 Marks
2 Assignments	– 20 Marks
Total	– 100 Marks

PROJECT EVALUATION COMPONENT

- i. Quality of the work (Record) - 50 Marks
- ii. Viva Presentation (Oral) - 50 Marks

BLOCK FIELD WORK PRACTICUM EVALUATION COMPONENT

S. No	Assigned Work	Internal	External
		Faculty	External Examiner
1	Selecting the Agency, Report Submission, Agency Profile	40	
2	Presentation, Quality in Components, Communication		60
	Total		100

VALUE ADDED PROGRAMME**1. Eligibility for Admission to the Course**

A candidate who is pursuing the Bachelor Degree or Master Degree is accepted eligible to study this programme.

2. Duration of the Course

This course of Study shall be for a month with 2 credits. There will be 30 hours consisting of 1 teaching hour per working day.

3. The Course of Study

Theory Papers - The Course of the Master of Social Work shall be under the Semester System according to the Syllabus to be prescribed from time to time. This Course consists of Core Subjects and Elective Subjects.

4. Objectives:

The programme is designed with the following objectives:

- To acquire specific knowledge on NGO Management, folk arts and street play.
- To understand the Project Management Dimensions, Planning and the implementation of Projects.
- To enhance skills and techniques on Project Proposal Writing, street play and folk arts.

5. Scope

- a. By studying this programme the student will get knowledge on the following
 - NGO Management, Street play and folk arts
 - Project Management Dimensions, Planning and its implementation
 - Skills and Techniques of Project Evaluation or Resource Mobilization and street play as well as folk arts.
- b. The students will also get motivation to start a Nongovernmental Organization or be the trainer in folk arts and street play in the future.

DURATION – ONE MONTH	NGO MANAGEMENT	CODE: VAPSW711
		HRS: 30

OBJECTIVE:

To understand the concept of NGO and its Management.

COURSE OUTCOMES (COs)

On successful completion of the course the students should enrich their knowledge about

CO1: NGO Management

CO2: Project Management Dimensions, Planning and its implementation

CO3: Skills and Techniques of Project management Evaluation or Resource Mobilization.

CO4: They will get motivation to start a Nongovernmental Organization.

CO5: Knowledge on function of NGO through Field based visit to NGOs.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

DURATION – ONE MONTH	COURSE CODE: VAPSW711					COURSE TITLE: NGO MANAGEMENT					HOURS: 30	CREDITS:
	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)						
COURSE OUTCOMES (CO)	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	2	5	3	5	5	4	3	5	5	4.2	
CO2	5	3	5	4	5	5	4	3	5	5	4.4	
CO3	5	3	5	4	5	5	5	4	4	5	4.5	
CO4	4	3	5	3	5	5	3	4	4	4	4	
CO5	4	2	4	3	4	5	4	3	4	4	3.7	
Mean Overall Score											4.16	

Result: The Score of this Course is 4.16(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT I

Management: Meaning, Definition, Concepts, Objectives and Functions. NGO's: Meaning, Definition, Concepts, Vision, Mission, Goals, Types, Functions and Approaches. Role of NGO's in Community Development.

UNIT II

Legal - rational structure of Non-profits: Trusts and Societies with Special reference to Trust and Society Registration Acts- Foreign contributions and Regulation Act (FCRA) - Statutory Obligations- Income Tax Exemption (80-G, 12-A, & 35AC): Rules and Regulation - Resource Mobilization: Methods and Techniques of Fund Raising - International, National and Local Levels.

UNIT III

Leadership in the NGO's Context – Practice of Human resources Management in NGO's - Human Resources Management and role of creating change agents – Staffing, recruiting, induction and training- CSR Activities: Definition, concepts and need - Concentration areas of CSR - Role of social workers in CSR- National and International CSR activities: TVS, Infosys and Tata .

UNIT IV

Concept, Meaning, Definition and Types of projects – Projects Implementation and Management: Project Planning Matrix - Project Cycle Management - Identification and Formulation of Details Projects Report (DPP) with reference to Action AID and Save the Children- Rural Appraisal (PRA): Tools and Techniques, SWOC (Strengths, Weaknesses, Opportunities, and Challenges) Analysis.

UNIT V

3 Field based visits to NGOs in Cuddalore, Villupuram and Pondicherry regions.

TEXT BOOKS:

1. Allison, M. & Kaye, J. (2005). Strategic Planning for Nonprofit Organizations, 2nd ed. New York: John Wiley & Sons.
2. Batra, Nitin. 2004. Administration of social Welfare in India. Jaipur: Raj Publishing House.
3. Bhattachary, Sanjay. 2009. Social Work Administration and Development. New Delhi: Rawat Publication
4. Sooryamoorthy R and Gangrade K.D 2006 NGOs in India-A cross Sectional study New Delhi: Rawat Publications.
5. Suresh Chandra Anne Karen Trollope, 2015, Non Governmental Organization Origin and Development, Rawat Publications.

REFERENCE BOOKS::

1. Bradford W. Sheafor Charles J. Horejsi, 2011, Techniques and Guidance for Social Work Practice Ninth Edition, Eastern Economy Edition.
2. Robin Lall 2004 The Dynamics of NGO's New Delhi, Dominant Publishers.
3. Harihar Bhattacharya, Parthasarkar and AngshumanKar (eds) (2009) The Politics of Social Exclusion in India: Democracy at the Crossroads, Routledge.
4. P. Subba Rao, 2017. Management and Organization behavior (Text and Cases) Himalaya publishing House.
5. Samvel.C. Certo And S. Trevis Certo. Modern Management. Prentice Hall of India Pvt Ltd. 2007.
6. Sooryamoorthy R and Gangrade K.D. 2006. NGOs in India-A cross Sectional study New Delhi: Rawat Publication.

DURATION – ONE MONTH	FOLK ARTS	CODE: VAPSW712
		HRS: 30

OBJECTIVE:

To learn Folk Arts and tradition of India and Tamilnadu.

COURSE OUTCOMES (COs)

On successful completion of the course the students should enrich their knowledge about

CO1: Verbal and non-verbal communication

CO2: Culture and tradition of India and Tamilnadu.

CO3: Folk arts and its historical evolution.

CO4: Skills of Kargattam and Kummi

CO5: Skills of Kollattam and oyillattam.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

DURATION – ONE MONTH	COURSE CODE: VAPSW712					COURSE TITLE: FOLK ARTS					HOURS :30	CREDITS:
	COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					
PO 1		PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	2	5	3	5	5	4	3	5	5	4.2	
CO2	5	3	5	4	5	5	4	3	5	5	4.4	
CO3	5	3	5	4	5	5	5	4	4	5	4.5	
CO4	4	3	5	3	5	5	3	4	4	4	4	
CO5	4	2	4	3	4	5	4	3	4	4	3.7	
Mean Overall Score											4.16	

Result: The Score of this Course is 4.16(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

UNIT I

Communication: history, definition, functions and types. Nature Components and purposes. Verbal and Nonverbal communication. Public communication and Impact of Communication for social change.

UNIT II

Culture and Tradition: Definition, Nature and Importance. Media Forms and Techniques. Understanding various Media Forms: Theatre, Dance, Sculpture, Print, and Audio-Visual.

UNIT III

Folk Arts: concept definitions, types. Folk arts in India. Folk arts in Tamilnadu: Classification, History and recent trends.

UNIT IV

Major Folk Arts in Tamilnadu - 1: Kummi – meaning, History and recent trend. Karakattam - meaning, History and recent trend. Practical training on kummi and karakattam.

UNIT V

Major Folk Arts in Tamilnadu – 2 : Oyillattam - meaning, History and recent trend. Kollattam - meaning, History and recent trend. Practical training on kollattam and oyillattam.

TEXT BOOKS

1. Alan Pipes. 2003. Foundations of Art and Design, Laurence King Publishing, London.
2. Dhamija, J. 1970. Indian Folk Arts and Crafts. New Delhi: National Book Trust India.
3. Henry Glassie. 1995. The Spirit of Folk Art. New York.
4. Hernandez, Jo Farb. 2005. Forms of Tradition in Contemporary Spain. Jackson: University Press of Mississippi and San Jose State University.
5. Parmar, S. 1975. Traditional Folk Media in India. New Delhi: Geka Books.
6. U S Krishna Rao & U K Chandrabagha Devi. A Panorama of Indian Dances.

REFERENCE BOOKS:

1. Chithra Madhavan, History and Culture of Tamil Nadu, D.K. Print World Ltd.
2. Ezhilavan, Folk performing art of Tamil Nadu, Bio Green Books.
3. Krishnna, Nanditha, 1998, Folk arts of Tamilnadu: The performing arts, C.P. Ramaswami Aiyar Foundation.
4. S. M. I. Lakshmanan Chettiar, Folklore of Tamil Nadu.
5. S. Simon Jhon, Folk Narratives: Rituals and Performances reflect.
6. U S Krishna Rao & U K Chandrabagha Devi. A Panorama of Indian Dances.

DURATION – ONE MONTH	STREET PLAY	CODE: VAPSW713
		HRS: 30

OBJECTIVES:

To understand concept of street play and its relevance.

COURSE OUTCOMES (COs)

On successful completion of the course the students should enrich their knowledge about

CO1: Importance of communication.

CO2: Analysis of the self and the society.

CO3: Concept and story development.

CO4: Acting skills.

CO5: Concept of street and its relevance.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

DURATION – ONE MONTH	COURSE CODE: VAPSW713					COURSE TITLE: STREET PLAY					HOURS :30	CREDITS:
COURSE OUTCOMES (CO)	PROGRAMME OUTCOMES (PO)					PROGRAMME SPECIFIC OUTCOMES (PSO)					MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PO 5	PS O1	PS O2	PS O3	PS O4	PS O5		
CO1	5	2	5	3	5	5	4	3	5	5	4.2	
CO2	5	3	5	4	5	5	4	3	5	5	4.4	
CO3	5	3	5	4	5	5	5	4	4	5	4.5	
CO4	4	3	5	3	5	5	3	4	4	4	4	
CO5	4	2	4	3	4	5	4	3	4	4	3.7	
	Mean Overall Score										4.16	

Result: The Score of this Course is 4.16(Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome.

UNIT I

Communication: history, definition, functions and types. Nature Components and purposes. Verbal and Nonverbal communication. Public communication and Impact of Communication for social change.

UNIT II

Understanding Self. Strength and weakness; opportunity and threat, SWOT Analysis, goal setting. Analysis of Society: Individual, people and communities issues and challenges.

UNIT III

Understanding the Concept and Story Development: Concept Development - Concept Development and Realization-Concept Generation & Analysis. Creative thinking of concepts and Creative Thinking Techniques. The art of writing: Understanding the audience, context for writing, categories and characteristics of writing.

UNIT IV

Acting Skills: How to observe, act and emote. Understand and develop acting skills. Characterization, guiding principles for evolving effective and credible characters. Audience Analysis, Segmentation, Targeting and Positioning; Audience Research Demographics, Psychographics.

UNIT V

Street Play: Concept, evolution and principles. Street play for Social and political Issues. Strategy, methodology and Recent trends in Street Play. Tools for street play.

TEXT BOOKS:

1. DeVito Joseph A. 2000. Human Communication: The Basic Course, Harper & Row, London.
2. Dwight V.Swain. Creating Characters
3. Robert Hilliard. 1982. Writing for Television and Radio, Hasting House, New York.
4. Stephen W. Littlejohn& Karen A. Foss. 2010. Theories of Human Communication, Waveland Press, Inc., U.S.
5. Thomas S.Kane. The New Oxford Guide to Writing
6. Timothy Gerard. 1997. Writing for Multimedia: Entertainment Education, Training, Advertising and World Wide Web, Focal Press, Oxford.

REFERENCE BOOKS:

1. Charles Bukowsk , 2016, On Writing Paperback, Ecco; Reprint edition
2. Christopher Vogler,2007, The Writers Journey: Mythic Structure for Writers,Michael Wiese Productions.
3. Natalie Goldberg, Writing down the bones: freeing the writer within.
4. Roy Peter Clark, Writing Tools: 55 Essential stages for every writer.
5. Stanly Fish, 2012, How to Write a Sentence: And How to Read One Harper Paperbacks; Reprint edition.
6. Timothy Gerard. 1997. Writing for Multimedia: Entertainment Education, Training, Advertising and World Wide Web, Focal Press, Oxford.

MODEL QUESTION PAPER FOR VALUE ADDED COURSES**SECTION - A (10X2=20)****Answer ALL Questions**

1. Name any two HSO with human relations approach.
2. List the characteristics of human service organizations.
3. What do you mean by staffing?
4. Define decentralization.
5. What do you mean by induction?
6. Write any two advantages of networking.
7. What do you mean by Data Bank?
8. Define Budget.
9. Expand the following a) SSWB b) FCRA
10. Enlist any two acts for registration of non government organizations.

SECTION - B (5X6=30)**Answer ALL Questions**

11. a) Explain in brief the systems theory for social welfare administration.
(or)
b) Write briefly about the types of Human Service Organizations.
12. a) Write short notes on the administrative processes planning and organizing.
(or)
b) Explain the elements of democratic administration.
13. a) What are the advantages of management by objectives?
(or)
b) Write short notes on the following
i) Public relations ii) Organizational climate
14. a) Briefly explain budgeting as an essential skill for administration.
(or)
b) Write short notes on Grants in Aid.
15. a) Compare and contrast the HSO's registered as Trusts and Societies.
(or)
b) Explain in brief the functions of Governing Boards and Committees.

I B.A (History)	TAMIL NADU ECONOMY	21AEHI11
SEMESTER - I		HRS/WK – 5
ALLIED - 1		CREDIT – 4

OBJECTIVES:

- To understand the relevance of regional economics; and
- To understand the resources of Tamil Nadu

COURSE OUTCOMES:

At the end of the Course the students should be able to exhibit

CO1: acquires knowledge about the Natural resources in Tamil Nadu.

CO2: Understands the Human Resources & the Human development index.

CO3: gains knowledge of agricultural sector in Tamil Nadu.

CO4: Knowledge of the industrial sector in Tamil Nadu.

CO5: Understands the Service sector of Tamil Nadu.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTE R-I	COURSE CODE: 21AEHI11				TITLE OF THE COURSE: Tamil Nadu Economy				HOURS :5	CREDITS :4
COURSE OUTCOM ES	PROGRAMME OUTCOMES(PO)				PROGRAMME SPECIFIC OUTCOMES(PSO)				MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4		
CO1	4	4	4	4	4	4	4	4	4	
CO2	5	5	5	5	5	5	5	5	5	
CO3	4	4	4	4	5	5	5	5	4.5	
CO4	4	4	4	4	4	4	4	4	4	
CO5	5	5	5	5	5	5	5	5	5	
Mean Overall Score									4.5	

Result: The score of this course is 4.5 (Very High)

Associati on	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating< =1	1.1<=rating< =2	2.1<=rating< =3	3.1<=rating< =4	4.1<=rating< =5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

Unit I: Introduction**15 HOURS**

Introduction-Meaning of a Regional Economy – Geographical Features of Tamil Nadu – Natural Resources in Tamil Nadu; Land, Forest, Water and Minerals.

Unit II: Human Capital**15 HOURS**

Human Capital-Meaning-Human Resources In Tamil Nadu-Size, Growth and Density of Population in Tamil Nadu –Analysis of the 2011 Census-The Occupation Pattern in Tamil Nadu – Human Development Index- Education, Health, and Nutrition, Water Supply, Housing And Slum Clearance Board –Trends in SDP & Per capita SDP.

Unit III: Agricultural Sector**15 HOURS**

Land use pattern- – Cropping Pattern – Agricultural Inputs – Irrigation, Fertilizer – Agricultural Marketing-Regulated Markets-UzhavarSandhai-Agriculture Finance-Livestock.

Unit IV: Industrial Sector**15 HOURS**

Industry: Growth of Industry – Changes in Industrial Structures – Major Industries: Cotton Textiles, Sugar, Cement, Automobiles, Leather and Electronics – Small and Cottage Industries – Light Engineering Industries.

Unit V: Service Sector**15 HOURS**

Service Sectors in Tamil Nadu – Transport-Communication-Energy- Banking- Information Technology.

Text Books:

1. A G Leonard S J. 2006. Tamil Nadu Economy, Macmillan India Limited, New Delhi.
2. Dr.N.Raja Lakshmi. 1999. Tamil Nadu Economy, Business Publication, Mumbai.
3. Perumalsamy, S.(1990), Economic Development of Tamil Nadu, S. Chand &Co. Ltd, New Delhi.

I B.A (History)	INDIAN ECONOMIC POLICY	21AEHI22
SEMESTER - II		HRS/WK – 5
ALLIED - 2		CREDIT - 4

OBJECTIVES:

- To understand the Economic System of India

COURSE OUTCOMES:

At the end of the Course the students should be able to exhibit

CO1: acquires knowledge of the Economic System of India.

CO2: knowledge of Present situation of Indian Agriculture

CO3: gains knowledge of industrial sector before and after globalization.

CO4: gains knowledge of infrastructure in India.

CO5: understands the Energy classification, sources & measures to conserve Energy.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER-2	COURSE CODE: 21AEHI22				TITLE OF THE COURSE: Indian Economic Policy				HOURS:5	CREDITS:4
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)				PROGRAMME SPECIFIC OUTCOMES(PSO)				MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4		
CO1	4	4	4	4	4	4	4	4	4	
CO2	5	5	5	5	5	5	5	5	5	
CO3	4	4	4	4	5	5	5	5	4.5	
CO4	4	4	4	4	4	4	4	4	4	
CO5	5	5	5	5	5	5	5	5	5	
Mean Overall Score									4.5	

Result: The score of this course is 4.5 (Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

Unit I: Economic System in India**15 HOURS**

Capitalism-Socialism-Mixed Economy-Policy of Mixed economy and its relevance to India- Emergence of capitalism-NITI Aayog

Unit II: Agriculture**15HOURS**

Role of Agriculture in Indian Economic Development-Second Phase of Green Revolution – Role & significance of Irrigation - Agricultural Subsidy -Agricultural Output and Pricing Policies in India- Food Security-Government programmes for food security

Unit III: Industry**15 HOURS**

Role of Industries in Indian Economic Development-Small Vs Large Scale Industries - Reasons For Industrial Sickness in India –Suggestions for Industrial Development -Industrial Policy of Government of India 1956, 1991-Globalization and Industrial Growth.

Unit IV: Infrastructure**15 HOURS**

Infrastructure–Meaning-Infrastructure & Economic Development–Transport –Railways-Roadways-Waterways-Airways-PipeLine-Communication-Health-Education.

Unit V: Energy**15 HOURS**

Energy –Meaning-Classification Of Energy-Sources of Energy-Importance of Energy-Energy crisis in India- Measures to conserve Energy.

Text Books:

1. Datt, Ruddar and KPM Sundharam, Indian Economy, S.Chand and Co.Pvt. Ltd , New Delhi.
2. Dhingra, I C, Indian Economy, New Delhi, Sultan (Recent edition)

Reference Books:

1. Agarwal, A.N., Indian Economy: Problems of Development and Planning, WishwaPrakashan, New Delhi.
2. Uma Kapila, Indian Economy since Independence, Academic Foundation 2002.
3. Sen, Raj Kumar and Chatterjee, Biswaajit, India Economy: Agenda for the 21st century, Deep and Deep Publications 2002
4. Bhagwati, Jagdish N. and Padma Desai, Planning for Industrialization, Oxford University Press, London (Recent edition)
5. Francis Cherunilam, Industrial Economics: Indian Perspective, Himalaya Publishing House, Mumbai (Recent edition)
6. Kuchhal, S.C., The Industrial Economy of India, Chaitanya Publishing House, Allahabad (Recent edition)

II B.A (HISTORY)	INDIAN MACRO ECONOMIC ENVIRONMENT	21AEHI33
SEMESTER - III		HRS/WK – 6
ALLIED-3		CREDIT –5

OBJECTIVES :

- To impart the students with the basic principles and concepts of the Indian Environment.
- To provide knowledge on socially relevant environment.

COURSE OUTCOMES:

At the end of the Course the students should be able to exhibit

CO1: Understand the concepts of Economic Growth and Development.

CO2: acquires awareness about the population and its effects on India.

CO3: understands the concept unemployment, poverty & Employment programs to remove poverty.

CO4: gains knowledge of Monetary Policy in India.

CO5: understands the Fiscal Policy of India.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER- III	COURSE CODE: 21AEHI33				TITLE OF THE COURSE: Indian Macro Economic Environment				HOURS :6	CREDITS :5
	PROGRAMME OUTCOMES(PO)				PROGRAMME SPECIFIC OUTCOMES(PSO)				MEAN SCORE OF CO'S	
COURSE OUTCOMES	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4		
CO1	4	4	4	4	4	4	4	4	4	
CO2	4	4	4	4	5	5	5	5	4.5	
CO3	4	4	4	4	4	4	4	4	4	
CO4	5	5	5	5	5	5	5	5	5	
CO5	5	5	5	5	5	5	5	5	5	
Mean Overall Score									4.5	

Result: The score of this course is 4.5 (Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

Unit I: Economic Growth and Economic Development**18 HOURS**

Meaning and Measurement of Economic Growth – Growth Vs. Development – Indicators of Growth – Determinants of Economic Development – Economic Growth in India – The Twelfth Five Year Plan.

Unit II: Demographic profile of India**18 HOURS**

Malthusian theory of population-The Demographic Theory of Transition – Demographic Trends in India-Causes for Growth of Population in India & its Effect on Economic Development –Demographic Profile of India 2011-National Population Policy 2000.

Unit III: Unemployment and Poverty**18 HOURS**

Unemployment – Meaning& Definition- Types of Unemployment – Causes of Unemployment – Extent of unemployment in India – Poverty-Absolute poverty-Relative poverty- Causes of Poverty –Government Programmes for Poverty alleviation.

Unit IV: Monetary Policy**18 HOURS**

Monetary Policy: Meaning and Objective of Monetary Policy – Instrument of Monetary Policy – Monetary Policy in India.

Unit V: Fiscal Policy**18 HOURS**

Fiscal Policy: Meaning of Fiscal Policy – Objectives of Fiscal Policy – Tools of Fiscal Policy – Fiscal Policy in India – Public Revenue in India – Tax Revenue – Tax Structure in India – Tax Reforms in India-Non Tax Revenue.

Text Books:

1. RuddarDutt&Sundharam P, 2000, Indian Economy, Sultan Chand & Sons, New Delhi.
2. Diwedi DN,2002, Indian Economy, Vikas Publishing House (P) Ltd, New Delhi.

Reference Books:

1. M.L. Jingham, 2000, Development Economics, Sultan Chand and Sons, New Delhi.
2. Francis Cherunilam, Indian Economy, Himalaya Publishing House, New Delhi.

II B.A HISTORY	INTERNATIONAL ECONOMICS	22AEHI44
SEMESTER - IV		HRS/WK – 6
ALLIED-4		CREDIT –5

OBJECTIVES :

- To provide knowledge on the present international environment.
- To impart the knowledge of World Trade Organization and International Financial organizations.

COURSE OUTCOMES:

At the end of the Course the students should be able to exhibit

CO1: Knowledge about International Trade.

CO2: Understands India's Balance of Payment & Balance of trade,

CO3: Knowledge about Globalization merits & demerits of Globalization.

CO4: Understands World Trade Organization, TRIPS and TRIMS.

CO5: gains Knowledge about International Financial organizations.

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTE R-IV	COURSE CODE: 22AEHI44				TITLE OF THE COURSE: International Economics				HOURS :6	CREDITS :5
COURSE OUTCOM ES	PROGRAMME OUTCOMES(PO)				PROGRAMME SPECIFIC OUTCOMES(PSO)				MEAN SCORE OF CO'S	
	PO 1	PO 2	PO 3	PO 4	PSO 1	PSO 2	PSO 3	PSO 4		
CO1	4	4	4	4	4	4	4	4	4	
CO2	5	5	5	5	5	5	5	5	5	
CO3	4	4	4	4	5	5	5	5	4.5	
CO4	4	4	4	4	4	4	4	4	4	
CO5	5	5	5	5	5	5	5	5	5	
Mean Overall Score									4.5	

Result: The score of this course is 4.5 (Very High)

Associati on	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating< =1	1.1<=rating< =2	2.1<=rating< =3	3.1<=rating< =4	4.1<=rating< =5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

Unit I: International Trade**18 HOURS**

International Trade- Meaning- Importance of International Trade in Economic Development- Terms of Trade – Causes of unfavorable Terms of trade for Developing Countries- Composition of India's Foreign Trade – Pattern of Imports — Pattern of Exports – Direction of Foreign Trade.

Unit II: Balance of Trade and Balance of Payment**18 HOURS**

Balance of Trade and Balance of Payment – Meaning –Components of BOP-Trends in Balance of Payments in India after 1991– Measures to overcome unfavorable BOP- Foreign Trade Policy 2015-2020– Make in India Scheme and its implications.

Unit III: India and the World Economy**18 HOURS**

Meaning of Globalization – Merits and Demerits of Globalization –Effect of Globalization on Indian Economy.

Unit IV: World Trade Organization**18 HOURS**

Historical growth of WTO – Structure of WTO – Objectives of WTO – Functions of WTO – WTO and India-Meaning and Importance of TRIPS and TRIMS-Implications of TRIPS and TRIMS on India.

Unit V: International Financial Organizations**18 HOURS**

International Monetary Fund-Functions – Operations of the IMF – Special Drawing Rights – World Bank- Objectives – Functions – Asian Development Bank- Objectives – functions – BRICS- Objectives – Functions.

Text Books:

1. Dominic Salvatore, 2008 Ed, International Economics, ESS PEE KAY Publishing House.
2. M.L.Jhingan, 2016, International Economics, Vrindha publication (P) Ltd, Delhi.

Reference Books:

1. K. C. Rana , K.N.VERMA, International Economics, Vishal Publishing House , New Delhi.
2. Sundaram KPM&Sundaram EN, 2000, Business Economics, Sultan Chand and Sons, New Delhi.
3. Cherunilam, Francis, Business Environment, Himalaya Publishing House, New Delhi.
4. S. Sankaran, Indian Economy, Margham Publication, Chennai.