1.1.1 Curricula developed and implemented have relevance to the Local, Regional, National, and Global developmental needs, which is reflected in the Course Outcomes (COs)

Course Outcomes for PG

2021 - 23

Department of English

SEMESTER – I			
Core I	**British Poetry**		
Course Code: 21PENC11	**Hrs / Week: 6**	**Hrs / Semester: 90**	**Credits: 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO- 1	understand the unique features of British Poetry.	1	Un
CO- 2	comprehend the moral and aesthetic sensibility of British poetry and analyse poems	1,2,8	Un,An
CO-3	clasiffy literary texts in their social, political, historical and cultural contexts.	2	Ap
CO-4	critically analyse poems from the social, political and cultural perspectives.	3,5	An
CO-5	analyse the wide range of themes and styles of the representative poets.	1, 2	An
CO-6	evaluate British poetry from the earliest era to the 20th century.	1,2	Ev

SEMESTER - I			
Core II	**British Prose**		
Course Code: 21PENC12	**Hrs / Week: 6**	**Hrs / Semester: 90**	**Credits: 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	gain a deeper understanding of the historical and cultural contexts of British prose pieces.	1	Un
CO-2	identify and describe the distinct literary characteristics of British prose.	2	Ap
CO- 3	get necessary impetus and skills required for employability.	7	Ap
CO-4	relate the greatness of major prose writers with significant literary traditions of their age.	4	An
CO-5	evaluate the specific features of prose texts.	6	Ev
CO- 6	communicate ideas related to the distinct characteristics of British prose.	4	Ev

SEMESTER – I			
Core III	**Indian Writing in English**		
Course Code: 21PENC13	**Hrs / Week: 6**	**Hrs / Semester: 90**	**Credits: 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO- 1	perceive the values and human concern inherent in the Indian cultural context.	2	Un
CO- 2	acquire the philosophy of Indian theorists and intellectuals.	3	Un
CO- 3	analyse the major movements and writers of Indian Literature in English.	1	An
CO- 4	explore Indian identity, values and morals	3, 8	An
CO- 5	modify Indian sensibility and contrive new vistas to the issues at hand.	8	Ev
CO- 6	create literary sensibility and generate emotional response by reading Indian literary texts.	4	Cr

SEMESTER – I			
Core IV	**American Literature**		
Course Code : 21PENC14	**Hrs / Week: 6**	**Hrs / Semester: 90**	**Credits: 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	locate the significance of the American literary tradition and examine the works of the representative writers of American Literature	1,2,4	Un
CO-2	articulate the historical and the socio-cultural background of American Literature.	2,3	Ap
CO-3	appraise the historical and literary contexts, genres, themes and ethical dimensions of the representative works of American literature.	2,4	An
CO-4	distinguish a diverse group of authors and reveal the evolving American experience and character.	1,3	An
CO-5	analyse the major movements and works of American Literature and evaluate the strengths and limitations of the major trends in American Literature.	4,5,7	An, Ev
CO-6	review the roles of gender, race, age, class, ethnicity and geography in creating American ethnic literature.	6,8	Ev

SEMESTER – I			
Core V	**Eco Literature**		
Course Code: 21PENC15	**Hrs/week : 6**	**Hrs/Sem : 90**	**Credits : 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	understand the recent trends and theories in Ecological studies.	1	Un
CO-2	acquire an in-depth knowledge of the relationship between literature and the physical environment.	1, 2	Un
CO-3	explore the themes and relate the value of Eco Literature to recent global needs.	3, 7	Ap
CO-4	analyse literature in its universal ethical context of the environment.	4, 8	An
CO-5	analyse and evaluate any work of art in eco-conscious perspective.	8	An, Ev
CO-6	apply ecocriticism to analyse its impact on literature and the environment.	3	Ap, An

SEMESTER – II			
Core VI	**British Drama**		
Course Code : 21PENC21	**Hrs/week :5**	**Hrs/Sem : 75**	**Credits : 4**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO Addressed	Cognitive Level
CO-1	apply the concepts of British Drama in drafting a play.	4	Ap
CO- 2	analyse the representative plays in British Literature	1	An
CO- 3	compare the aesthetic, cultural and historical aspects of British Drama.	3,8	An
CO- 4	evaluate the artistic and innovative use of language employed by the representative dramatists.	6	Ev
CO- 5	improve the skills of critical thinking, elucidation and effective writing.	6	Cr
CO- 6	develop the required employability skills to meet the demands of creative industries.	7	Cr

SEMESTER II			
Core VII	**Approaches to Literary Criticism**		
Course Code: 21PENC22	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	comprehend theories of various early approaches of criticism.	1	Un
CO-2	develop critical perspectives to interpret literary texts.	2, 3	Un, Ap
CO-3	apply theoretical approaches in research and creative inputs.	5, 6	Ap
CO-4	apply literary approaches for narrative, poetic and dramatic genres.	2, 4	Ap
CO- 5	interpret and modify the socio-cultural and psychological contexts of humankind to better living.	8	Ev
CO- 6	assess the functioning of rhetoric and psychology in literature and society for employability.	7, 6	Ev

Semester – II			
Core VIII	**Women's Writing**		
Course Code: 21PENC23	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	understand the uniqueness of women's writing.	1	Un
CO-2	discuss the social and cultural conflicts in women's writings.	3	Un
CO-3	classify the role of women in the current global scenario .	2, 8	Ap
CO-4	analyze the ideology of women writers who challenged gender stereotypes and the patriarchal status quo.	4	An
CO- 5	examine the themes and narrative techniques in the works.	6	An
CO-6	analyse womanhood and women writers from the 16th to the 20th Century	2,6	An

Semester – II			
Core IX	**Religion and Literature**		
Course Code: 21PENC24	**Hrs /Week : 5**	**Hrs / Sem : 75**	**Credits :4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	apprehend and accept all religions as traditional and cultural phenomena.	2	Un
CO- 2	critically analyse the religious components in literature.	1	An
CO- 3	analyse the spiritual dynamics of relationship between God and humans.	8	An
CO- 4	explore and interpret philosophical, psychological and cognitive dynamics of religion.	1,3	Ev
CO- 5	spot out the essential values of mankind.	3	Ev
CO- 6	evaluate the significance of literary works in shaping the society.	8	Ev

SEMESTER – II			
Core X	**Psychology and Literature**		
Course Code : 21PENC25	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	understand the various types of development that an individual experiences in life.	2	Un
CO-2	understand the depth and range of psychological theories and analyse the texts based on psychological and literary theories	2, 3	Un
CO-3	demonstrate the understanding of human experiences through the study of literature.	4	Ap
CO-4	appraise how race, gender, class and sexuality influence the consciousness of human beings.	6	An
CO-5	assess the ways in which various aspects of identity, subject positions and affiliations influence literary traditions	3	An
CO-6	evaluate literary writings in the psychological perspective.	6	Ev

SEMESTER – II			
Core Elective 1 English Language Teaching: Methods and Practices			
Course Code: 21PENE21	**Hrs / Week: 5**	**Hrs / Semester: 75**	**Credits: 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO- 1	perceive the pedagogical skills and the various approaches in learning English language for employability.	7	Un
CO- 2	adapt to different methods of teaching English.	4	Ap
CO- 3	develop the artistic and innovative use of language.	4,7	Ap
CO- 4	to assess the various teaching methods.	1	Ev
CO- 5	design a practical and creative method of teaching the English language.	7	Cr
CO- 6	enhance their literary and linguistic competence.	6	Cr

SEMESTER II			
Core Elective I	**Comparative Literature: Theory and Practice**		
Course Code 21PENE22	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits: 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO- 1	compare different literatures of varied interests.	6	Un
CO- 2	apply the concepts learnt from multi- cultures across the globe.	5	Ap
CO- 3	do research work on comparative literature.	6	Ap
CO- 4	enhance their foreign language proficiency, critical analysis and writing skills to meet the growing demands of the global job market.	6, 7	An
CO- 5	evaluate the significant features of different literatures.	1	Ev
CO- 6	evaluate the relationship between Literature and other forms of cultural expression.	3	Ev

Semester III			
Core XI	**British Fiction**		
Course Code : 21PENC31	**Hrs / Week :5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	understand the social and cultural background of the British culture	1	Un
CO-2	analyse the socio-cultural problems reflected in the novels	3	An
CO-3	relate how British novels bring in ideology to shape human undersrtanding	2, 6	An, Ev
CO-4	develop crtical thinks and review of British writing	3, 4	Un, Ap
CO-5	analyse and evaluate the themes and nuances of narrative techniques employed in British fiction	3, 8	Ev
CO-6	formulate creative and research writing	5, 6	Cr, An, Ap

Semester III			
Core XII	**Recent Trends in Critical Theory**		
Course Code : 21PENC32	**Hrs / Week :5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive Level
CO-1	understand the theoretical implications of recent critics	1	Un
CO-2	explore new knowledge of cultural space and identity in literary texts	2	An
CO-3	develop the faculty of analytical thinking and research for higher learning	2, 4, 6	An, Un
CO-4	analyze the role of the reader and responses to texts	2, 6	An
CO-5	apply the theories and approaches to the close reading of texts to better human perception.	3, 8	Ap
CO-6	interpret attitudes and prevalent notions of national and socio-cultural consciousness	8	Ev, Ap

Semester III			
Core XIII	**Research Methodology**		
Course Code : 21PENC33	**Hrs / Week :5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcome:

CO. No.	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	define and compile the features of Research Writing	6	Un
CO-2	practise and relate the mechanics of MLA style to organize research papers coherently	7	Un, An
CO-3	relate the aspects of creating documentation of a research paper	2	An
CO-4	distinguish the overall knowledge on the techniques of documentation	8	An
CO-5	classify the principles of documentation, edit and proof read research articles	5	Ap
CO-6	develop the ability to identify the different forms of plagiarism and avoid them in research writing.	6	Cr

Semester III			
Core XIV	**Canadian Literature**		
Course Code : 21PENC34	**Hrs / Week :5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	analyse the themes of cultural identity with the socio-economic conditions of Canada.	2	An
CO-2	appraise and distinguish the magnitude of Canadian literary genres with other Literatures.	6	An
CO-3	analyse how Canada's history and geography compliment its literature	5	An
CO-4	evaluate the use of theory as a lens critically analysing the central aspects of Canadian culture and the complexities of Canadian society.	8	Ev
CO-5	develop the ability to recognize and identify the uniqueness of Canadian Literature	1	Cr
CO-6	formulate tendencies and trends that embody English Canadian writing	3	Cr

Semester III			
Core XV	**South Asian Writings in English**		
Course Code : 21PENC35	**Hrs / Week :5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO - 1	understand South Asian texts in the historical and cultural contexts.	1	Un
CO - 2	discuss various South Asian Literatures and their traditions with a critical outlook.	2	Un
CO -3	predict critically and creatively about the cultural politics of South Asian writings in English	2,3	Ap
CO - 4	demonstrate awareness of British imperialism and the experiences of immigration as reflected in South Asian writings.	3, 8	Ap
CO - 5	examine themes of colonialism, identity, assimilation and resistance in literary texts.	5, 6	An
CO - 6	discriminate the geographical, linguistic, cultural, religious, racial and other differences among South Asian writers.	2, 6	Ev

Semester III			
Core Elective II	**Translation: Theory and Practice**		
Course Code : 21PENE31	**Hrs / Week :5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	C L
CO-1	understand the history of translation of works	1	Un
CO-2	apply various theories and techniques of translation while translating a literary texts	6	Ap
CO-3	locate and synthesize cultural complexities involved in translation.	8	An
CO-4	analyse the resultant change of meaning evolved in the process of translation.	2	Ev
CO-5	critically review the thematic and technical aspects of translated texts.	4	Ev
CO-6	develop the ability to translate and compile new terms of expression from different fields.	3	Cr

Semester III			
Core Elective II	**Basic Linguistics**		
Course Code : 21PENE32	**Hrs / Week :5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	comprehend the basic nature, types and history of linguistics.	1	Un
CO-5	enhance their employability skills by learning syntactic and lexical structures of sentences.	7	Ap
CO-3	use methods of logical analysis in analyzing a wide variety of languages and dialects.	2	An
CO-4	analyze human language in the context of linguistics, syntax, semantics, pragmatics, phonetics and phonology.	3	An
CO-2	distinguish, evaluate and interpret Morphemes and Morphology in critical writing.	6	Ev
CO-6	provide a broad interdisciplinary perspective on research work in language to emphasize the connectedness and relevance of work to other fields.	6	Cr

Semester III		
Self Study Course / MOOC	**Travel Literature**	
Course Code : 21PENSS31		**Credits : 2**

Course Outcome:

CO. No.	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	comprehend the richness of travel literature through historical methodologies.	1	Un
CO-2	apply the acquired knowledge of the uniqueness of other cultures worldwide.	7, 8	Ap
CO-3	differentiate the socio-cultural spaces inherent in texts.	2	An
CO-4	analyse the theoretical issues involved in using colonial and travel literature as a source.	6	An
CO-5	evaluate the concepts and issues such as race, gender, resistance and identity.	6, 8	Ev
CO-6	develop critical thinking and subjectivity of an observer.	3	Cr

Semester IV			
Core XVI	**Shakespeare**		
Course Code : 21PENC41	**Hrs / Week : 6**	**Hrs / Sem : 90**	**Credits : 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO's addressed	CL
CO-1	demonstrate mastery of the discipline by understanding the social and intellectual background of the age.	1,2	Un
CO-2	teach Shakespearean philosophy, feminism, aesthetics and techniques reflecting on the critical reviews.	4	Ap
CO-3	dramatise Shakespeare's unique vision with special reference to the immortal characters he has created for journalistic, commercial, technical, and web-based writing.	5	Ap
CO-4	implement Shakespeare's works in the modern context– involving the structuralist, existentialist and linguistic approaches for research and critical writing.	6	An
CO-5	infer a comprehensive knowledge of the dramatic and the poetic structures in Shakespeare's work and relate how language shapes human values and human identity.	3,5	An
CO-6	create the ability to reconstruct the dramatic and theatrical conventions of his craftsmanship to theatrical, dramatic and commercial purposes.	5	Cr

Semester IV			
Core XVII	**Study of the English Language**		
Course Code : 21PENC42	**Hrs / Week : 6**	**Hrs / Sem : 90**	**Credits : 4**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSO s addressed	CL
CO-1	understand the change of meaning of words over a period of time and the influence of other languages in English	1	Un
CO-2	use correct Stress and Intonation to speak English with good pronunciation.	8	Ap
CO-3	articulate words from different languages with the help of phonetic transcription	2	Ap
CO-4	imbibe an in-depth knowledge of the phonology of the English language	4	An
CO-5	designate the place and manner of articulation of phonemes in the English language and categorize speech sounds into various types.	6	An
CO-6	critically evaluate the significant the growth of the English language	5	Ev

Semester IV			
Core XVIII	**Post-Colonial Writings in English**		
Course Code : 21PENC43	**Hrs / Week : 6**	**Hrs / Sem : 90**	**Credits : 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	develop a critical understanding of how literature can both uphold and resist the existing structures of power.	4	Un, Ap, An
CO-2	analyse the postcolonial texts in their historical and cultural contexts and investigate the problems related to colonization and the challenges faced by early settlers.	1, 4	An
CO3	appraise and distinguish Postcolonial Literatures on the concepts of ambivalence, mimicry and hybridity.	6	Un, Ev
CO-4	synthesize multiple sources of postcolonial research and extend a textual analysis	2	Ev, An
CO-5	interpret the questions of human identity and values with a sense of intellectual independence.	3	Ap, An
CO-6	analytically teach Postcolonial Literature in its relationship with culture, racism, migration and diaspora colonialism, nationalism, citizenship and cosmopolitanism.	8	Cr, An

Semester IV			
Core XIX	**Subaltern Literature**		
Course Code : 21PENC44	**Hrs / Week : 6**	**Hrs / Sem : 90**	**Credits : 4**

Course Outcome

CO. No.	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	comprehend the unique features of subaltern literature	1	Un
CO-2	discuss the contemporary subaltern writers and their key concepts.	1, 2	Un
CO-3	analyse the cultural and psychic problems of the marginalized people.	2, 3	An
CO-4	examine the economic problems and oppression of the exploited.	3, 5, 7	An
CO-5	investigate the issues of gender, race, and identity crisis of the outcast.	6, 8	An
CO-6	create awareness about the social and political problems of the oppressed.	4, 8	Cr

Semester IV			
Project			
Course Code : 21PENP41	**Hrs / Week : 6**	**Hrs / Sem : 90**	**Credits : 6**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO Addressed	CL
CO-1	acquaint with the fundamentals of Research process in characterizing and critiquing the dominant critical theories, methodologies, and practices in the field.	2	Un
CO-2	cultivate research culture by combining theory with practical application.	2	Ev
CO-3	interpret new literary works to build broad-based knowledge and skills.	4	Ev
CO-4	formulate an original and increasingly analytical thesis.	6	Cr
CO-5	develop the thesis into a well-supported argument**.**	6	Cr
CO-6	document and present their work in accordance with the concepts of research methodology.	7	Cr

Department of History

SEMESTER – I			
Core I	**History of India up to 1206C.E**		
Course Code: 21PHIC11	**Hrs / Week:6**	**Hrs / Semester: 90**	**Credits:4**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	widen the horizons of knowledge of Ancient History of India.	1	Un
CO-2	analyse the geographical features of India and its impact.	1	Un
CO-3	adhere and appreciate the town planning skills of Indus Valley people.	3	Ap
CO-4	analyse the Persian and Macedonian Invasion and foreign accounts.	4	An
CO-5	evaluate the teachings and principles of Buddhism and Jainism to enhance global peace.	1	Un
CO-6	identify and examine the genealogy of various king and their administration.	4	An

Semester – I			
Core–II	**Ancient World Civilisations (Excluding India)**		
Course Code : 21PHIC12	**Hrs / Week : 6**	**Hrs / Sem : 90**	**Credits : 4**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the origin, date and extent of the civilisations..	1	Un
CO-2	examine the geographical features and its impact.	4	An
CO-3	appreciate the work of classical civilisations.	2	Re
CO-4	estimate the legacy of civilisations..	5	Ev
CO-5	analyse and compare the ancient civilisations.	4	An
CO-6	evaluate the causes for the decline of the civilisations.	5	Ev

Semester – I			
Core – III	**History of Tamil Nadu upto 1336 C.E**		
Course Code : 21PHIC13	**Hrs / Week : 6**	**Hrs / Sem : 90**	**Credits : 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand regional history through the ages and take pride of rich cultural heritage of the past.	1	Un
CO-2	appreciate the intellectual ideas of the ancestors..	2	Re
CO-3	analyse the development of vernacular literature.	4	An
CO-4	estimate on the foreign invasions and its impact	5	Ev
CO-5	examine the contribution of art and architecture..	4	An
CO-6	evaluate the societal and cultural patterns with the advent of Europeans.	5	Ev

SEMESTER – I			
Core IV	**Principles and Methods of Archaeology**		
Course Code: 21PHIC14	**Hrs / Week:6**	**Hrs / Semester: 90**	**Credits:4**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	know the basic concepts in Archaeology.	1	Un
CO-2	appreciate the kinds of archaeology.	2	Re
CO-3	analyse the works of archaeologists and the archaeological methods in the world.	4	An
CO-4	apply archaeological skills to enhance historical writing.	3	Ap
CO-5	examine the scientific dating system.	4	An
CO-6	update and visit the recent archaeological excavations.	3	Ap

SEMESTER – I			
Core V	**Intellectual History of India**		
Course Code: 21PHIC15	**Hrs / Week:6**	**Hrs / Semester: 90**	**Credits:4**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	highlight the intellectual thoughts in different perspectives.	1	Un
CO-2	know the differences between Cultural History and Intellectual History.	1	Un
CO-3	apply and articulate ideas in the past.	3	Ap
CO-4	collaborate great minds and ideas and emphasize intellectual ideas for the promotion of society.	5	Ev
CO-5	promote critical thinking and focus on intensive reasoning and deep thinking.	3	Ap
CO-6	examine the intersection of several disciplines.	5	Ev

SEMESTER – II			
Core VI	**History of India from 1206 to 1707 C.E**		
Course Code: 21PHIC21	**Hrs / Week:5**	**Hrs / Semester: 75**	**Credits:4**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand vernacular literary works.	1	Un
CO-2	analyse the foreign invasions and its impact.	4	An
CO-3	understand Delhi Sultanate rule.	1	Un
CO-4	analyse the contribution of Delhi Sultanate.	4	An
CO-5	appreciate the noble ideals of Bhakti Movement.	2	Re
CO-6	analyse Vijayanagar and Bahmani conflict and advent of Europeans.	4	An

SEMESTER – II			
Core VII	**History of Tamil Nadu from 1336 to 1806 C.E**		
Course Code: 21PHIC22	**Hrs / Week:5**	**Hrs / Semester: 75**	**Credits:4**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand Tamil dynasties, Tamil Integration movement and their legacy.	1	Un
CO-2	learn the impact of political parties in Tamil Nadu.	1	Un
CO-3	assess the contribution of the Nayaks to administration and architecture.	5	Ev
CO-4	evaluate their problems and interpret to solve it	5	Ev
CO-5	estimate the services of Christian missionaries.	5	Ev
CO-6	analyse the policy of the British revenue, educational and judiciary system.	4	An

Semester – II			
Core VIII	**Contemporary World Since 1945 C.E.**		
Course Code : 21PHIC23	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 4**

Course outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the organization and functions of UNO and acquire the knowledge of Emerging New World Order.	1	Un
CO-2	analyse the nature of Cold War.	4	An
CO-3	estimate regional organizations.	5	Ev
CO-4	assess the role of OPEC in International Politics.	5	Ev
CO-5	analyse the apartheid policy of South Africa.	4	An
CO-6	analyse civil rights, labour and feminist movements.	4	An

Semester – II			
Core IX	**Intellectual History of Tamil Nadu**		
Course Code : 21PHIC24	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 4**

Course outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand political ideas and philosophical ideas of the religions and its impact.	1	Un
CO-2	analyse cultural deep insights and its impact	4	An
CO-3	promote social and cultural conscious and rights	3	Ap
CO-4	estimate the role of intellectuals in history.	5	Ev
CO-5	evaluate the intellectual ideas in different perspectives.	5	Ev
CO-6	analyse of pool of ideas in various disciplines.	4	An

Semester – II			
Core X	**Indian Art**		
Course Code : 21PHIC25	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 4**

Course outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the legacy of our ancestors to art	1	Un
CO-2	assess the architectural styles of different dynasties	5	Ev
CO-3	appreciate the sculptural work and the nature of different paintings	1	Un
CO-4	evaluate the materials of sculpture	5	Ev
CO-5	analyse the work of eminent artists	4	An
CO-6	draw inspiration from eminent artists and develop new arts.	3	Ap

Semester – II			
Core Elective I A	**Archives Keeping**		
Course Code : 21PHIE21	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 3**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the latest micro filming data collections.	1	Un
CO-2	analyse the mending of records.	4	An
CO-3	learn the structure and functions of Archives.	1	Un
CO-4	examine the pool of resources of history.	4	An
CO-5	estimate the significance of record maintenance.	5	Ev
CO-6	estimate the History of Archives.	5	Ev

Semester – II			
Core Elective I B	**Age of Revolutions**		
Course Code : 21PHIE21	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 3**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	acquire the historical background of revolutions.	1	Un
CO-2	estimate the role of revolutions in the world.	5	Ev
CO-3	analyse the motivating factors of revolutions.	4	An
CO-4	make a analytical study of revolutions in the world.	4	An
CO-5	evaluate the liberal reforms.	5	Ev
CO-6	analyse the impact of revolutions and the legacy of revolutions.	4	An

SEMESTER – III			
Core XI	**History of India from 1707 to 1858 C.E**		
Course Code: 21PHIC31	**Hrs / Week: 5**	**Hrs / Semester: 75**	**Credits:4**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	appreciate the uprisings of native Indians in the context of British rule.	1,2	Un, Re
CO-2	analyse Permanent Revenue settlement of Bengal.	4	An
CO-3	examine Subsidiary Alliance of Lord Wellesley.	4	An
CO-4	appreciate and enhance the social reforms of Lord William Bentinck.	1	Un
CO-5	appreciate the tactics of Tippu Sultan of Mysore.	1	Un
CO-6	estimate Great Revolt of 1857 as the First War of Indian Independence.	5	Ev

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Semester–III			
Core XII	**History of Tamil Nadu from 1806 to 2001C.E**		
Course Code:21PHIC32	**Hrs/Week:5**	**Hrs/Sem: 75**	**Credits:4**

Course Outcome:

Co.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand Tamil dynasties and their legacy.	1	Un
CO-2	understand the past and present cultural diversity in Tamil Nadu.	1	Un
CO-3	assess the contribution of the Nayaks to administration and architecture.	5	Ev
CO-4	analyze the services of Christian missionaries.	4	An
CO-5	estimate the impact of political parties in Tamil Nadu.	5	Ev
CO-6	examine the policy of the British revenue, educational and judiciary system.	4	An

Semester–III			
Core – XIII	**History of USA upto 1865 C.E**		
Course Code:21PHIC33	**Hrs/Week:5**	**Hrs/Sem:75**	**Credits:4**

Course Outcome:

Co.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	acquire the knowledge of colonization andthe war of Independence.	1	Un
CO-2	analyze sectional conflict and interpret civil war in USA.	4	An
CO-3	analyse the Foreign Policy of USAtowards Latin America.	4	An
CO-4	become aware of important land marks in the History of USA and the life style of Indian tribes in USA.	7	Un
CO-5	evaluate Westward expansion and its issues.	5	Ev
CO–6	estimate the contributions of Abraham Lincoln.	5	Ev

Semester–III			
Core – XIV	**Epigraphy**		
Course Code: 21PHIC34	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits:4**

Course Outcome:

CO.NO	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	identify the ancient scripts to determine history.	3	Un, Ap
CO-2	learn and apply the skills of estampaging and its historical importance.	3	Ap
CO-3	appreciate the importance of epigraphical evidence.	1	Un
CO-4	assess the dating methods of various Eras.	5	Ev
CO-5	examine the sample study of selected inscriptions.	4	An
CO-6	estimate the significance of copper plates and the genealogy of various dynasties.	1,2	Un,Re

Semester–III			
Core – XV	**Historical Methods – Theory and Practice**		
Course Code: 21PHIC35	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits:4**

Course Outcome:

Co.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	enhance the research skills and recent trends in research.	3	Ap
CO-2	practice the research skills in writing projects, thesis etc.	3	Ap
CO-3	open new avenues in doing historical research.	3	Ap
CO-4	assess the work of various historians.	5	Ev
CO-5	equip and expose objectivity and subjectivity to present authentic facts.	1	Un,
CO-6	analyse the work of Historical writings.	4	An

Semester–III			
Core Elective II A	**History of Modern West**		
Course Code: 21PHIE31	**Hrs/Week:5**	**Hrs/Sem: 75**	**Credits:4**

Course Outcome:

Co.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the features of Feudalism and Capitalism.	1,2	Un
CO-2	assess the Counter Reformation movement..	4	An
CO-3	analyse the classical works of Greek and Rome.	4	An
CO-4	estmate the geographical sea routes to the East.	5	Ev
CO-5	examine the significance of Humanist movement..	4	An
CO-6	estimate the international causation and change in world History	8	Ev

SEMESTER – III			
Core Elective II B History of South East Asia–The 20th Century			
Course Code: 21PHIE32	**Hrs/Week:5**	**Hrs/Sem: 75**	**Credits:4**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the problems of migration and make aware of present resistance movements.	1	Un
CO-2	evaluate the radicalism in politics.	5	Ev
CO-3	appreciate the union of Burma(Myanmar)	1	Un
CO-4	analyse the Vietnamese revolution.	4	An
CO-5	assess the work of Sukarno.	5	Ev
CO-6	estimate the revolutionary ideas and its impact.	5	Ev

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SEMESTER –III	
Self-Study Course Understanding Popular Culture	
Course Code: 21PHISS1	**Credits:2**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand Popular Culture in historical sequence	1	Un
CO-2	adhere folk arts to promote heritage	3	Ap
CO-3	analyse the impact of internet and audio-visual media	4	An
CO-4	analyse the popular appeal of Calendar art and Photography	4	An
CO-5	evaluate the values in different culture	5	Ev
CO-6	assess the fairs and festivals	5	Ev

SEMESTER – IV			
Core XVI	**History of India from 1858 to 1950 C.E**		
Course Code: 21PHIC41	**Hrs / Week: 6**	**Hrs / Semester: 90**	**Credits:4**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	comprehend the freedom movement and the role of freedom fighters to achieve Independence.	1	Un
CO-2	assess the foreign rule and interpret their colonial and imperialist policy.	5	Ev
CO-3	inculcate the value of patriotism and nationalism.	3	Ap
CO-4	Estimate the phases of freedom struggle.	5	Ev
CO-5	analyse the role of Gandhi in freedom struggle.	4	An
CO-6	evaluate the British colonial policy in India.	4	An

Semester–IV			
Core XVII	**Contemporary History of India from 1947 to 2019. C.E**		
Course Code: 21PHIC42	**Hrs/Week:6**	**Hrs/Sem: 90**	**Credits:4**

Course Outcome:

Co.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	acquire the knowledge of Contemporary Indian History and the rule of various ministries	1	Un
CO-2	evaluate the foreign policy of India after Independence	5	Ev
CO-3	assess the contemporary political scenario in India	5	Ev
CO-4	understand the impact of changing political priorities on social life of the people	7	An
CO-5	evaluate the foreign policy and domestic policy in historical context	5	Ev
CO-6	analyse the educational policy of Post Independent India	4	An

SEMESTER–IV			
Core XVIII	**Dravidian Movement upto 1969 C.E**		
Course Code: 21PHIC43	**Hrs/Week:6**	**Hrs/Semester: 90**	**Credits:4**

Course Outcome:

CO.NO.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the contribution of Tamil scholars and the rich heritage of Tamils and promote their antiquity..	1	Un
CO-2	analyse politics and society in Madras Presidency.	4	An
CO-3	analyse the role of EVR and Self-Respect Movement	4	An
CO-4	examine various associations of Non-Brahmin Movement.	4	An
CO-5	analyse the legislations passed during British rule.	4	An
CO-6	estimate the work of Justice Party and its social welfare measures.	5	Ev

Semester–IV			
Core XIX	**History of USA from 1865 to 2020 C.E**		
Course Code: 21PHIC44	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits:4**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	outline the history of USA under various Presidents.	1,2	Un, Re
CO-2	examine the New Deal measures of FDR.	4	An
CO-3	analyse the origin and cause for the Civil Rights movement.	4	An
CO-4	assess the impact of US foreign policy since the First World War.	5	Ev
CO-5	analyse the historical background of Twin Tower attack.	4	An
CO-6	assess the role of USA in International politics.	5	Ev

SEMESTER–IV			
Core XX	**Human Rights**		
Course Code: 21PHIC45	**Hrs/Week:6**	**Hrs/Semester: 90**	**Credits: 6**

Course Outcome:

CO. No.	Up on completion of this course, students will be able to	PSO addressed	CL
CO-1	understand human rights and the kinds of human rights.	1	Un
CO-2	analyse women and child rights.	4	An
CO-3	analyse French revolution and chartist movement.	4	An
CO-4	comprehend UN Declaration of human rights.	1	Un
CO-5	adhere and enrich the ideals of human rights for women.	3	Ap
CO-6	examine the threats to human rights and violations.	4	An

Semester–IV			
Core XX/Project	**Project**		
Course Code: 21PHIP41	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits: 6**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the essence of the research work.	1	Un
CO-2	appreciate the value of historical and archaeological sites.	1	Un
CO-3	appraisal of data collections through various means.	5	Ev
CO-4	evaluate the sources in historical writings.	5	Ev
CO-5	analyse the recent methodology in historical writing.	1	Un, Re
CO-6	apply methodology in historical writings.	3	Ap

Department of Botany

SEMESTER I			
Core I	**Plant Diversity I (Algae, Bryophyte, Fungi and Lichen)**		
Course Code:21PBOC11	**Hrs/week: 6**	**Hrs/Semester: 90**	**Credit: 4**

Course Outcomes

CO. NO	Upon completion of this course, students will beable to	PSO addressed	CL
CO-1	illustrate the distinguishing features of algae, bryophytes, fungi and lichens and appreciate their uniqueness	1, 2	Un, Re
CO-2	compare the status of cryptogams in evolution of advanced plant groups	1, 2	An
CO-3	illustrate the basic skills and critique the role of algae, fungi, lichen and bryophytes in their everyday life and environment	5, 6	Ap, Ev
CO-4	implement the practical knowledge to identify a particular group from a mixed group in the laboratory and in the field	6	Ap
CO-5	indicate the adaptive features of cryptogams to their habitats	1, 2, 7	Un
CO-6	relate the phylogenetic relationship between the different plant groups	1, 2	Un

SEMESTER I			
Core II	**Plant Microbe Interaction**		
Course Code: 21PBOC12	**Hrs/week: 6**	**Hrs/Semester: 90**	**Credits: 4**

Course Outcomes

CO.No	Upon completion of this course, students will be able to:	PSO addressed	CL
CO-1	perform the techniques of isolation, characterization and measure the growth of bacteria	4	Re
CO-2	differentiate the mode of action of antibiotics	3	An
CO-3	outline the stages of disease pyramids and disease cycle.	2	An
CO-4	know about the enzymes involved in plant diseases	3	Re
CO-5	understand the basic principles related to plant diseases.	2	Un
CO-6	differentiate the general symptoms of bacterial disease, viral diseases and fungal disease	6	Un

Semester I			
Core III	**Bioinstrumentation and Research Methods**		
Course Code: 21PBOC13	**Hrs/week: 5**	**Hrs/Semester: 75**	**Credits: 4**

Course Outcomes

CO.No	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	acquaint with different tools and techniques essential forresearch work	6	Cr
CO-2	understand the fundamentals of statistics and statisticalanalysis	4	Un
CO-3	do statistical analysis and communicate the results ofstatistical analyses accurately and effectively	4	Ap
CO-4	examine the basic framework of research process and ableto learn how to address research problem and what is to be done to solve it.	6	An
CO-5	communicate the research findings to the scientific forums	6	Cr
CO-6	develop an understanding of the ethical dimensions ofconducting applied research	7	An

Semester I			
Core IV	**Phytochemistry and Pharmacognosy**		
Course Code: 21PBOC14	**Hrs/week: 5**	**Hrs/Semester: 75**	**Credits: 4**

Course Outcomes:

CO. No.	Upon completion of this course, students will be able to	PSO's addressed	CL
CO-1	confirm the promising role of the phytoconstituents as cytotoxicity and substantiate them for the treatment offatal diseases	8	Re
CO-2	understand the importance of secondary metabolites and relate them in treating the ailments	3	Un
CO-3	identify and categorize medicinal potential of herbs based on their chemical constituents and therapeutic applications	3	Ap
CO-4	extract essential oils from natural resources and utilize them effectively as pharamaceuticals and cosmeticals	7,8	Aa
CO-5	evaluate the purity of the drugs and able to detect adulterations and substitutions	2,4	Ev
CO-6	screen and elucidate various pharmacologically important phytoconstituents to ascertain its medical quality	4	Ev

SEMESTER II			
Core V Plant Diversity II (Pteridophytes, Gymnosperms and Paleobotany)			
Course Code: 21PBOC21	**Hrs/week: 5**	**Hrs/Semester: 75**	**Credit: 4**

Course Outcomes:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	appreciate the uniqueness and distinguish between diverse groups of Pteridophytes and Gymnosperms using their characteristic features	1,2	Un, An
CO-2	discuss different lifecycle patterns in different groups	1,2	An
CO-3	know the basic skills and techniques in micropreparation and formulate methods to identify different groups	1,6	Ap
CO-4	know the evolutionary significance of Pteridophyte	1,2	Un
CO-5	compare and contrast the origin and evolution of steles, foliage, seed and seedless plants.	4,8	Ev
CO-6	review critically the biology, ecology of fossils and methods of fossilization.	1,7	Un

SEMESTER II			
Core VI	**Marine Botany**		
Course Code: 21PBOC22	**Hrs/week: 5**	**Hrs/Semester: 75**	**Credits: 4**

Course Outcomes:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	analyze how marine organism adapt to their dynamic environment	5	An
CO-2	critically analyze and evaluate pollution issues, their sources and the influences humans have with the dynamic marine environment	7	An
CO-3	achieve practical skills in processing, preserving and culturing marine plants	6	Ev
CO-4	evaluate the uses of marine resources and realize the role of phytoplankton and bacteria in the economy of the ocean	5	Ap
CO-5	able to signify the characteristic feature of coral reefs and understand the role of mangroves in coastal protection and their adaptation to its environment their role in biodiversity conservation	5	An
CO-6	explain the ecological relationship between organisms and their environment	3	An

SEMESTER II			
Core VII	**Developmental Botany**		
Course Code: 21PBOC23	**Hrs/week: 5**	**Hrs/Semester: 75**	**Credit: 4**

Course Outcome

CO. No	Upon completion of this course ,students will be ableto	PSO addressed	CL
CO-1	understand the overview of essential aspects of development and know how embryo arises and the nature of signals that guide complex patterns of growth and differentiation in the embryo	3, 4	Un
CO-2	explore and illustrate how the molecular and genetic approaches provide an insight into the mechanism that translate cues into organized pattern growth and development	4	Re, Un
CO-3	role of shoot and root apical meristem in vegetativegrowth and development	3	Re, Un
CO-4	know the biochemical and physiological changes associated with the development of sex organs, fertilization events and fruit development	4	Un,Ap
CO-5	know how the intrinsic programmes of development coupled to external influences such as nutrient levels, energy inputs and environmental signals.	4	Un
CO-6	acquire hands on training experience related to thecourse.	4	Re

SEMESTER – II			
Core VIII	**Genetics and Bioinformatics**		
Course Code:21PBOC24	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits: 4**

Course Outcomes:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	C L
CO-1	associate the physical basis of heredity and the mode of inheritance of a character	2	Un
CO-2	predict the unknown phenotype and genotype in a partially known pedigree	4	Ap
CO-3	understand various chromosomal aberrations and various chromosome banding techniques,	1, 2	An, Un
CO-4	comprehend the operations in population genetics and develop skill in map a gene and measure the distance between two genes	2, 4	Un, Ap
CO-5	predict gene of unknown sequences, similarity between sequences, protein structure, phylogenetic relationships between large groups using genomic data	1, 4	An, Ap
CO-6	learn barcoding techniques and sequence submission	1,2	An, Un

SEMESTER III			
Core IX	**Biochemistry and Biophysics**		
Course Code: 21PBOC31	**Hrs/week: 6**	**Hrs/Semester: 90**	**Credits:4**

Course Outcomes:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	study the polymeric biomolecules and their monomeric building blocks	1,2	Re
CO-2	illustrate that living organisms and biological system interact via molecular connection	1,3	Re
CO-3	able to realise the importance of structural configuration of biomolecules and their atomic rearrangement with respect to their functions	1,6	Re
CO-4	outline enzyme groups and nomenclature that be able to explain the specificity of enzyme's role and also detect the source, and chemistry of vitamins and symptoms specific to their deficiency	2,3	An
CO-5	set up and operate variety of experiments and analyse data accompanied by problem solving and recording.	3,4	Ap
CO-6	draw electromagnetic spectrum and understand the properties of light, enabling to explain that light energy is needed by plant and that is transformed in biochemical system as governed by the laws of thermodynamics	3,7	Ap, Cr

SEMESTER III			
Core X	**Taxonomy of Angiosperms**		
Course Code:21PBOC32	**Hrs/week:6**	**Hrs/Semester: 90**	**Credit:4**

Course Outcomes:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the rules of botanical nomenclature and taxonomical hierarchy that enable to organize the plant based on the hierarchical system	1	Ap
CO-2	apply scientific literature for identifying and grouping of underrepresented plants in the taxonomic literature and gain hands on working experience in describing the floristic feature of the plants of specified families and make sketches of that.	4, 1	Re, An
CO-3	outline different systems of classification and recall the contribution of taxonomist/naturalist in plant systematic	1	Un
CO-4	compare the traditional and modern system of classification and report its merits and demerits and recognize how the role of cytology, embryology , phytochemistry and molecular biology of plants help to authenticate the identity of plants	1, 3	Ap
CO-5	realize the importance of taxonomical literature (flora, monograph, botanical gardens, herbarium and government organization) and utilize them for plant identification and conservation.	2	Un
CO-6	apply effectively the traditional and modern tool (Keys, interactive keys, e-flora, digital herbarium) to develop skill in plant identification	4	Un

SEMESTER - III			
Core XI	**Molecular Biology and Genetic Engineering**		
Course Code: 21PBOC33	**Hrs/week: 5**	**Hrs/Semester: 75**	**Credits: 4**

Course Outcomes:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	discuss the chemistry of genetic material and details of its replication at molecular level and analyze how errors during replication are repaired	1	Un, An
CO-2	infer complexity of gene expression in eukaryotes over prokaryotes and compare gene regulation mechanisms at various levels by which they can learn how it controls growth and development of an organism	2, 4	Un, An
CO-3	illustrate the principles of genetic engineering and investigate the basic steps of gene cloning	2	Un, An
CO-4	indicate the role of enzymes and vectors responsible for gene manipulation, transformation and genetic engineering	1	Un
CO-5	investigate and critique the different types of gene transfer methods employed in gene cloning process	2, 3	An, Ev
CO-6	implement the advanced techniques in genetic engineering, present the different strategies of recombinant DNA technology and resolve the problems encountered	7	Ap

SEMESTER - III			
Core XII Ecology and Conservation Biology			
Course Code: 21PBOC34	**Hrs / Week:5**	**Hrs / Semester: 75**	**Credits:4**

Course Outcomes:

CO. No	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	reveal the range of plant diversity in terms of structure, function and their environmental relationships.	3	Un
CO-2	describe the climatic and edaphic factors and ecological succession	2	Un
CO-3	address the global environment crisis and the strategies applicable for environmental problem mitigation	7	Ev
CO-4	learn the global level environmental summit organized that focused for sustainable future	7	Ev
CO-5	know the importance of remote sensing in finding the current status of global health	7	Ev
CO-6	recognize the causes of environmental problems manage and conserve the biological resources	2	Un

SEMESTER - III	
Self Study	**Forest Botany**
Course Code: 21PBOSS1	**Credit: + 2**

Course Outcomes:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	explain the need for conservation of forest ecosystem and discuss the role and objectives of social forestry	8	Un
CO-2	justify forest as a balanced ecosystem.	2	Re
CO-3	describe the principles and methods of various irrigation systems in water management in the forest.	2	Un
CO-4	develop knowledge, skills, understanding and competence in areas of forest ecosystems management	2,4,8	Un, An
CO-5	understand the role of agroforestry in the cultivation of new tree species	3,4,6	Un
CO-6	identify wood based on physical, chemical and anatomical characteristics.	3,4,7	Un, Re

SEMESTER - IV			
Core: XIII	**Plant Physiology**		
Course Code: 21PBOC41	**Hrs/week: 6**	**Hrs/Semester : 90**	**Credits: 5**

Course Outcomes:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the effect of the soil-plant-water continuum (SPWC) and assess the need of mineral nutrients and symptoms specific to nutrient deficiency.	2, 6	Un
CO-2	discuss how root structure and functions influence the transfer of inorganic nutrients from the soil into the plants,	3	Un
CO-3	analyse the mechanism of assimilation of inorganic molecules into organic molecular components and light enhanced photochemical reactions that culminates in the synthesis of ATP and NADPH and fixation of carbon dioxide into organic compounds	3	Un
CO-4	describe respiration with its associated carbon metabolism and releasing of energy stored in chemical bonds in a controlled manner for cellular use	3	Re
CO-5	review systematically how plant's manage physiologically with respect to environmental stress and remark on the hormone controlled and light mediated morphogenetic events in plants.	3	Cr
CO-6	design and conduct scientific experiments and analyze the data critically	6	Cr

SEMESTER IV			
Core XIV	**Horticulture and Seed Technology**		
Course Code: 21PBOC42	**Hrs/week:4**	**Hrs/Semester: 60**	**Credits: 4**

Course Outcomes:

CO. No	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	define the term horticulture, pomology and olericulture and explain about integrated nutrient management	1	Re, Un
CO-2	illustrate different systems of planting in orchard and suggest plant choices	4	Ap
CO-3	demonstrate the methods and types of pruning and explain the basics of soil science and justify the role of soil as a medium for plant growth	4, 7	Un
CO-4	identify the diseases and pest of crops and their management	6	Ap
CO-5	acquire skills & handling operations of different equipment's inseed science laboratory	2	Ap
CO-6	learn the techniques of seed processing for quality up gradation and of storage for maintenance of seed quality.	1	Un

SEMESTER IV			
Core XV	**Plant Biotechnology**		
Course Code: 21PBOC43	**Hrs/week: 4**	**Hrs/Semester: 60**	**Credits:4**

Course Outcomes:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO - 1	comprehend the basic principal of in-vitro tissue culture and develop skills in methods of tissue culture.	3	Re, Un
CO - 2	substantiate tissue culture is the viable option for the conservation of endangered plants	4	Re
CO - 3	grasp the techniques of mass cultivation of biofertilizer and defend biofertilizer a boon to sustainable agriculture	3	Un
CO - 4	categories different methods of synthesis of nanoparticles and understand the wide range of application of nanotechnology.	3	Un
CO - 5	describe what is plant molecular farming and highlight that transgenic plants are bioreactor for production of quality protein and other metabolites valuable to medicine and industries?	4	Ap
CO - 6	utilize transferable skills obtained through the course for the professional accomplishment	1	Re

SEMESTER - IV			
Core Elective	**Entrepreneurship Botany**		
Course Code: 21PBOE41	**Hrs / Week: 4**	**Hrs /Semester: 60**	**Credits: 4**

Course Outcomes:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	C L
CO-1	adapt the methods of preservation of vegetables and fruits and identify the industrial scope of these resources	6	Un
CO-2	determine the quality of oil and prepare aesthetic product to find out good marketing capacity	6	Ap
CO-3	understand contemporary opportunities in business situations of value added products and develop skills needed to successfully convert them into entrepreneurial ventures	6	Un
CO-4	explore how the value added products can enhance the profitability of local farmers	6	Un
CO-5	acquire knowledge on primary forest product, wood products and secondary wood products and infer wood industries are major sector in many economy	2,6	Un
CO-6	able to differentiate natural and synthetic wood able to dictate the their pros and cons and develop ideas that will lead them to start their own business and enable them to be professionally competent	3, 6	Un, Ap

SEMESTER – IV			
Core Elective	**Nanobiotechnology**		
Course Code: 21PBOE42	**Hrs/Week: 4**	**Hrs/Semester: 60**	**Credits: 4**

Course Outcomes:

CO.No.	Upon completion of this course, students will be able to	PSO's Addressed	CL.
CO-1	understand the fundamental principles of nanotechnology and types of nano particle	3	Un
CO-2	apply engineering and physics concepts to the nano-scale and non-continuum domain.	4	Cr
CO-3	understand the wide range of applications of nanotechnology and its interdisciplinary aspect	2	Re
CO-4	apply and transfer interdisciplinary systems engineering approaches to the field of bio- and nanotechnology projects	3	Re
CO-5	practice and explain state-of-the-art characterization methods for nanomaterials, understanding and critiquing nanomaterial safety and handling methods required during characterization and its applications in the various field like bioengineering, biomedicine and agricultural/environmental issues	4	An
CO-6	correlate the impact of nanotechnology and nanoscience in a global, economic, environmental, and societal context and identify career paths at the interface of nanotechnology, biology, environmental and agricultural engineering and medicine	6, 7	En

Department of Zoology

SEMESTER I			
Core I	**Cell and Molecular Biology**		
Course Code: 21PZOC11	**Hrs/ Week : 6**	**Hrs/ Sem: 90**	**Credits: 4**

Course outcome

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	describe the structure and function of biological membrane including the roles of gradients in energy transduction	1	Re
CO-2	illustrate the structural organization, control and regulation of gene at the transcriptional, post transcriptional level	2	Un
CO-3	outline the mechanisms of cell to cell signaling, including intercellular signaling and second messenger	5	An
CO-4	compare the structure and function of proteins, roles of amino acids in protein folding and protein-protein interactions	5	An
CO-5	examine cell cycle and its regulation, including mitosis and meiosis	4	An
CO-6	evaluate the characteristics, causes and role of genes in cancer	5	Ev

SEMESTER I			
Core II	**Genetics and Evolution**		
Course Code: 21PZOC12	**Hrs/ Week: 6**	**Hrs/ Sem: 90**	**Credits: 4**

Course outcome

CO. No	Upon completion of this course, students will be able to	PSO addressed	CL
CO- 1	discuss the chromosomes, genetic recombination and linkage	1	Un
CO-2	examine the theories of crossing over and construction of chromosome map	1	An
CO-3	evaluate genetic recombination mechanisms in bacteria and the genetic and clinical significance of transposons	2	Ev
CO-4	analyse changes in gene and genotypic changes and its consequences in populations	6	An
CO-5	discriminate various human genetic disorders and genetic variations in drug metabolism	5	An
CO-6	integrate central ideas underpinning evolutionary patterns and processes from the molecular to the macro scale	2	Cr

SEMESTER I			
Core III	**Biochemistry**		
Course Code: 21PZOC13	**Hrs/Week: 5**	**Hrs/ Sem: 75**	**Credits: 4**

Course Outcome:

CO. No	Upon completion of this course, students will be able to	PSO addressed	CL
CO- 1	explain structure and functions of biomolecules	1	Un
CO-2	able to examine the relation between biology and chemistry	2, 4	An
CO-3	compare the specificity of enzymes (biochemical catalysts) and the chemistry involved in enzyme action.	3	An
CO-4	discriminate the metabolic pathways of protein, amino acids, carbohydrates, fats and nucleic acids	1	Ev
CO-5	apply to real life situations and applications in research and industry	4	Ap
CO-6	design, carryout, record and analyse the results of chemical experiments	6	Ap

SEMESTER I			
Core IV	**Applied Entomology**		
Course Code: 21PZOC14	**Hrs/ Week : 5**	**Hrs/ Sem: 75**	**Credits: 4**

Course outcome

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	classify the various orders of insects	2	Ap
CO-2	understand the importance of beneficial insects and methods to collect, mount and preserve them	6	Un
CO-3	analyze the main pest species of crops based on the symptoms of the attack and morphological traits	2	An
CO-4	explain the life cycle of main pest species on crops and insect vectors	1,2	Un
CO-5	apply appropriate indirect and direct measures to prevent or reduce pest attack	7	Ap
CO-6	implement crop protection according to the IPM principles	7	Ap

SEMESTER II			
Core V	**Animal Physiology**		
Course Code: 21PZOC21	**Hrs/ Week: 5**	**Hrs/Sem: 75**	**Credits: 4**

Course outcomes

CO. No	Upon completion of this course, students will be able to	PSOs addressed	CL
CO- 1	compare digestive and circulatory system and regulation of blood pressure and heart beat	1	Un
CO-2	understanding mechanisms of respiration and point out physiological adaptations to special conditions	2	Un
CO-3	investigate the relationship between different environments and excretory organs and osmo ionic regulation	5	An
CO-4	appraise neuromuscular mechanisms and relate the physical and chemical phenomena	2	An
CO-5	defend the endocrine glands and associated physiological actions	5	Ev
CO-6	apply the physiological principles to promote healthy lifestyle	5	Ap

SEMESTER II			
Core VI	**Immunology**		
Course Code: 21PZOC22	**Hrs / Week : 5**	**Hrs / Sem: 75**	**Credits : 4**

Course Outcome:

CO. No	Upon completion of this course, students will be able to	PSO addressed	C L
CO-1	explain the genetic basis of antibody diversity, organization and arrangement of immunoglobulin genes	1	Un
CO-2	discuss the structure and function of MHC molecules and the immunologic responses involved in preventing and combating infections	1,2	Un
CO-3	demonstrate the principle of the routine serologic procedures performed in the clinical laboratory.	2	Ap
CO-4	outline the basic mechanisms, distinctions and functional interplay of innate and adaptive immunity	1, 2	An
CO- 5	examine immunological response and how it is triggered and regulated	1,2	An
CO-6	analyse the role and advances being made in transplantation with artificial organs and the aberrations of the immune system such as infections and autoimmunity	4	An

SEMESTER II			
Core VII	**Applied Biotechnology**		
Course Code : 21PZOC23	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcome

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	apply biotechnological manipulation of microbes for production of industrially important products	1,4,5	Ap
CO-2	examine the application of biotechnology in treatment of diseases and production of pharmaceutical products	4,5	An
CO-3	apply biotechnology to monitor environmental pollution and apply their knowledge to alleviate the effects of various environmental pollutants using biotechnology.	3,5	Ap
CO-4	create transgenic animals	5,6,8	Cr
CO-5	evaluate the ethical issues related with genetically modified organism	5,7,8	Ev
CO-6	apply the practical and theoretical knowledge of naomaterials acquired for pursuing their research in nanosciences	3,6,7	Ap

SEMESTER II			
Core VIII	**Microbiology**		
Course Code: 21PZOC24	**Hrs/ Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcome :

CO. NO	Upon completion of this course, the students will be able to	PSO addressed	CL
CO-1	identify the microorganisms using biochemical testing and staining technique	1,2	Re
CO-2	explain the structural organization and life cycle of microorganisms	2	Un
CO-3	classify microorganisms based on the modern trends of Taxonomy	2	Ap
CO-4	analyze the role of microorganisms in fermentation, medicine and the production of microbial products	4	An
CO-5	apply scientific methods in the design and execution of experiments	6	Ap
CO-6	develop practical skills in microbial techniques	6	Cr

SEMESTER III			
Core IX	**Computational Biology**		
Course Code: 21PZOC31	**Hrs/ Week: 6**	**Hrs/ Sem: 90**	**Credits: 4**

Course Outcome

CO. No	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand descriptive and inferential statistical methods effectively and apply to design experiments	4	Un
CO-2	analyse and differentiate the biological data in a statistical perspective correctly and contextually and apply it for deriving research conclusions	7	An
CO-3	carryout correlation and regression analysis and recognize theoretical distributions	6	Ap
CO-4	convert biological data into computational problem and execute quantitative analysis	4	Ap
CO-5	demonstrate the mastery of concepts of skills for biological data management, analysis and graphical presentation	7	Ev
CO-6	formulate and test using appropriate statistical tools and softwares	4,6	Cr

SEMESTER III			
Core X	**Aquaculture Practices and Farm Management**		
Course Code: 21PZOC32	**Hrs/ Week:6**	**Hrs/Sem:90**	**Credits:4**

Course Outcome

CO.No	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	explain aquaculture system methods and management of culture ponds	1,2	Un
CO-2	apply techniques involved inbreeding and culture of various organisms	3	Ap
CO-3	demonstrate live feed culture and feed formulation	3	Ap
CO-4	categorize and manage aquaculture diseases, health and safety issues for a sustainable aquaculture	4	An
CO-5	compare the principles of genetic improvement of fish stock	6	An
CO-6	develop entrepreneurial skills in aquaculture	8	Cr

SEMESTER III			
Core XI	**Developmental Zoology**		
Course Code: 21PZOC33	**Hrs/ Week: 5**	**Hrs/ Sem: 75**	**Credits: 4**

Course Outcomes

CO. No	**upon completion of this course, students will be able to**	**PSO addressed**	**CL**
CO-1	define the process of gametogenesis and fertilization	1	Re
CO-2	discuss the patterns of cleavage, morphogenetic movements and gastrulation in different animals	2	Un
CO-3	analyse tissue interactions and the development of organ systems in vertebrates	2	An
CO-4	present the role of genes in development, aging and senescence	3,5	Ap
CO-5	design experiment to find the role of hormones in amphibian and insect metamorphosis	4,6	Cr
CO-6	evaluate the ability of regeneration in different groups of organisms	4,6	Ev

SEMESTER III			
Core XII	**Research Methodology and Biotechniques**		
Course Code : 21PZOC34	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcome

CO.No.	Upon completion of this course,students will be able to	PSO addressed	CL
CO-1	explain different methodologies to be adopted for conducting research in more appropriate manner.	1	Un
CO-2	construct scientific knowledge in the design and implementation of an experiment.	2	Ap
CO-3	analyze a range of qualitative and quantitative research techniques to the scientific issues.	4	An
CO-4	select new scientific tools, concepts and theories to solve scientific problems.	6	Ev
CO-5	develop skills to communicate scientific ideas in both written and oral formats	7	Cr
CO-6	make a broad range of laboratory skills to perform experiments for employment prospects.	8	Cr

SEMESTER III	
Self Study Course **Zoology for Competitive Examination**	
Course Code: 21PZOSS1	**Credit: +2**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	discuss about different species based on their salient features and the systematic position of the organisms	1	Un
CO-2	acquire in-depth knowledge on biomolecules and relate the various physiological mechanisms prevailing in the organism	2	Ap
CO- 3	analyse genetic concepts, laws, different theories and patterns of evolution	4	An
CO- 4	acquire in-depth knowledge about cellular components, cell cycle regulation and evaluate the consequences of uncontrolled cell division	5	Ev
CO-5	describe the techniques used in bioremediation and gene therapy	7	Re
CO- 6	understand the various types of pathogens, their transmission and plan the prevention of infectious diseases	5	Cr

SEMESTER IV			
Core XIII	**Marine Biotechnology**		
Course Code: 21PZOC41	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits: 4**

Course Outcome

CO. No.	**Upon completion of this course, students will be able to**	**PSO addressed**	**CL**
CO-1	recall different zones of the sea	1	Re
CO-2	differentiate the physical and chemical properties of seawater and its impact on ocean life	3	Un
CO-3	classify the flora and fauna of estuaries, mangroves and salt marshes and their adaptations	2	Ap
CO-4	analyse the role of microbes in recycling of nutrients and the impact of pollution on marine life	3	An
CO-5	appraise the complexity and diversity of resources in the marine environment	5	An
CO-6	develop skills in a range of theoretical and practical applications on bioactive substances	6	Cr

SEMESTER IV			
Core XIV	**Conservation Biology**		
Course Code: 21PZOC42	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	identify the values, threats and problems of unsustainable development	4	Re
CO-2	evaluate the importance of natural resources on conservation of biodiversity	5	Ev
CO-3	analyse the conservation strategies for various resources	2	An
CO-4	evaluate the role of various organization in conservation of biodiversity	3	Ev
CO-5	apply scientific principles and modern technologies to resolve problems in disaster management	6	Ap
CO-6	integrate the biological, sociological and legislative perspectives for the management of flora and fauna to conserve wildlife	1	Cr

SEMESTER IV			
Core XV	**Commercial Zoology**		
Course Code: 21PZOC43	**Hrs/ Week: 5**	**Hrs/ Sem: 75**	**Credits: 4**

Course Outcome

CO. No	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the behaviour of bees, prevent swarming and manage bee colonies	3	Un
CO-2	identify, choose suitable bees, inspect and maintain bee hive successfully	2	Re
CO-3	acquire knowledge in extraction of honey bee products and analyse their uses.	5	An
CO-4	demonstrate mulberry cultivation, pests of mulberry, silkworm rearing, identify diseases of silkworm and their control measures	2	Ap
CO-5	utilize their knowledge in harvesting, value their products and marketing cocoons	8	Ev
CO-6	develop practical proficiency in apiculture and sericulture from the lab work as well as visit to the apiary and the sericulture unit.	6	Cr

SEMESTER IV			
Core Elective	**A . Ornamental Fish Culture**		
Course Code: 21PZOE41	**Hrs/ Week: 4**	**Hrs/ Sem: 60**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	explain the construction, fabrication and accessories required for setting up an aquarium tank	1	Un
CO-2	apply the knowledge and skills in aquarium management	2	Ap
CO-3	evaluate the types and culture of live feed organisms and formulate the artificial feed	4	Ev
CO-4	demonstrate the mastery related with taxonomy, biology and transport of ornamental fish	3	Ap
CO-5	analyse the different breeding techniques employed for varieties of ornamental fish	6	An
CO-6	develop entrepreneurial skills and make aware of National and International export process and income generation	8	Cr

SEMESTER IV			
Core Elective	**B. Vermitechnology**		
Course Code : 21PZOE42	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO- 1	discuss basic techniques of vermiculture and different species of earthworms suitable for culture	1	Un
CO – 2	analyse the mechanisms of vermicomposting technology	6	An
CO – 3	perform recycling of wastes generated from various sources in an eco-friendly manner	5	Ap
CO – 4	explore new techniques and deepen their mastery in organic solid waste management	2	Cr
CO – 5	execute practical technology and entrepreneurship skills	8	Ap
CO – 6	evaluate problems, constraints and opportunities for self-employment.	3	Ev

Department of Microbiology

SEMESTER- I			
Core I	**Fundamentals of Microbiology**		
Course Code : 21PMIC11	**Hrs/ Week: 5**	**Hrs/ Sem: 75**	**Credits: 4**

Course Outcome:

CO. No	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	get an idea about the historical events in microbiology.	1	Kn
CO-2	know the scope of microbiology	1,2	Kn
CO-3	know parts of microscope, type and its principle	1,2	Kn
CO-4	distinguish different methods of staining techniques	3	Un
CO-5	analyse nutritional requirements of microbes.	5,6	Ev
CO-6	understand the techniques for isolation of pure culture of microorganisms.	1,5,6	Un

SEMESTER I			
Core – II	**Microbial Diversity and Classification**		
Course Code : 21PMIC12	**Hrs/ Week: 5**	**Hrs/ Sem: 75**	**Credits: 4**

Course Outcome:

C O No	Upon completion of this course, students will be able to	PSO addressed	CL
CO -1	understand the ubiquitous nature of microbes.	1	Un
CO -2	explain the basic concept of microbial diversity and classification.	3	Re
CO -3	discuss the knowledge about the various diversification in microorganism	4	Cr
CO -4	explain the knowledge of reproduction in microbes	5	Un
CO- 5	describe genetic characters of microbes.	5	Un

SEMESTER I			
Core III	**Biochemistry**		
Course Code : 21PMIC13	**Hrs/ Week: 4**	**Hrs/ Sem: 60**	**Credits: 4**

Course Outcome :

CO No	Upon completion of this course, students will be able to	PSO addressed	C L
CO-1	compare and contrast the structure, classification and function of the carbohydrates.	1,2	Un, Kn
CO-2	understand the structure, classification and function of lipids.	1,3	Un
CO-3	compare and contrast saturated, mono-saturated and poly-saturated fatty acids.	1	Kn
CO-4	know the structure and classification of proteins	5	Kn
CO-5	know the dna, rna structure, function, types and importance	6	Kn
CO-6	understand the functions of enzymes, coenzymes and cofactors	5,6	Un

SEMESTER – I			
Core – IV	**Microbial Physiology**		
Course Code : 21PMIC14	**Hrs/ Week: 4**	**Hrs/ Sem: 60**	**Credits: 4**

Course outcome:

CO No	Upon completion of this course students will be able to	PSO addressed	CL
CO -1	illustrate the basic knowledge about the microbial physiology fuctions and its various metabolism	3	Re
CO - 2	define various components of electron transport chain and their functions.	4,3	Re
CO -3	elaborate the bacterial growth curve and the measurement of their cell growth	4	Cr
CO - 4	explain the various bacterial transport mechanisms and their secretion system	2	Un
CO - 5	discuss about various electron transport takes place under aerobic and anaerobic condition.	1,3	Cr
CO- 6	interpret the list of fermentation mechanisms for atp regeneration.	7	Un

SEMESTER – I			
Core Practical I - Laboratory in Fundamentals of Microbiology, Microbial Diversity and Classification			
Course Code: 21PMICR1	**Hrs/ Week: 6**	**Hrs/ Sem: 90**	**Credits: 3**

Course Outcome :

CO. No	Upon completion of this course, students will be able to	PSO addressed	C L
CO-1	isolate and characterize bacteria by steak plate method.	2, 4 5	Un
CO-2	understand the enumeration technique for water,air and soil samples.	2, 4, 5	An
CO-3	perform various staining techniques.	3	Un
CO-4	cultivate bacteria with different cultivation techniques.	2	An
CO-5	acquainted with various sterilization techniques.	2, 4	Un
CO-6	understand various specialized techniques such as pasteurization.	2, 4	Un

SEMESTER I			
Core Practical - II- Laboratory in Biochemistry and Microbial Physiology			
Course Code : 21PMICR2	**Hrs/Week : 6**	**Hrs/Sem: 90**	**Credits : 3**

Course Outcome:

CO. No	**Upon completion of this course, students will be able to**	**PSO addressed**	**CL**
CO - 1	know how to verify beer's law	2	K n
CO - 2	know how to estimate lowry's method	2	K n
CO - 3	conclude the procedure for lactophenol cotton blue staining and turbidity method.	4,6	An
CO- 4	know how to separate amino acid by thin layer chromatography.	3	K n
CO- 5	relate the procedures and principle of carbohydrate fermentation, imvic, triple sugar ion test.	1	Re
CO- 6	recall how to perform catalase and urease test.	2,3	Re

SEMESTER – II			
Core – V	**Immunology**		
Course Code : 21PMIC21	**Hrs/Week : 5**	**Hrs/Sem : 75**	**Credits : 4**

Course Outcome:

CO No	Upon completion of this course, students will be able to	PSO addressed	CL
CO - 1	prioritize various applications of monoclonal antibodies and types of vaccines.	1	E v
CO - 2	recall about the classification of various immune cells and their functions in elevating immune response.	4	R e
CO - 3	improve knowledge about the nature , functions and characteristics of antigen and antibodies involved in immune response.	3,2	C r
CO - 4	improve the knowledge about various hypersensitivity reactions and transplantation immunology.	3,4	Cr
CO - 5	illustrate various complement fixation pathways and their basic mechanisms.	6	U n
CO - 6	interpret the knowledge about various antigen and antibody reactions with their principle.	1	Un

SEMESTER-II			
Core-VI Medical Microbiology			
Course Code: 21PMIC22	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits:4**

Course Outcome:

CO. No	Upon completion of this course, students will be able to	PSO addressed	CL
CO -1	recall the clinical microbiology concept to patient care	1	Re
CO -2	analyse the level information in the subject of medical microbiology	6	An
CO -3	illustrate the different classes of microbes	3	Un
CO -4	describe the applied microbiology aspects of clinical technique.	1	Un
CO- 5	describe the role of chemotherapic technique	4	Un
CO -6	explain the drug resistance capacity of microbes	4	Un

SEMESTER – II			
Core –VII Microbial Genetics and Molecular Biology			
Course Code: 21PMIC23	**Hrs/ Week: 4**	**Hrs/ Sem: 60**	**Credit: 4**

Course Outcome:

CO No	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	relate the genetics of microorganisms	1	Re
CO-2	recall the molecular mechanisms of microorganisms	1	Re
CO-3	explain all important topics to prepare for competitive exams	5	Un
CO-4	examine the history of molecular biology	2	An
CO-5	analyse about nucleic acids, their damage and repair mechanism	6	An
CO-6	compare all gene transfer methods	2	Ev

SEMESTER – II			
Core VIII -Marine Microbiology			
Course Code :21PMIC24	**Hrs/ Week: 4**	**Hrs/ Sem: 60**	**Credits:4**

Course Outcome:

CO No	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	describe the basic knowledge on marine ecosystem.	1	Re
CO -2	acquire the knowledge about diversity of marine ecosystem	1,2	Kn
CO-3	can analyses the aware of bio fouling and prevention.	2,3,4	Ev
CO-4	interpret the knowledge on marine microorganisms.	1,2	Ap
CO-5	explain the concept of marine pollution	2,3,4	Co
CO-6	grasp the knowledge about bioactive compounds.	2,3,4	An

SEMESTER II			
Core Practical III- Laboratory in Immunology and Medical Microbiology			
Course Code : 21PMICR3	**Hrs/Week : 6**	**Hrs/Sem : 90**	**Credits : 3**

Course Outcome:

CO No	Upon completion of this course, students will be able to	PSO addressed	CL
CO- 1	demonstrate various immuno diffusion test.	5	Re
CO - 2	develop their ability to perform qualitative and quantitative assay of widal test.	6	Re
CO -3	test urine samples.	4	Cr
CO- 4	analyze how to perform latex agglutination and blood grouping techniques.	4,6	An
CO - 5	examine various types of bacterial pathogens like *staphylococcus aureus, escherichia coli klebsiella pneumonia.*	4	Un
CO- 6	examine stool sample .	4	An

SEMESTER – II			
Core Practical -IV-Laboratory in Microbial Genetics, Molecular Biology and Marine Microbiology			
Course Code : 21PMICR4	**Hrs/Week : 6**	**Hrs/Sem : 90**	**Credits : 3**

Course Outcome:

CO No	Upon completion of this course, students will be able to	PSO addressed	CL
CO -1	examine isolation of antibiotic resistant mutants.	5	An
CO- 2	examine isolation of spontaneous and induced mutants.	3	An
CO -3	acquire the knowledge to identify the marine micro organisms.	1,3,4	Kn,An,Ap
CO- 4	distinguish between transformation, conjugation and transduction.	2	An
CO -5	determine the marine water characteristics like total hardness, nitrite and phosphate.	1,4,5	Kn,Ev
CO -6	determine the acidity, alkalinity of marine water.	1,4,5	Kn, Ap, Ev

SEMESTER-III			
Core-IX- Industrial and Pharmaceutical Microbiology			
Course Code:21PMIC31	**Hrs/Week:5**	**Hrs/Sem:75**	**Credits:4**

Course outcome:

CO No	Upon completion of this course, students will be able to	PSO addressed	CL
CO -1	revise the idea about the usage of microorganisms in the field of industrial microbiology	3	An
CO -2	analyse the knowledge of various industrial and pharmaceutical products and its impacts on the society.	4	Un
CO -3	knowledgeable in industrial fermentation	3	Un
CO -4	have an insight on industrial microbiological techniques	2	Re
CO -5	knowledge of basics and applied microbiological aspects of industries.	1	Un
CO-6	acquire the knowledge about production of various industrial and pharmaceutical products	4,5	Un

SEMESTER-III			
Core-X- Genetic Engineering			
Course Code -21PMIC32	**Hrs/Week:5**	**Hrs/Sem:75**	**Credits:4**

Course outcomes:

C O No	Upon completion of this course, students will be able to	PSO's Addressed	CL
CO- 1	explain the knowledge about cloning	2	An,Un
CO -2	perceive the applications of genetic engineering in various fields	4	Un, Re
CO- 3	understands the hazardous and potential risk in releasing transgenic into environment	5	Un
CO -4	create the techniques used in genetic engineering	2	An, Re
CO -5	discuss the cloning techniques and the production of transgenic materials	4	Un,An
CO -6	understand the synthesis of genetically modified commercial products	4	Un

SEMESTER –III			
Core- XI - Food and Dairy Microbiology			
Course Code : 21PMIC33	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits: 4**

Course Outcome:

CO. No	Upon completion of this course, students will be able to	PSO addressed	CL
CO- 1	explain the about microorganisms important in food	2,5	Un
CO- 2	knowledge about the microbial contamination of food.	1,2,4	Un
CO -3	knows about the techniques in food preservation and fermented foods	3,4,6	Re
CO- 4	knowledge about beneficial and harmful aspects of microbes in dairy products	2,4,5,6	Cr
CO -5	communicate the recent techniques on good manufacturing.	2,4,5,6	Un
CO -6	grasp the quality and safety assurance in food industry and the hazard analysis and critical control point	2,3	Re, Un

SEMESTER –III			
Core – XII Research Methodology			
Course Code : 21PMIC34	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits: 4**

Course Outcome:

CO No	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	analyse the laboratory equipment's	2	An
CO-2	evaluate the rights granted by IPR	6	Ev
CO-3	determine the process involved in centrifugation and chromatography techniques	6	Ev
CO-4	estimate project writing method and to estimate Data's used in projects.	1	Ev
CO-5	identify the journals to publish articles	1	AP
CO-6	design article to present on seminar and the conference	5	Cr

SEMESTER – III			
Core Practical - V – Laboratory in Industrial and Pharmaceutical Microbiology, Genetic Engineering			
Course Code: 21PMICR5	**Hrs/week: 6**	**Hrs/Sem: 90**	**Credits: 3**

Course Outcome:

CO.No	**Upon completion of this course, students will be able to**	**PSO addressed**	**CL**
CO 1	conclude the procedure for isolation of hydrocarbon, plastic degrading micro organisms	4,6	An
CO 2	outline kirby-bauer disc diffusion technique, minimum inhibitory concentration.	4	Un
CO 3	recall how to perform enzyme immobilization in sodium, calcium alginate gel	2,3	Re
CO 4	examine isolation of spontaneous and induced mutants	3	An
CO 5	evaluate polymerase chain reaction	2	Ev
CO 6	distinguish between transformation, conjugation and transduction	2	An

SEMESTER -III			
Core Practical VI - Laboratory in Food and Dairy Microbiology, Research Methodology			
Course Code: 21PMICR6	**Hrs/Week:6**	**Hrs/Sem:90**	**Credits:4**

Course Outcome:

CO NO	Upon completion of this course, students will be able to	PSO Addressed	CL
CO -1	interpret the viable count of bacteria	1	Ev
CO -2	assess the quantitative analysis of milk	3	Un
CO- 3	outline the microbial examination of milk test	4	Un
CO- 4	examine isolation of detection and determination of coliforms, faecal coliforms and E.*coli* in food & beverages.	5	An
CO- 5	examine isolation of detection & confirmation of *Salmonella*, *Shigella*,V*ibrio* species in food.	3	An
CO -6	assess the isolation of microbial examination of canned foods.	3	Un

SEMESTER- III	
Self Study Course (Optional)	**Probiotics**
Course Code:21PMISS1	**Credit: +2**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	be acquainted with characteristics of probiotics	1,2	Kn
CO -2	can analyses the aware the probiotics organisms.	2,3,4	Ev
CO-3	differentiate the probiotics and prebiotics	1,2	Co
CO-4	explain the concept of mechanisms of probiotics	2,3,4	Un, Ap
CO-5	grasp the knowledge about prebiotics.	2,3	An
CO-6	know the wealth of the probiotics and prebiotic	2	Kn

SEMESTER – IV			
Core – XIII	**Environmental Microbiology**		
Course Code :21PMIC41	**Hrs/ Week: 4**	**Hrs/ Sem: 60**	**Credit: 4**

Course Outcome:

CO.No	**Upon completion of this course, students will be able to**	**PSO addressed**	**CL**
CO-1	have knowledge about the interaction between microbes and organisms at other tropic level.	1,2	Un, An
CO -2	interpret the microbiology of sewage and its treatment	2,3	Co
CO-3	explain about aero microbiology and microbial ecology	2	Un, An
CO-4	acquire basic knowledge about water purification	2	Ap
CO-5	gets knowledge about biogeochemical cycles	2,4	Co
CO-6	develop the application of biodegradation and bioremediation.	5	Ap, Cr

SEMESTER – IV			
Core – XIV	**Soil and Agricultural Microbiology**		
Course Code :21PMIC42	**Hrs/ Week: 4**	**Hrs/ Sem: 60**	**Credit: 4**

Course Outcome:

CO.No	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	recall the ecological groups of microbes and properties of soil	1	Re, Un
CO -2	have knowledge about the soil fertility	1,2	Un
CO-3	recall the previous basic knowledge about nitrogen fixing	1,2	Re, Co
CO-4	explain about plant microbe interaction.	2	Un
CO-5	acquire basic knowledge about important of plant microbe interaction for different layers (rhizosphere, phyllosphere)	2	Ap ,Un
CO-6	gets knowledge about recombinant microbes in agriculture.	2,4	Un, Co

SEMESTER –IV			
Core XV	**Applied Microbiology**		
Course Code: 21PMIC43	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits:4**

Course Outcomes:

C O No	Upon completion of this course, students will be able to	PSO's Addressed	CL
CO-1	acquire basic knowledge on applied microbiology	4	Un
CO -2	explain the basics of composting technology	4	Un
CO-3	appreciate the production of biogas technology	4	An
CO-4	grasp the fundamental knowledge about mushroom cultivation	4	Un
CO-5	acquire basic knowledge about *spirullina* production	2	Ap
CO-6	gets knowledge about biodegradation.	4,2	Un

SEMESTER- IV			
Core Practical -VII – Laboratory in Environmental Microbiology, Soil and Agricultural Microbiology			
Course Code : 21PMICR7	**Hrs/week: 6**	**Hrs/Sem:90**	**Credits: 3**

Course Outcome:

CO. No	Upon completion of this course, students will be able to	PSO addressed	CL
CO -1	test for isolation of various soil microbes	5	An
CO- 2	infer quantitative assay of microbes from air borne.	5	Ap
CO -3	interpret the preparation of bio fertilizer and its assay	4	Un
CO -4	experiment with isolation of microbes from various agro samples.	2	Un
CO- 5	interpret staining of VAM	5	Un
CO -6	analyse antagonism between microorganisms	2	An

SEMESTER –IV			
Core Practical VIII - Laboratory in Applied Microbiology			
Course Code: 21PMICR8	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits:3**

Course Outcome:

CO. No	**Upon completion of this course, students will be able to**	**PSO addressed**	**C L**
CO-1	acquire basic knowledge on preparation of vermin bed	4	Un, Ap
CO -2	explain the maintenance of vermicomposting.	4	Un, Ap
CO-3	appreciate the production of biogas from cassava tubes.	4	Ap
CO-4	grasp the knowledge about medicinal values of mushroom.	4	Un
CO-5	acquire knowledge about *spirullina* mass production	2	Ap
CO-6	knowledge about the bio gas production from organic waste.	4,2,5	Un,Ap

Department of Psychology

SEMESTER I			
Core I	**Advanced General Psychology**		
Code: 21PPSC11	**Hrs/Week:6**	**Hrs/ Sem: 90**	**Credit: 4**

Course Outcomes:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	know the nature, goal and historical origins of psychology.	1	Re, Un
CO-2	learn the concepts of sensation, perception and consciousness by associating with daily activities.	1	Un, An
CO-3	understand about cognitive elements such as memory, language and thought.	1	Re, An
CO-4	apply the concepts of general psychology by inculcating them in one's daily life.	1	Ap, Cn
CO-5	know about intelligence, learning and conditioning and how they are acquired in individuals.	1	Un
CO-6	evaluate the importance of every concepts and understand their key elements.	1	Ev, An

SEMESTER I			
Core II	**Developmental Psychology**		
Code: 21PPSC12	**Hrs/Week:6**	**Hrs/ Sem: 90**	**Credit: 4**

Course Outcome:

CO. No.	**Upon completion of this course, students will be able to.**	**PSO addressed**	**CL**
CO-1	know the stages of human development and their significant milestones.	1	Re, Un
CO-2	understand the psychology of development starting from the womb of the mother.	1	Un, An
CO-3	understand about the physical, cognitive and psychological changes that takes place in each stage human life.	1 & 2	An
CO-4	apply the concepts of development by associating it with one's own life.	1 & 2	Un, Cr
CO-5	know about the family and peer influences on the behavior and personality of children.	1 & 4	Un
CO-6	evaluate the differences in each stage and understand why these changes are essential for growth.	1 & 2	Un, An

SEMESTER I			
Core III	**Theories of Personality**		
Code: 21PPSC13	**Hrs/Week: 5**	**Hrs/ Sem: 75**	**Credit: 4**

Course Outcomes:

CO. No.	**Upon completion of this course, students will be able to.**	**PSO addressed**	**CL**
CO-1	understand the lives of the theorist who proposed various theories of personality.	1 & 2	Re
CO-2	learn the underlying factors that contributed to the development of the particular theory.	1 & 2	Re, Un
CO-3	understand about the advantages and disadvantages of each theory.	2	An, Ev
CO-4	apply the concept of various theories and their uses.	2	Un, Ap
CO-5	know about the applicability of each theory and understand their contribution to psychology.	2 & 4	Un
CO-6	evaluate the differences existing between every theory.	2	Un, An

SEMESTER I			
Core: IV	**Physiological Psychology**		
Code: 21PPSC14	**Hrs/ Week: 5**	**Hrs/ Sem: 75**	**Credit: 4**

Course Outcomes:

CO No	Upon completion of this course, the person will be able to	PSO Addressed	CL
CO 1	learn the basic concepts of physiological psychology	1 & 2	Re
CO 2	gain knowledge about the various concepts of biology to treat mental issues	1 & 2	Re, Un
CO 3	analyse the various causes of psychological illnesses due to faulty physical functioning	2 & 5	An
CO 4	create new methods of treating people with mental disorders with a physical approach	2 & 5	Un, Cr
CO 5	learn the skill of administering biological psychology to the shaping of behaviour	2, 4 & 5	Un
CO 6	understand and analyse the basic thinking processes of people with psychological issues due to physical reasons	2, 4 & 5	Un, An

SEMESTER II			
Core V	**Counselling Psychology**		
Code: 21PPSC21	**Hrs/Week: 5**	**Hrs/ Sem: 75**	**Credit: 4**

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Course Outcomes:

CO.No.	Upon completion of this course, students will be able to.	PSO addressed	CL
CO-1	know the emergence of counselling and their ethical principles.	1 & 3	Re, Un
CO-2	understand various theories and techniques applied in counselling sessions.	1 & 3	Un, An
CO-3	understand about the process in which counselling services are provided.	3	Ev, Un
CO-4	apply the skills described to counsel individuals and master them by practicing.	3 & 4	Un, Ap
CO-5	know about the two different models of counselling.	3	Un, Ev
CO-6	evaluate the differences in the two models of counselling.	3	Un, An

SEMESTER II			
Core VI	**Psychotherapeutics**		
Code: 21PPSC22	**Hrs/Week:5**	**Hrs/ Sem: 75**	**Credit: 4**

Course Outcomes:

CO. No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive Level
CO-1	understand the new developments in psychotherapy and its concepts	1 & 3	Un
CO-2	obtain an understanding of how the methods of existential therapy can be applied	3 & 5	Un
CO-3	develop the knowledge of the cognitive theory and to understand the cognitive therapy	3 & 5	Ln
CO-4	understand the concepts of transactional analysis and its types	3 & 7	An
CO-5	gain the knowledge about the family therapy and its procedure	3	Ev
CO-6	know the concepts of eastern psychotherapies and its applications	3	Un

SEMESTER II			
Core: VII	**Advanced Social Psychology**		
Code: 21PPSC23	**Hrs/Week:5**	**Hrs/ Sem: 75**	**Credit: 4**

Course Outcomes:

CO No	Upon completion of this course, the person will be able to	PSO Addressed	CL
CO 1	learn the basic concepts of social psychology	1 & 4	Re
CO 2	gain knowledge about the various systems and functions of the society	1 & 4	Re, Un
CO 3	analyse the various causes of problems in a society	4 & 7	An
CO 4	create new methods of treating social issues	4	Un, Cr
CO 5	learn the skill of handling people with various problems	4 & 5	Un
CO 6	understand and analyse the basic thinking processes of people in a society	4 & 5	Un, An

SEMESTER II			
Core VIII	**Research Methodology**		
Code: 21PPSC24	**Hrs/Week:4**	**Hrs/ Sem: 60**	**Credit: 4**

Course Outcomes:

CO No	Upon completion of this course, the person will be able to	PSO Addressed	CL
CO 1	learn the basic concepts of research methods	1 & 4	Re
CO 2	gain knowledge about the various methods of doing research in Psychology	1, 4 &5	Re, Un
CO 3	analyse the various steps in research methodology	4	An
CO 4	create new methods of research designs	4 & 5	Un, Cr
CO 5	learn the skills of doing research in Psychology	4	Un
CO 6	understand and analyse various research methods	4	Un, An

SEMESTER III			
Core IX	**Clinical Psychology**		
Code: 21PPSC31	**Hrs/Week:6**	**Hrs/Sem: 90**	**Credit: 4**

Course Outcomes:

CO No	Upon completion of this course, the person will be able to	PSO Addressed	CL
CO 1	learn the basic concepts of clinical psychology	5	Re
CO 2	gain knowledge about the various disorders and their symptoms	1 & 5	Re, Un
CO 3	analyse the various causes of mental illnesses	3 & 5	An
CO 4	create new methods of treating mental illnesses	5	Un, Cr
CO 5	learn the skill of handling people with mental disorders	4 & 5	Un
CO 6	understand and analyse the basic thinking processes of people with disorders	5 & 8	Un, An

SEMESTER III			
Core X	**Indian Psychology**		
Code: 21PPSC32	**Hrs/Week: 6**	**Hrs/ Sem: 90**	**Credit: 4**

Course Outcome:

CO. No.	**Upon completion of this course, students will be able to.**	**PSO addressed**	**CL**
CO-1	know the implications, applications and subject matter of Indian Psychology	1 & 6	Re
CO-2	become aware of the roots of Indian Psychology	6	Re, Un
CO-3	understand about the cultural perspectives of emotions.	1 & 6	An
CO-4	apply the concept of various Indian perspectives on psychotherapy.	3 & 6	Un, Ap
CO-5	learn and understand Sufism, a path which leads to self-transformation.	6	Un
CO-6	evaluate the differences existing between the modern psychological approach and Indian psychology	1 & 6	Un, An

SEMESTER – III			
Core XI	**Statistics for Behavioural science**		
Code : 21PPSC33	**Hrs / Week: 5**	**Hrs / Semester: 75**	**Credit: 4**

Course Outcomes:

CO No	Upon completion of this course, the person will be able to	PSO Addressed	CL
CO 1	learn the basic concepts of statistics	1 & 5	Re
CO 2	gain knowledge about the various methods of developing and using statistical techniques	1 & 5	Re, Un
CO 3	analyse the various steps in psychological statistical methods	5	An
CO 4	create new methods of creating and testing behaviour	4 & 5	Un, Cr
CO 5	learn the skills of administering statistics in psychological tests	5	Un
CO 6	understand and analyse various statistical testing methods	5	Un, An

SEMESTER III			
Core XII	**Psychological Testing**		
Code: 21PPSC34	**Hrs/Week:5**	**Hrs/ Sem: 75**	**Credit: 4**

Course Outcomes:

CO No	Upon completion of this course, the person will be able to	PSO Addressed	CL
CO 1	learn the basic concepts of psychological testing	1 & 5	Re
CO 2	gain knowledge about the various methods of developing psychological testing	5	Re, Un
CO 3	analyse the various steps in psychological testing	5	An
CO 4	create new methods of creating tests	5	Un, Cr
CO 5	learn the skills of administering psychological tests	5	Un
CO 6	understand and analyse various testing methods	1 & 5	Un, An

SEMESTER III			
Self Study Course	**Educational Psychology**		
Code: 21PPSSS1	**Hrs/Week: 0**	**Hrs/ Sem: 0**	**Credit: 2**

Course outcomes:

CO No	Upon completion of this course, the person will be able to	PSO Addressed	CL
CO 1	learn the basic concepts of educational psychology	1 & 2	Re
CO 2	gain knowledge about the various methods of doing research in Educational Psychology	1 & 6	Re, Un
CO 3	analyse the various steps in inculcating psychology in education	6	An
CO 4	create new methods of teaching and learning methods	4 & 6	Un, Cr
CO 5	learn the skills of developing Educational Psychology	1,2 & 6	Un
CO 6	understand and analyse various problems in educational settings	6	Un, An

SEMESTER IV			
Core XIII	**Human Resource Management**		
Code: 21PPSC41	**Hrs/Week:4**	**Hrs/ Sem: 60**	**Credit: 4**

Course Outcomes:

CO No	Upon completion of this course, the person will be able to	PSO Addressed	CL
CO 1	learn the basic concepts of human resource management	7	Re
CO 2	gain knowledge about the various methods of handling human resources	4 & 7	Re, Un
CO 3	analyse the various causes of inter personal work issues	4, 6 & 7	An
CO 4	create new methods of treating employees	4 & 7	Un, Cr
CO 5	learn the skill of handling people from diverse environments	4	Un
CO 6	understand and analyse the basic thinking processes of people	5 & 7	Un, An

SEMESTER IV			
Core XIV	**Organisational Behaviour**		
Code: 21PPSC42	**Hrs/Week: 5**	**Hrs/ Sem: 75**	**Credit: 4**

Course Outcomes:

CO No	Upon completion of this course, the person will be able to	PSO Addressed	CL
CO 1	learn the basic concepts of organisational behaviour	1 & 7	Re
CO 2	gain knowledge about the various methods of doing research in the field of organisational behaviour	4 & 7	Re, Un
CO 3	analyse the various steps in inculcating psychology in shaping organisational behaviour	2 & 7	An
CO 4	create new methods of teaching effective organisational behaviour	7	Un, Cr
CO 5	learn the skills of shaping employee and employer behaviour	7	Un
CO 6	understand and analyse various problems in organisational settings	4 & 7	Un, An

SEMESTER – IV			
Core XV	**Neuropsychology**		
Code : 21PPSC43	**Hrs / Week: 5**	**Hrs / Semester: 75**	**Credit: 4**

Course Outcomes:

CO No	Upon completion of this course, the person will be able to	PSO Addressed	CL
CO 1	learn the basic concepts of neuropsychology	1 & 8	Re
CO 2	gain knowledge about the various methods of neuropsychology to treat people	2, 5 & 8	Re, Un
CO 3	analyse the various causes of psychological illnesses	2 & 8	An
CO 4	create new methods of treating people with mental disorders	3 & 5	Un, Cr
CO 5	learn the skill of administering neuropsychology to the needy	5 & 8	Un
CO 6	understand and analyse the basic thinking processes of people with psychological issues	4, 5 & 8	Un, An

SEMESTER IV			
Elective I	**Rehabilitation Psychology**		
Code: 21PPSC44	**Hrs/Week: 4**	**Hrs/ Sem: 60**	**Credit: 4**

Course Outcomes:

CO. No	Upon Completion of this course, students will be able to	PSO Addressed	Cognitive Level
CO-1	know the nature of the persons with disabilities and biological perspectives of disability	1 & 8	Le
CO-2	obtain an understanding of the types of disability and its causes	3 & 8	Un
CO-3	develop the knowledge of the rehabilitation work settings and their roles	8	An
CO-4	understand the roles of caregivers and working with families of persons with disabilities	3 & 8	Ap
CO-5	gain the knowledge about the psycho diagnostic assessments of persons with disability	3 & 8	Un
CO-6	develop the thinking of the training programs for rehabilitation psychologist	5 & 8	Ap

Department of Mathematics

Semester I			
Core I	**Groups and Rings**		
Course Code: 21PMAC11	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	illustrate the orbit for a set and make use of the counting principle technique to find algebraic descriptions for the size of each equivalence class.	2	Un
CO-2	describe all abelian groups generated by a finite set of elements and to find the root of unity for each element of a group.	1,2	Re
CO-3	analyze and demonstrate the examples of Ideals and Quotient Rings.	5	An
CO-4	evaluate the properties implied by the definition of Euclidean Rings and to illustrate and apply the concepts of Polynomial Rings.	6	Ev
CO-5	recall procedural fluency with polynomial expressions including basic factoring.	4	Re
CO-6	write the definitions of matrix multiplication that corresponds to composition of linear transformations.	2	Re

Semester I			
Core II	**Real Analysis**		
Course Code: 21PMAC12	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	recall the basic properties of real numbers.	5,6	Re
CO-2	demonstrate the knowledge of real functions, limit of functions and their properties	2,5	Ap
CO-3	evaluate the continuity, differentiability and integrability of functions defined on the real line.	2,5	Ev
CO-4	analyse the concepts of continuous functions and their properties	6	An
CO-5	explain the concepts of axioms of real number systems, uniform convergence of sequences and series of functions, equicontinuity, compact and complete metric spaces, the Stone-Weierstrass theorem.	1,5	Un
CO-6	apply the concept of the series of real numbers and convergence.	2,5	Ap

Semester I			
Core III	**Ordinary Differential Equations**		
Course Code: 21PMAC13	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	solve the solution of second order differential equations by variation of parameters.	2	Ap
CO-2	solve the method of Frobenius to solve differential equations about regular singular points.	5	Ap
CO-3	construct Legendre and Bessel equations.	2	Cr
CO-4	solve scientific and engineering problems	8	Ap
CO-5	compare the Euler equation, Bessel equation and Regular singular points.	2	An
CO-6	understand the Homogenous linear system with constant co-efficient	2,5	Un

Semester I			
Core IV	**Mathematical Statistics**		
Course Code: 21PMAC14	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits: 4**

Course Outcome

CO.NO.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	explain the concepts of distributions and apply them.	2,8	Un
CO-2	examine the method used for analysis, including a discussion of advantages, disadvantages and necessary assumptions.	1,2	An
CO-3	apply discrete and continuous probability to evaluate the probability of real world events.	2,7	Ap
CO-4	compare the distribution with one another.	2,8	An
CO-5	apply the concepts of random variable, probability distribution, distribution function, expected value, variance and higher moments, and calculate expected values and probabilities associated with the distributions of random variables	2,7,8	Ap
CO-6	define a probability generating function, a moment generating function and derive them in simple cases.	5,8	Re

Semester I			
Elective I A	**Combinatorics**		
Course Code:21PMAE11	**Hrs/week: 6**	**Hrs/Sem:90**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	explain the properties and behaviour of permutations and combinations.	1, 6	Un
CO-2	solve problems involving strings, combinations, distributions and partitions.	2	Ap
CO-3	understand the ideas of permutations and combinations.	1,6	Un
CO-4	apply, implement and interpret the theory of combinatorics to relevant probability and statistics problems.	2	Ap
CO-5	evaluate the addition and multiplication principles of counting.	3	Ev
CO-6	apply diverse counting strategies to solve varied problems involving combinations and distributions	2,3	Ap

Semester I			
Elective I B	**Fuzzy Sets**		
Course Code :21PMAE12	**Hrs/week: 6**	**Hrs/Sem: 90**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	differentiate crisp sets and fuzzy sets.	6	An
CO-2	apply the fuzzy set theory on statistical methods.	7	Ap
CO-3	compare statistical methods against fuzzy logic methods.	1,7	An
CO-4	apply fuzzy logic membership function.	2,6	Ap
CO-5	solve problems on fuzzy set theory.	2	Ap
CO-6	identify the methods of fuzzy sets and fuzzy logic in solving problems in the theory of fuzzy control.	1,7	Re

Semester II			
Core V	**Linear Algebra**		
Course Code: 21PMAC21	**Hrs/Week: 6**	**Hrs/Semester: 90**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	define inner products and determine orthogonality on vector spaces including Gram Schmidt orthogonalization.	5,6	Re
CO-2	explain the concepts of field extensions and apply it to diverse situations in mathematical contexts.	7	Un
CO-3	demonstrate accurate and efficient use of field extension and Galois Theory.	5,6	Ap
CO-4	understand Polynomial Rings and its effect in Galois Theory.	6	Un
CO-5	understand the significance of various canonical forms.	5	Un
CO-6	evaluate the fundamental concepts of algebra and their role in modern mathematics and applied contexts.	2	Ev

Semester II			
Core VI	**Mathematical Analysis**		
Course Code: 21PMAC22	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	differentiate the Riemann integrability and the Riemann-Stieltjes integrability of a bounded function and able to prove theorems concerning integration.	4	An
CO-2	distinguish pointwise and uniform convergence of a sequence of functions.	2,6	Un
CO-3	illustrate the convergent properties of power series.	2	Un
CO-4	analyze the concepts of Fourier Series and Beta, Gamma functions.	2	An
CO-5	compare differentiability of functions and relate to the integrability of functions.	6	An
CO-6	describe fundamental properties of the real numbers that lead to the formal development of real analysis.	1	Un

Semester II			
Core VII	**Classical Mechanics**		
Course Code:21PMAC23	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits: 4**

Course Outcome

Co. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	analyze the dynamics of system near equilibrium and find the normal modes of oscillation.	2	An
CO-2	understand D' Alembert's Principle and simple applications of the Lagrangian formulation.	2,6	Un
CO-3	compute the principle co-ordinates and the principle moment of inertia for arbitrary rigid body.	2	Ap
CO-4	explain Hamiltonian principles and establish the Hamiltonian equations.	2,5	Un
CO-5	write the magnitude of selected mechanical properties of materials.	2	Cr
CO-6	distinguish the concept of Hamilton equation of motion and lagrange's equations.	6	An

Semester II			
Core VIII	**Calculus of Variations and Integral Equations**		
Course Code:21PMAC24	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the properties of geometrical problems	2	Un
CO-2	evaluate to the decomposition method.	2	Ev
CO-3	compare different types of integral equations.	2	An
CO-4	examine the Euler - Lagrange equation for variational problems including the case of general variations.	2,5	An
CO-5	recall symmetries and use them to solve the Euler- Lagrange equations.	2,6	Re
CO-6	solve integral equations and analyze the relation between differential equations and Volterra integral equations	2	Ap

Semester - II			
Core IX	**Stochastic Processes**		
Course Code: 21PMAC25	**Hrs/week: 4**	**Hrs/Sem: 60**	**Credits: 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	illustrate the stochastic model.	8	Un
CO-2	explain the well known models like birth-death and queueing to reorient their knowledge of stochastic analysis.	7	Un
CO-3	analyze the transition probabilities and its classifications.	2	An
CO-4	compare the different stochastic models.	1,8	An
CO-5	understand the notions of stochastic process.	5	Un
CO-6	apply markov chains to practical problems	4	Ap

Semester II			
Elective II A	**Operations Research**		
Course Code: 21PMAE21	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits: 3**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	classify and formulate integer programming problems and solve them with Cutting Plane Algorithm, Branch and Bound Algorithm.	2,4	Ap
CO-2	solve classical dynamic programming problems.	2,6	Ap
CO-3	compare inventory models and other related models.	2	An
CO-4	analyze a network of queues with Poisson external arrival, exponential service requirements and independent routing.	1,6	An
CO-5	evaluate the concept of complementary slackness and its role in solving prime and dual problems	2	Ev
CO-6	define probabilistic inventory models that accounts for all variations in real systems.	2	Re

Semester II			
Elective II B	**Applied Algebra**		
Course Code: 21PMAE22	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits: 3**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand some fundamental mathematical concepts and terminology.	2,4	Un
CO-2	analyse recursive definitions.	2,6	An
CO-3	compare the different techniques for constructing mathematical proofs, illustrated by discrete mathematics examples	2	An
CO-4	solve linear codes and cyclic codes.	1,6	Ap
CO-5	understand the concepts of Boolean Algebra and lattices.	2	Un
CO-6	apply basic and advanced principles of codes	2,6	Ap

Semester III			
Core X	**Topology**		
Course Code: 21PMAC31	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits: 4**

Course Outcome

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	define and illustrate the concepts of topological spaces and product topology.	5	Re
CO-2	explain the concepts concerned with properties that are preserved under continuous deformation of objects.	5,6	Un
CO-3	apply the knowledge general topology to formulate and solve problems of a topological nature in mathematics and other fields where topological issues arise.	2	Ap
CO-4	analyse Connectedness and Compactness and prove the related theorems.	5	An
CO-5	understand the separation axioms in different spaces.	5	Un
CO-6	explain the relation between the three types of compactness in general topological spaces and in metric spaces.	5	An

Semester III			
Core XI	**Graph Theory**		
Course Code: 21PMAC32	**Hrs/Week: 6**	**Hrs/Sem:90**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the basic concepts of graphs, directed graphs and present the graph by matrices.	7	Un
CO-2	solve the problems involving edge and vertex connectivity, Planarity and crossing number and to determine the Eulerian and Hamiltonian graphs.	2,7	Ap
CO-3	analyze the properties of Trees and Connectivity	5,7	An
CO-4	solve the problems involving vertex and edge coloring.	2,7	Ap
CO-5	understand and apply the fundamental concepts of independent sets.	2	Un
CO-6	show a series of graph theoretical problems which have real world applications	1	Re

Semester III			
Core XII	**Measure Theory**		
Course Code: 219MAC33	**Hrs/Week:5**	**Hrs/Sem: 75**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the basic definitions and the properties of Lebesgue measure of measurable sets.	1	Un
CO-2	define Lebesgue integral and discuss its properties.	6	Re
CO-3	analyze the concept of bounded variation.	1,2	An
CO-4	explain the concept of simple functions and Lebesgue integral of nonnegative integral functions.	6	Un
CO-5	summarize and discuss the properties of outer measure.	2	Un
CO-6	develop a basic knowledge of measure theory needed to understand probability theory and functional analysis	7	Cr

Semester III			
Core XIII	**Partial Differential Equations**		
Course Code: 21PMAC34	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	apply the fundamental concepts of Ordinary Differential Equations and Partial Differential Equations and the basic numerical methods for their resolution.	2	Ap
CO-2	demonstrate accurate and sufficient use of Laplace's equation and their applications in the theory of PDE.	2,6	Ap
CO-3	investigate the behavior of second order partial differential equations.	1,2	Un
CO-4	analyze the Partial Differential Equations using separation of variables techniques.	6	An
CO-5	solve the differential equations using Laplace Equation.	2	Ap
CO-6	apply partial derivative techniques to predict the behavior of certain phenomena.	2	Ap

Semester III			
Core XIV	**Research Methodology**		
Course Code: 21PMAC35	**Hrs/ week: 4**	**Hrs/Semester: 60**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	implement Mathematical and Statistical techniques for research.	5,8	Ap
CO-2	acquire knowledge in research publication and thesis writing.	5	Un
CO-3	understand the basic aspects in research.	5	Un
CO-4	practice and improve the research presentation skills with latest tools.	5	Re
CO-5	investigate research in a more appropriate manner.	5	An
CO-6	analyse appropriate research topics.	5	An

Semester III			
Elective III A	**Fluid Mechanics**		
Course Code: 21PMAE31	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits: 3**

Course Outcome

CO.No.	Upon completion of this course, students will be able to	PSO Addressed	CL
CO-1	explain fundamentals of fluid mechanics, which is used in the applications of Hydraulics.	1,8	Un
CO-2	classify hydrostatic law, principle of buoyancy and stability of a floating body and application of mass, momentum and energy equation in fluid flow.	2	Ap
CO-3	examine stability of submerged and floating bodies.	6	An
CO-4	differentiate horizontal motion and vertical motion.	1	An
CO-5	describe methods of implementing fluid mechanics laws and phenomena.	5,6	Re
CO-6	calculate and optimize operational parameters of hydraulic problems, systems and machines	2	Ap

Semester - III			
Elective III B	**Wavelet Analysis**		
Course Code: 21PMAE32	**Hrs/week: 4**	**Hrs/Sem: 60**	**Credits: 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand wavelet basis and characterize continuous and discrete wavelet transform	2	Un
CO-2	understand multi resolution analysis and identify various wavelets and evaluate their time frequency resolution properties	3	Un
CO-3	discuss and explain the main merits and limitations of wavelet analysis	2	An
CO-4	explain the properties and applications of wavelet transform	1	Un
CO-5	explain brief features and strength of transform beyond wavelet.	2	Un
CO-6	analyse the basis of the application of wavelet transforms to different fields	1,6	An

Semester III	
Self-Study Course **Course on Competitive Exams**	
Course Code: 21PMSS31	**Credits: 2**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	solve real life problems requiring interpretation and comparison of various representations of ratios.	2,6	Ap
CO-2	distinguish between proportional and non-proportional situations and when appropriate apply proportional reasoning	6	An
CO-3	solve problems applying probabilistic reasoning to make decisions	2	Ap
CO-4	evaluate claims based on empirical, theoretical and subjective probabilities	6,4	Re
CO-5	solve problems using high speed mental calculations	6	Ap
CO-6	understand the basic concepts of logical reasoning skills.	1,4	Un

Semester IV			
Core XV	**Complex Analysis**		
Course Code: 21PMAC41	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO Addressed	CL
CO-1	define and analyze limits and continuity for complex functions as well as consequences of continuity.	1,6	Re
CO-2	evaluate the complex contour integral directly and by the fundamental theorem.	6	Re
CO-3	represent functions as Taylor, power and Laurent series, classify singularities and poles, find the residues and evaluate complex integrals using the residue theorem.	6	Un
CO-4	apply the concept and consequences of analyticity and the Cauchy-Riemann equations and of results on Harmonic and entire functions including the fundamental theorem of algebra.	2,6	Ap
CO-5	demonstrate accurate and efficient use of complex analysis techniques	6	An
CO-6	apply the methods of complex analysis to evaluate definite integrals.	1,2	Ap

Semester IV			
Core XVI	**Functional Analysis**		
Course Code: 21PMAC42	**Hrs/Week: 6**	**Hrs/Semester: 90**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO Addressed	CL
CO-1	apply the spectral theorem for compact self- adjoint operators and decide which properties an operator has.	5	Ap
CO-2	understand the various concepts of Banach Spaces.	5	Un
CO-3	attain a detailed knowledge about Hilbert Spaces.	2,5	Re
CO-4	understand the Operator theory in Hilbert Spaces.	1,5	Un
CO-5	explain the concepts of different operators.	5	Un
CO-6	understand the statements and proof of important theorems and explain the key steps in proofs sometimes with variation	1	Un

Semester IV			
Core XVII	**Number Theory and Cryptography**		
Course Code:21PMAC43	**Hrs/week: 5**	**Hrs/Sem:75**	**Credits: 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO Addressed	CL
CO-1	define the key notions of algebraic number theory and outline their interrelation.	5	Re
CO-2	calculate the most important number theoretical quantities introduced during the course.	5	Re
CO-3	calculate and solve the system of linear congruences and warning problem.	2,6	Re
CO-4	differentiate the greatest integer functions and arithmetic function.	1,6	An
CO-5	explains the notions of public key encryption and digital signatures.	6	Un
CO-6	describe and implement the specifics of some of the prominent techniques for public key crypto systems and digital signature schemes	6	Re

Semester IV			
Elective IV A	**Differential Geometry**		
Course Code: 21PMAE41	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits: 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO -1	construct a variety of geometrical objects.	1	Ap
CO-2	acquire the essential ideas about the theory of space curves.	6	Re
CO-3	analyze the different consequences and meanings of parallelism on Euclidean and hyperbolic planes.	1	An
CO-4	demonstrate the knowledge of family of curves, geodesics and the fundamental forms.	1,6	Un
CO-5	use concrete models to demonstrate geometric concepts	2	Ap
CO-6	evaluate the principal curvatures, the mean curvature and Gauss curvature of a given surface.	2,6	Ev

Semester IV			
Elective B	**Projective Geometry**		
Course Code: 21PMAE42	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits: 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO -1	describe geometric objects and properties with the homogeneous coordinates of the projective plane	1	Ap
CO-2	study the angle between the corresponding lines in 3-dimensional space	5	Un
CO-3	demonstrate a deep understanding of the axiomatic approach to projective spaces	1	An
CO-4	perform calculations in desarguesian planes and projective 3- spaces	5	Un
CO-5	classify the structure of collineations of projective planes	1,6	Un
CO-6	demonstrate an understanding of theory of conics in field planes	2	Ap

Department of Chemistry

Semester – I			
Core I	**Inorganic Chemistry - I**		
Course Code : 21PCHC11	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 4**

Course outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO 1	develop the idea about the photophysical and photo chemical processes.	1,4	Ev
CO 2	produce semiconductor electrodes and solar cells based on laws of photochemistry.	7,8	Cr
CO 3	explain about the electron configuration, orbital stability and the reactivity	1	Ap
CO 4	demonstrate about the theories of VSEPR, Valance bond and Molecular Orbital.	1,4	Ap
CO 5	compare the chemistry of Non-aqueous solvents such as liquid ammonia, Liquid hydrogen fluoride, Liquid sulfur dioxide.	1,5	An
CO 6	compare the properties of elements present in Lanthanides and Actinides.	1,5	An

Semester – I			
Core II	**Organic Chemistry - I**		
Course Code : 21PCHC12	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcomes

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO 1	illustrate the basic of aromaticity	1	Un
CO 2	criteria for aromaticity and Huckel's 4n+2 electron rule for benzene and non benzenoid aromatic compounds.	6	Ev
CO 3	understand the various types and associate the neighboring group participation of aliphatic nucleophilic substitution reactions.	3	Un, Ap
CO 4	explain the generation, detection, structure, stability and reactions of carbocations, carbanions, carbenes, nitrenes and free radicals	2	Ap
CO 5	identify the stereochemistry notations, concept and its importance	1	Ap
CO 6	investigate the Name the reaction Mechanism and Applications	3	An

Semester – I			
Core III	**Physical Chemistry - I**		
Course Code : 21PCHC13	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcomes

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO 1	have a good foundation in understanding the physical and mathematical aspects of quantum mechanics.	1	Un
CO 2	apply the approximation methods to different atoms and find the dissociation energy and bond order for various molecules by applying Huckel molecular orbital theory.	4	Ap
CO 3	explain different types of methods of preparation of polymers.	5	Un
CO 4	prepare the polymer molecule and determine the molecular weight of polymer.	6	Cr
CO 5	deduce the experimental techniques involved in photochemical processes.	5	Ev
CO 6	classify the molecules according to their moment of inertia.	1	An

Semester – I			
Elective I	**A. Advanced Topics in Chemistry**		
Course Code : 21PCHE11	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO 1	formulate molecular dynamics in drug design.	5	Ap
CO 2	perform docking using Autodock virtual screening and De nova designs.	5,4	Ap
CO 3	develop recent trends in the synthesis of crown ethers.	6	Cr
CO 4	design a green method for the synthesis of compounds using twelve principles of Green chemistry and sketch the natural cycles of environment such as the hydrological, oxygen and nitrogen cycles.	5,6	Cr
CO 5	compare heterogeneous liquid- liquid and heterogeneous solid- liquid reactions and differentiate chemical and photochemical reactions occurs in atmosphere.	2,5	An
CO 6	synthesis the nanomaterial by ultra sonication and acquire knowledge about common diseases due to insects, animals, air and water borne diseases.	1,6	Un

Semester – I			
Elective I	**B. Food and Health Chemistry**		
Course Code : 21PCHE12	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO 1	classify nutrients, proteins, vitamins and minerals.	1	An
CO 2	examine physical and mental health.	6	An
CO 3	explain various metabolism of drugs.	2	Un
CO 4	compare hard and soft drugs.	1	Ev
CO 5	measure blood pressure and sugar and detect various blood group for different persons.	8	An
CO 6	calculate body mass fluid and give the factors which affect BMF and test the adulterants present in food items.	3, 5	Ap

Semester – II			
Core IV	**Inorganic Chemistry –II**		
Course Code : 21PCHC21	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO 1	judge about the stability and factors affecting the stability of the coordination complexes.	1, 2	Ev
CO 2	measure Crystal Field Stabilisation Energy(10Dq or Δ_0) of coordination complexes.	2, 4	Ev
CO 3	synthesis and can discuss about reactivity of metal alkyls, carbenes, carbynes, carbides, alkenes, alkynes and arene complexes	6, 7	Cr
CO 4	summarize the substitution, oxidative addition, reductive elimination, nucleophilic and electrophilic reactions of organometallic complexes.	1, 4	Un
CO 5	predict about the number of active modes of vibrations in IR and Raman spectroscopy.	5	Un
CO 6	interpret the Mossbauer spectra of Iron and Tin complexes.	5, 7	Ev

Semester – II			
Core V	**Organic Chemistry - II**		
Course Code : 21PCHC22	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO1	organize the various methods of determination of reaction mechanism	1	Cr
CO2	comprehend the various factors that operate in organic reactions	3	An
CO 3	analyse the migrating aptitude and rearrangements	4	An, Ap
CO 4	understand and determine the isolation and structural determination of alkaloids	2	Un, An
CO 5	discuss the Photochemistry of (n-π*) transitions with particular reference to Norrish type I, Norrish II type reactions, Paterno - Buchi reactions & photochemistry of nitrites.	3	An
CO 6	understand the applicability of the spectroscopic techniques and Instruments	5	Un, Ap

Semester – II			
Core VI	**Physical Chemistry – II**		
Course Code : 21PCHC23	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcomes

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO 1	assign the symmetry elements and so that the point group of the given molecule.	2	An
CO 2	construct the character table for various point groups.	2	Cr
CO 3	apply the principles of group theory in determining hybridization and symmetries of vibrational modes in linear and non-linear molecules.	1	Ap
CO 4	compare the different types of adsorption isotherm and improve the surface area in catalysis.	4	Ev
CO 5	elaborate the theories and concepts of homogeneous and heterogeneous catalysed reactions and apply in project work.	6	Cr
CO 6	differentiate the given molecules whether they are IR active or Raman active and draw the structures of various molecules.	2	An, Cr

Semester – II			
Elective II	**A. Nanoscience and Technology**		
Course Code : 21PCHE21	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcomes

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO 1	recall a thorough knowledge of basic underline disciplines of nanoscience and nanotechnology	4	Re
CO 2	explain the preparation, characterization and properties of nanomaterials	6	Un
CO 3	analyze the types and properties of carbon nanotubes	1	An
CO 4	assimilate existing and new concepts, methodology and researches and apply them in their academic research environment	7	Ev
CO 5	synthesise the nanomaterials by physical, chemical and biological methods. characterise the synthesized nanomaterials by various techniques.	6, 5	Cr
CO 6	apply the nanomaterials in energy storage, food and in day-to-day life.	8	Cr

Semester – II			
Elective II	**B. Energy and Computational Chemistry**		
Course Code : 21PCHE22	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course outcomes

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO 1	organise C++ programming for the determination of some Chemical properties.	4	An
CO 2	calculate the delocalisation energy for aromatic system.	6	Ev
CO 3	distinguish between renewable and non- renewable energy resources.	1	An
CO 4	explain the construction, working and applications of primary and secondary batteries.	7	Ap
CO 5	demonstrate the Orsat process for flue gas analysis. identify a catalyst used in fine chemical synthesis.	6, 5	Cr
CO 6	acquire knowledge about paints, dyes and pigments and their manufacture.	8	Ap

Semester – III			
Core VII	**Inorganic Chemistry - III**		
Course Code : 21PCHC31	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO 1	predict the dislocations in the solids	4	Ev
CO 2	compare various techniques involved in single crystal growth.	4, 6	An
CO 3	calculate STYX notation for boranes and carboranes.	1	Ap
CO 4	coin the Isolobal relationships between main group and transition metal fragments.	1	Cr
CO 5	calculate the Microstates and Term symbols for Transition metal complex.	4	Ev
CO 6	discuss the applications of XPES and UVPES to inorganic spectra.	5, 7	An

SEMESTER – III			
Core VIII	**Organic Chemistry - III**		
Course Code : 21PCHC32	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcomes

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO 1	familiarize the various types and Compare neighbouring group participation and Ambident nucleophiles of aromatic substitution reactions	2	Re
CO 2	discuss the Conformational analysis of cyclic molecules and the factors governing the reactivity of axial and equatorial substituents in cyclohexanes.	3	An
CO 3	study the synthesis and Elucidation of structure of steroids and terpenoids	4	Un, An
CO 4	learn the conversion of cholesterol to progesterone, estrogen and testosterone	5	Re
CO 5	acquire knowledge about the reagents specificity	3	Un
CO 6	to learn the concept of Cyclo addition, Electrocyclic and sigmatropic reaction mechanism	6	Cr

Semester – III			
Core IX	**Physical Chemistry - III**		
Course Code : 21PCHC33	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO1	outline the behavior of electrolytes in solutions.	4	An
CO2	predict the structure of the electrode surface and the applications of electrode process.	2	Cr
CO 3	investigate the corrosion and polarization studies.	1	Ev
CO 4	justify electrochemical mechanisms of biological systems.	4	Ev
CO 5	categorise the principle and applications of NMR and EPR spectroscopy.	4	An
CO 6	judge the structure of molecules by applying various spectroscopic techniques.	2	Ev

Semester – III			
Elective III	**A. Research Methodology**		
Course Code : 21PCHE31	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO 1	select the research topic and able to survey the literature. improve the accuracy of data in chemical analysis.	4, 3	Ev
CO 2	submit the project proposals to the funding agency.	8	Ap
CO 3	explain about the principle, instrumentation and applications of TGA, DTA and DSC.	5, 6	Un
CO 4	compare principle, instrumentation and applications of potentiometry, coulometry and voltammetry.	5	An
CO 5	describe different types of Atomic spectroscopy.	1, 5	Un
CO 6	interpret data using TEM, SEM, XRD and EDAX techniques.	5, 7	Ev

Semester III			
Elective III	**B. Chemical Instrumentation**		
Course Code:21PCHE32	**Hrs/Week:4**	**Hrs/Sem:60**	**Credits:4**

Course outcome:

CO No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO1	demonstrate automatic operation and computer control	1,5	Ap
CO2	precise control of current and voltage.	6,8	Ap
CO3	differentiate modulation and demodulation	5	An
CO4	point out limitation on amplifier performance	1	Cr
CO5	predict binary logic concepts, logic gates and multi-vibrators	7	Un
CO6	distinguish visual, filter and spectrophotometers. interpret the optimal value of adjustable parameters	7,8	Ap

Semester III	
Self-Study Course – Course on Competitive Exams	
Code: 21PCHSS31	**Credits: 2**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO 1	solve real life problems requiring interpretation and comparison of various representations of ratios	2	Ap
CO 2	distinguish between proportional and non-proportional situations and when appropriate apply proportional reasoning	1, 2	An
CO 3	solve problems applying probabilistic reasoning to make decisions	2	Ap
CO 4	evaluate claims based on empirical, theoretical and subjective probabilities	1, 4	Re
CO 5	solve problems using high speed mental calculations	7	Ap
CO 6	understand the basic concepts of logical reasoning skills	1, 2	Un

Semester – IV			
Core X	**Inorganic Chemistry - IV**		
Course Code : 21PCHC41	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO 1	demonstrate about the energy sources of life using photosynthetic and non-photosynthetic processes	1,4	Ap
CO 2	illustrate the inhibition and poisoning of xanthane oxidase and aldehyde oxidase.	1,4	Ap
CO 3	describe about tracer technique and counter technique in nuclear chemistry.	5,7	An
CO 4	sketch the electron transfer mechanism for inner and outer sphere complexes.	3,4	Ap
CO 5	catagorise the principle and applications of NMR, NQR and EPR spectroscopy.	5,8	An
CO 6	demonstrate the structural information from NMR and EPR spectra.	5,8	Ap

SEMESTER – IV			
Core XI	**Organic Chemistry - IV**		
Course Code : 21PCHC42	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcomes

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO 1	describe various reactions involved in addition to C=C bonds	3	Un
CO 2	demonstrate/apply the concepts involved in elimination reaction	5	Ap
CO 3	study about the outline of retrosynthetic analysis with some examples	6	An
CO 4	outline Salient features of fragmentation pattern of organic compounds, Appraise the different retrosynthetic compounds	4	Ap
CO 5	explain the nomenclature, reactivity and spectral properties of heterocyclic compounds	5	An
CO 6	know about the NMR spectroscopy, distinguish spin-spin coupling and application to organic structure ^{13}C spectroscopy	7	Ap

Semester – IV			
Core XII	**Physical Chemistry - IV**		
Course Code : 21PCHC43	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO 1	examine the theories and concepts of chemical kinetics for homogeneous and heterogeneous catalysed reactions.	1	Ap
CO 2	sketch the phase diagram for one, two and three component systems	5	An
CO 3	apply the concepts of statistical thermodynamics for the study of equilibrium reactions and reaction rates.	4	Ap
CO 4	understand the applications of radiation chemistry in different fields.	1	Un
CO 5	interpret electron spin resonance and Mössbauer spectroscopies.	4	Ev
CO 6	judge the structure of molecules by performing hyperfine splitting technique.	5	Ev

Department of Computer Science

SEMESTER –I			
CORE I	**DESIGN AND ANALYSIS OF ALGORITHMS**		
Course Code:21PCSC11	**Hrs/week:5**	**Hrs/Semester:75**	**Credits:4**

Course Outcomes:

CO.No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	understand the running time and space complexity of algorithms using asymptotic analysis.	1	Un
CO-2	apply divide and conquer to binary search, quick sort, merge sort.	1,7	Ap
CO-3	analyze greedy method to knapsack problem, prims, kruskal algorithms.	1,7	An
CO-4	apply dynamic programming to optimal binary search trees,0/1 knapsack problem and different tree traversals	1,7,4	Ap
CO-5	perform Backtracking to n-queen problem, sum of subsets problem, graph coloring etc.	1,7	Ap
CO-6	apply branch and bound to Travelling sales person problem, 0/1 knapsack problem.	1,7	Ap

SEMESTER I			
CORE II	**DIGITAL IMAGE PROCESSING USING MATLAB**		
Course Code: 21PCSC12	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits: 4**

Course Outcomes:

CO. No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	develop programming skills and techniques to solve mathematical problem.	8	Ap
CO-2	learn graphic features of MATLAB and they are able to use this feature effectively in the various applications	6	Ap
CO-3	learn different techniques employed for the enhancement of images.	5	Un
CO-4	interpret Image compression, segmentation and representation standards	7	An
CO-5	choose image filtering in various applications	8	Ap
CO-6	analyze different causes for image degradation and overview of image restoration techniques.	7	An

SEMESTER – I			
CORE III MATHEMATICAL FOUNDATIONS FOR COMPUTER SCIENCE			
Course Code : 21PCSC13	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcomes:

CO. No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	test the complementary relationship of skewness with measures of central tendency and dispersion in describing a set of data.	2	An
CO-2	apply 'moments' as a convenient and unifying method for summarizing several descriptive statistical measures.	2	Ap
CO-3	analyze the strength and direction of a linear relationship between two variables using Correlation.	2	An
CO-4	demonstrate how much a dependent variable changes based on adjustments to an independent variable using regression.	2	Ap
CO-5	discover the logical operations and predicate calculus needed for computing skill.	2	An
CO-6	understand the application of various type of graphs in real life problem.	2	Un

SEMESTER –I			
CORE IV	**COMPILER DESIGN**		
Course Code:21PCSC14	**Hrs/week:4**	**Hrs/Semester:60**	**Credits:4**

Course Outcomes:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the basic principles of compiler in high level programming language	1,5	Un
CO-2	represent language tokens using regular expressions, finite automata	5	An
CO-3	apply parsing techniques and able to write Context Free Grammars for various languages	5	Ap
CO-4	apply the knowledge of intermediate code generation to build efficient systems	5	Ap
CO-5	understand the need of intermediate representation for the generation of target code by applying code optimization techniques	5	Ap
CO-6	apply machine independent optimization technique to intermediate code and generate machine code for high level programming language.	5	Ap

SEMESTER – I			
ELECTIVE I A- ADVANCED COMPUTER ARCHITECTURE			
Course Code : 21PCSE11	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcomes:

CO. No	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	understand the fundamental of computer structure.	5	Un
CO-2	perform computer arithmetic operations.	2	Ap
CO-3	apply the concept of cache mapping techniques.	8	Ap
CO-4	correlate the performance of I/O device	2	An
CO-5	conceptualize instruction level parallelism and Analyze different types of pipeline hazard	7	An
CO-6	analyze performance issues in processor and memory design of a digital computer.	7	An

SEMESTER- I			
ELECTIVE I B- CRYPTOGRAPHY AND NETWORK SECURITY			
Course Code: 21PCSE12	**Hrs / week :4**	**Hrs / Sem: 60**	**Credits :4**

Course Outcomes:

CO. No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	understand the fundamental concepts of various encryption techniques	6,2	Un
CO-2	demonstrate the process to maintain the Confidentiality, Integrity and Availability of data	6	Ap
CO-3	distinguish between various algorithms for network security to protect against the threats in the networks	4	An
CO-4	apply the concept of Public key cryptography and analyze solutions for effective key management and distribution	2,3	Ap
CO-5	apply and manage to secure a message over insecure channel by various means	6,3	Ap
CO-6	identify and apply the functional IP network security to protect against the threats in the networks and to protect system security	6	Ap

SEMESTER – II			
CORE V	**J2EE**		
Course Code : 21PCSC21	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 4**

Course Outcomes:

CO. No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	make use of a high-level overview of the J2EE architecture	1	Ap
CO-2	identify the services and components which comprise the J2EE specification	5	Un
CO-3	explain how J2EE technology applications are packaged	5	Un
CO-4	acquire the knowledge of EJB and its types and Differentiate Servlet and JSP	7	An
CO-5	build server side java application called Servlet to catch form data sent from client and store it on database	8	Cr
CO-6	build server side java application called JSP to catch form data sent from client, process it and store it on database.	8	Cr

SEMESTER- II			
CORE VI	**DATA MINING & R PROGRAMMING**		
Course Code: 21PCSC22	**Hrs / week :5**	**Hrs / Semester: 75**	**Credits :4**

Course outcomes:

CO. No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	classify different data mining tasks and the algorithms most appropriate for addressing them.	4,5	An
CO-2	discover Strengths & Limitations of Data Mining Methods	5,8	An
CO-3	display interesting patterns from large data, to extract and analyse, make predictions and solve problems	4,8	An
CO-4	evaluate models/algorithms with respect to their accuracy	4	Ev
CO-5	demonstrate capacity to perform a self-directed piece of practical work that requires the application of data mining techniques.	1,4	Ev
CO-6	develop hypotheses based on the analysis of the results obtained and test them.	8	Ev

SEMESTER - II			
CORE VII	**DISTRIBUTED DATABASE MANAGEMENT SYSTEM**		
Course Code : 21PCSC23	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcomes:

CO. No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	understand the concept of Distributed DBMS	3	Un
CO-2	apply various architectures of DDBMS and fragmentation techniques in a given problem	8	Ap
CO-3	visualize the steps of query processing	8	Ap
CO-4	compare various Query Optimization Algorithms	7	An
CO-5	organise the approaches to concurrency control in Distributed database	7	An
CO-6	apply various algorithms and techniques for deadlock and recovery in Distributed database	8	Ap

SEMESTER- II			
CORE VIII	**SINGLE BOARD COMPUTERS AND IOT**		
Course Code: 21PCSC24	**Hrs / week :4**	**Hrs / Sem: 60**	**Credits :4**

Course Outcomes:

CO.No	**Upon Completion of this course, students will be able to**	**PSO addressed**	**CL**
CO-1	code program and develop applications using single board computers and to create a good working setup of Raspberry Pi	1,4	Cr
CO-2	understand the concepts of Internet of Things and identifying different IoT technologies	4,3	Un
CO-3	inculcate knowledge on communication middleware and Information security in IoT	6	Un
CO-4	analyze basic protocols in wireless sensor networks	6	An
CO-5	implement State of the Art - IoT Architecture	7	Ap
CO-6	examine the security and privacy issues in IoT	6	An

SEMESTER- II			
ELECTIVE II	**A – ADVANCED COMPUTER NETWORKS**		
Course Code: 21PCSE21	**Hrs / week :4**	**Hrs / Semester: 60**	**Credits :4**

Course Outcomes:

CO. No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	describe the evolution and History of Wireless technology	6	Un
CO-2	analyse the wireless propagation channels.	6	An
CO-3	examine the Performance of ARQ Protocols, Ethernet LAN, Token Ring, RIP, TCP and UDP.	6	Ap
CO-4	identify the networking technologies and implementation of protocols like TCP, UDP and IP using OPNET and NS-2	6	An
CO-5	solve technical problems in ARQ protocols, MAC protocols and Routing Algorithm.	4,6	Ap
CO-6	construct the route discovery algorithm to determine the shortest path in an internet represented as a weighted graph.	2,6	Ap

SEMESTER- II			
ELECTIVE II	**B - SOFT COMPUTING**		
Course Code: 21PCSE22	**Hrs / week :4**	**Hrs / Sem: 60**	**Credits :4**

Course Outcomes:

CO. No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	understand the concepts of Artificial Intelligence and neural networks and categorize different learning algorithms	1, 8	Un
CO-2	analyze the classification taxonomy of NN and compare different network models	6,8	An
CO-3	comprehend the fuzzy logic and the concept of fuzziness involved in various systems and fuzzy set theory.	2	Ap
CO-4	implement the concepts of fuzzy sets, knowledge representation using fuzzy rules	2	An
CO-5	identify and define approximate reasoning, fuzzy inference systems, and fuzzy logic	2	An
CO-6	analyze the genetic algorithms and their applications	8	An

Semester III			
CORE IX	**SOFTWARE TESTING**		
Course Code: 21PCSC31	**Hrs / week : 4**	**Hrs / Sem: 60**	**Credits :4**

Course Outcomes:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the fundamental concepts and techniques in Software Testing and the categories of the system testing methods	3	Un
CO-2	identify and apply the functional and system testing methods in commercial environment	8	Ap
CO-3	design Test Planning	4	Ap
CO-4	distinguish between methods of judging test case adequacy and how to design tests that will accomplish the obligations of such methods.	7	An
CO-5	demonstrate the process of validation and verification Write code to automate test execution and analysis	8	Ap
CO-6	implement various test processes for quality improvement	8	Ap

SEMESTER – III			
CORE X	**CLOUD COMPUTING AND BIG DATA**		
Course Code : 21PCSC32	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcomes:

CO. No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO-1	carrying out the decisions based on data analytics.	8	Ap
CO-2	analyze the big data analytic techniques for useful business applications.	8	An
CO-3	identifying the data models in relation to Big Data Storage and Analytics.	5,8	Re
CO-4	implementing Big Data applications using Pig and Hive and working with big data platform	5,8	Ap
CO-5	identify the architecture, infrastructure and delivery models of cloud	1,4	Re
CO-6	apply suitable virtualization concept and organize the core issues of cloud computing	1,8	An

SEMESTER III			
CORE XI	**DATA SCIENCE USING PYTHON**		
Course Code: 21PCSC33	**Hrs / week :4**	**Hrs / Sem: 60**	**Credits : 4**

Course Outcomes:

CO. No	Upon Completion of this course, students will be able to	PSO Addressed	CL
CO-1	explore the fundamental concepts of data science	8	An
CO-2	explain how data is collected, managed and stored for data science	5,8	Un
CO-3	evaluate the data analysis techniques for applications handling large data and visualize the inference using various tools	5,8	Ap
CO-4	implement numerical programming, data handling and visualization through NumPy and Pandas	1	Ap
CO-5	understand and demonstrate the usage of universal functions and list of Arrays in NumPy	1	Ap
CO-6	analyze the significance of python program development environment and apply it to solve real world applications	1,7	Un

SEMESTER – III			
CORE XII	**RESEARCH METHODOLOGY**		
Course Code : 21PCSC34	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcomes:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	demonstrate knowledge of research processes	7	An
CO-2	understand the concepts of defining the research problem and research design and compare between methodologies and methods used in research	2,7	Un
CO-3	explain the concepts and procedures of sampling, data collection, analysis and reporting	5,4	Ap
CO-4	assess the basic function and working of analytical research tools used in computer science research	7,8	Re
CO-5	prepare a research report and examine the plagiarism and its types.	7	Ap
CO-6	apply the knowledge of teaching methods for its wide applicability.	1,7	Ap

SEMESTER- III			
ELECTIVE I	**A- ORGANIZATIONAL BEHAVIOUR**		
Course Code: 21PCSE31	**Hrs / week :4**	**Hrs / Sem: 60**	**Credits :4**

Course Outcomes:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO-1	analyse the behaviour of individuals and groups in organisations in terms of the key factors that influence organizational behaviour	1, 6	An
CO-2	evaluate personality types, perception and learning process on human behavior	8	Ap
CO-3	analyze the importance of Attitudes, Values, Job satisfaction, Group formation and Group behaviour	1,6	An
CO-4	identify different motivational theories and evaluate motivational strategies used in a variety of organizational settings	6	Un
CO-5	analyze about human stress and the consequences of stress in an organization	6	An
CO-6	identify the various leadership styles and the role of leaders in a decision making process	1,6	Un

SEMESTER – III			
ELECTIVE I B - OBJECT ORIENTED SOFTWARE ENGINEERING			
Course Code : 21PCSE32	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcomes:

CO. No	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	design and implement a software system to meet desired needs.	4	Cr
CO-2	use modern software systems and tools.	8	Ap
CO-3	understand different software life cycle concept.	3	Un
CO-4	study and design SRS documents for software projects.	7	An
CO-5	study and model software projects using different modelling techniques.	7	An
CO-6	discuss about project organisation and communication	2	Ev

Semester III	
SELF-STUDY COURSE – COURSE ON COMPETITIVE EXAMS	
Course Code: 21PCSSS1	**Credits: 2**

Course Outcomes:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	solve real life problems requiring interpretation and comparison of various representations of ratios.	1,2	Ap
CO-2	distinguish between proportional and non-proportional situations and when appropriate apply proportional reasoning	2	An
CO-3	solve problems applying probabilistic reasoning to make decisions	2	Ap
CO-4	evaluate claims based on empirical, theoretical and subjective probabilities	2	An
CO-5	solve problems using high speed mental calculations	1,2	Ap
CO-6	understand the basic concepts of logical reasoning skills.	1, 2	Un

Department of Commerce

SEMESTER –I			
Core I	**Advanced Management Accounting**		
Course Code: 21PCOC11	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits : 4**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	understand and analyse the significance of financial statements using various tools	1,7	An
CO – 2	prepare funds flow and cash flow statements using financial statements and compute working capital	1,3	An
CO – 3	compare the financial performance of companies using common size, comparative statement and trend analysis and ratio analysis.	1,4,6	Ap
CO – 4	understand the importance of budgets, budgetary control and prepare various budgets	1,5,8	Ev
CO – 5	know the significance of standard costing and analyse the variance	2,5	Ap
CO – 6	describe Responsibility accounting and apply Management Information System	1,4,6	An.

SEMESTER –I			
Core II	**Modern Marketing**		
Course Code: 21PCOC12	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits : 4**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	understand the significance of consumer behaviour and problems of Indian Consumers..	1,3	Un
CO – 2	evaluate retailing strategies and major drivers to it.	1,3,4	Ev
CO – 3	analyse online marketing in various decision making techniques.	8	An
CO – 4	apply theories to avoid consumer exploitation.	8	Ap
CO- 5	assess how services can be marketed in an effective way.	1,2,4,6	Ev
CO – 6	understand and apply Marketing Research in business.	8	Ap

SEMESTER –I			
Core III	**Statistics for Research**		
Course Code: 21PCOC13	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits : 4**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	understand the importance of probability and theoretical distribution in statistical decision making.	1,3,4,7	Un
CO – 2	apply the sample statistics in Non parametric tests in management decision making.	1,3	Ap
CO – 3	apply analysis of variances for optimal decisions.	1,3,8	Ap
CO – 4	understand the different statistical quality control techniques like control charts.	4 ,7	Un
CO - 5	learn decision making principles under uncertainty.	3,7	Un
CO - 6	apply the Chi – Square test in statistical decisions.	1,3	Ap

SEMESTER –I			
Core IV	**Entrepreneurial Training and Development**		
Course Code: 21PCOC14	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits : 4**

Course Outcomes:

Co. No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	understand the significance of entrepreneurial skills.	1,4	Un
CO-2	know the scope for Rural Entrepreneurship	2,4	Ap
CO-3	study the concept of Women Entrepreneur	3,4,5	Ev
CO-4	know the procedure for setting up of MSME'S.	1,4	Un
CO-5	describe Project Appraisal and prepare project report	1,6,8	Ap
CO-6	identify the institutional support provided to Entrepreneurs	2,6,,8	Ev

Semester - I			
Core V	**Managerial Economics**		
Course Code:21PCOC15	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits : 4**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	understand the application of economic theories and concepts of business decision.	1,3,7	Un
CO – 2	understand the objectives of business theories of profit and problems in profit measurement.	1,7	Un
CO – 3	assess about market structure and pricing decisions.	3	Ev
CO - 4	compare about price discrimination and its types	3	Ev
CO – 5	appraise the pre-requisites of micro and macro economics	2	An
CO – 6	understand the fiscal and monetary policies and national income.	1,7	Un

SEMESTER II			
Core VI	**Organisational Behaviour**		
Course Code: 21PCOC21	**Hrs/Week: 5**	**Hrs/Sem: 90**	**Credits: 4**

Course Outcomes:

CO No.	On completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	understand the various dimensions of organizational behavior and models.	1,2	Un
CO – 2	understand the process of perception and concepts of attitude and learning	1,5	Un
CO-3	know the organisational culture, its dimensions, effects and changes, innovation and creativity	3,5,8	Ev
CO -4	understand the transactional analysis, group dynamics and conflicts	1,5	Un
Co - 5	understand the team building process	1,5	Un
Co - 6	understand the organisational change development and effectiveness	5,8	Un

SEMESTER –II			
Core VII	**Financial Management**		
Course Code: 21PCOC22	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits : 4**

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Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	understand the conceptual framework of financial management and its applications under various environmental constraints to make optimal financial decisions.	1,3,6	Un
CO – 2	understand the importance of time value of money to make optimal financial decisions.	3,7	Un
CO – 3	understand the importance and concepts of cost of capital.	1,3,4,8	Ap
CO – 4	apply the capital structure theories to make optimal business decisions.	1,3	Ap
CO - 5	apply the capital budgeting techniques in investment proposals	1,4,5	Ap
CO - 6	analyse the various methods of management of working capital such as cash , inventories, bills receivables and bills payables.	1,2,3	An

SEMESTER –II			
Core VIII	**Business Environment**		
Course Code: 21PCOC23	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits : 4**

Course Outcomes:

CO No.	On completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	understand the significance of Business Environment	1,4	Un
CO – 2	assess the various Policies and Economic reforms.	1,2	An
CO – 3	identify the various roles of Small Finance and Development Banks in Industrial Development.	3,5	Un
CO – 4	identify the various Political and Legal Environment of Business.	3,5	Un
CO- 5	discuss the Social and Actual Environment	1,7	Ev
CO-6	identify the impact of Technological Environment on Globalisation	1,8	Un

SEMESTER –II			
Core IX	**Operations Research**		
Course Code: 21PCOC24	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits : 4**

Course Outcomes:

CO No.	On completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	understand the concept of operations research.	1,3	Un
CO – 2	understand the decision making techniques which helps to solve management problems.	1,3,6	Un
CO – 3	know the impact of computers on operations research.	1,3	Un
CO-4	apply linear programming in business decision.	7,8	Ap
CO-5	examine the maximum benefit out of the available resources through decision making techniques.	1,6,7	Ap
CO – 6	apply simulation techniques	7,8	Ap

SEMESTER –II			
Core X	**Financial Markets and Institutions**		
Course Code: 21PCOC25	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits : 4**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	understand the concepts of financial system, money market and its types	1,2	Un
CO – 2	understand the constitutions, management and functions of Stock Exchange and SEBI	1,3,4	Un
CO- 3	examine the capital markets and trading stock exchanges.	1,3	Ap
CO - 4	understand the financial institutions that cater the ways of trading in OTCEI, BSE and NSE	1,6	Un
CO - 5	understand various money market instruments and their utility	1,3,4	Un
CO – 6	examine the importance of stock exchange and their functioning under Depository and NSDL	1,3,4	Ap

SEMESTER –II			
Elective I A	**Supply Chain Management**		
Course Code: 21PCOE21	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits : 4**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	understand the concept and essentials of Supply Chain Management	1,2,4	Un
CO – 2	understand the performances of Supply Chain Management	1,2	Un
CO – 3	evaluate the role of IT in Supply Chain Management and its integration.	7,8	Ev
CO - 4	identify the different types of supply chains	2,4	Un
CO - 5	examine green supply chain management	1,3,4	Ap
CO-6	analyse the case studies in supply chain management	4,5,6	An

SEMESTER –II			
Elective I B Green Marketing			
Course Code: 21PCOE21	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits : 4**

Course Outcomes:

Co.No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	discuss the concept of Green market and Green products.	1,3	Un
CO-2	assess Green Marketing and its significance.	2,4	An
CO-3	identify the factors that affect purchase decision of consumers.	3,6	Un
CO-4	use Eco friendly products.	4,6	Ap
CO-5	initiate adoption of green initiatives.	5,7	Ap
CO-6	appraise the green environment policies.	1,7	An

SEMESTER –III			
Core XI	**Advanced Corporate Accounting**		
Course Code: 21PCOC31	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits : 4**

Course outcome

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	identify the logic of Accounting Standards	1,3	Un
CO – 2	analyse the applicability of accounting standards.	4,7	An
CO – 3	apply the concept of Double Accounting system in Electricity companies.	1,6	Ap
CO – 4	apply the accounting procedure of Holding companies.	4,8	Ap
CO – 5	categorize the Accounting methods for changing prices	2,5	An
CO-6	critique the effect of changing costs and prices on affairs of a business.	1,5	Ev

SEMESTER –III			
Core XII	**Human Resource Management**		
Course Code: 21PCOC32	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits : 4**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	understand the significance of Human Resource Management.	1,3	Un
CO – 2	understand the process of recruitment, selection, placement and induction and training methods.	1,2,3	Un
CO – 3	understand the various Participative management techniques and executive development programmes.	1,7	Ev
CO – 4	understand the various compensation plans, reward system and quality of work life and apply in business	2,3, 8	Ap
CO-5	understand the safety and welfare measures and performance appraisal	1,4,8	Ap
CO – 6	understand and apply grievance handling procedures and machinery for settlement of disputes.	1,4,8	Ap

SEMESTER –III			
Core XIII	**E – Commerce**		
Course Code: 22PCOC33	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits : 4**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	explain the concepts, application and models of e-commerce.	1,2,5	Un
CO – 2	examine the concepts and application of e-market	1, 5	Ap
CO – 3	appraise the concepts and application of e-business with e-payment	1,2,5	Ev
CO – 4	analyse e-commerce Security solutions for online transactions	1,7	An
CO - 5	identify the security issues and regulatory and legal framework in e-Commerce.	1,5,6	Un
CO - 6	appraise the e-commerce laws	1,5,6	Ev

SEMESTER –III			
Core XIV	**International Business**		
Course Code: 21PCOC34	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits : 4**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	pursue a career in global business management.	1,2,3	Ap
CO – 2	identify the unique problems of foreign economic, social, political, cultural and legal environment.	4	Un
CO – 3	examine regional economic and political integration.	1,4	Ap
CO – 4	appraise accounting systems of various countries and foreign exchange with balance of payment.	3,7	An
CO-5	understand the different business centres and blocks.	8	Un
CO – 6	expose the dynamics on MNC's at International Level.	4	Ev

SEMESTER –III			
Core XV	**Research Methodology**		
Course Code: 21PCOC35	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits : 4**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	understand the research methods and steps in research process	1,2	Un
CO – 2	know the technique involved in defining a research problem and set the research design	1,2,7	Ap
CO – 3	gain knowledge on sampling design and apply it for research	2,7,8	Ap
CO – 4	understand the use of appropriate method for collection of data.	2, 3,4	An,Ap
CO – 5	process and analyze the data with appropriate statistical tools.	2,4,7	Ev
CO – 6	evaluate the result of research analysis, make suitable interpretation and use the mechanics in writing the research report.	7,8	Ev

SEMESTER –III			
Elective II A Corporate Legal Framework			
Course Code: 21PCOE31	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits : 3**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	understand the provisions of various laws for companies.	1,3,6	Un
CO – 2	understand the various Negotiable Instruments	1,8	Un
CO - 3	familiarise with the rules and regulations of SEBI	4	Ap
CO-4	know about consumer rights and identify the problems of consumers and redress the grievance.	1,8	Ap
CO-5	understand the operations of grievance redressal forum.	1,3,8	Ap
CO - 6	familiarise with the Regulatory Environment for International Business.	1,8	Ap

SEMESTER-III	
Self Study	**Stress Management**
Course Code: 21PCOSS1	**Credits:2**

Course Outcomes:

Co.No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO - 1	understand the symptoms and issues related to stress	1,3	Un
CO – 2	examine the effects and process of time management	1,4	An
CO – 3	understand the crisis management	1,7	Un
CO – 4	apply the techniques of reducing conflicts with humour	8	Ap
CO – 5	assess the ways of self development	3,7	Ap
CO – 6	manage the ‘Self’.	2, 5	Ev

SEMESTER –IV			
Core XVI	**Advanced Cost Accounting**		
Course Code: 21PCOC41	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits : 4**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSO's addressed	Cognitive Level
CO – 1	understand the application of various methods and techniques of cost accounting and develop analytical skills in them.	1,3	Un
CO – 2	understand the significance of job costing and contract costing and calculation of profit in contract costing	4,6	Ap
CO – 3	analyse the significance of process costing and its application in different industries.	4,6	Ap
CO – 4	apply the applications of Marginal costing techniques in managerial decision making.	4,6	Ap
CO - 5	apply the methods of costing used in service undertakings.	6,7	Ap
CO – 6	evaluate the inter firm comparison in managerial decision making and importance of uniform costing	6,7	Ev

SEMESTER –IV			
Core XVII	**Taxation and Tax Planning**		
Course Code: 21PCOC42	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits : 4**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO- 1	know the concepts of Direct Taxes and recent development in direct taxation.	1,3,4	Un
CO- 2	compute the different heads of income.	3,6	Ap
CO- 3	understand the various assessment procedures, returns and types of assessment	1,3	Un
CO- 4	calculate the income of individuals and H.U.F	3,6,7	Ap
CO- 5	compute Total income, TDS Advance tax and prepare tax returns and advise the assesses	3,4,6,7	Ap
CO- 6	compute the income of Firms and Tax on their Income.	4,6,8	Ap

SEMESTER –IV			
Core XVIII Computerized Accounting Packages – Tally ERP.9			
Course Code: 21PCOCR1	**Hrs/Week: 6**	**Hrs/ Sem: 90**	**Credits : 4**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	understand growth of software for accounting entry with technical advantages and fundamental concepts	1,2,4	Un
CO – 2	understand stock items, stock groups, units of measure creation with Godown transfer.	1,2,4	Un
CO – 3	procedural Create of cost categories, and classify the types of vouchers with ledger entry for the preparation of finalaccounts in Tally ERP.9 software.	1,2,4	Ap
CO – 4	learn the concept, importance and application of GST	1,4,5	Ap
CO –5	familiar with the statutory Taxation of Tally like TDS.	1,4,5	Ap
CO – 6	apply pay roll info for employee creation, pay heads, attendance in appropriate employee group	4,5	Ap

SEMESTER –IV			
Core XIX	**Retail Marketing**		
Course Code: 21PCOC44	**Hrs/Week: 6**	**Hrs/ Sem: 90**	**Credits : 4**

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSO addressed	**Cognitive Level**
CO – 1	understand the concept of Retail marketing and retailing scene in India.	1,3,4	Un
CO – 2	understand the significance and types of retailers and retail formats.	1,3	Un
CO – 3	understand the important strategies for building retail store image and retail service quality management.	1,3,4	Un
CO - 4	know the factors that affect Retail consumer Retail pricing, and merchandising.	1,4	Un
CO- 5	study the role of retail store layout and Retail Logistics.	7	Ap
CO - 6	know the uses of various technologies in Retail operations and E-Tailing	8	Ap

Department of Economics

Semester –I			
Core - I	**ADVANCED MICROECONOMIC ANALYSIS- I**		
Course Code: 21PECC11	**Hrs / Week: 6**	**Hrs / Semester : 90**	**Credits : 4**

Course Outcome:

CO. No	Upon Completion of this course students will be able to	PSO addressed	CL
CO - 1	identify and apply relevant terminology and concepts to economic issues and problems.	1	Ap
CO - 2	compare and contrast the market system of economics with other systems	3	Un
CO - 3	use demand and supply modelsin the analysis of real world issues.	5	Ap
CO - 4	use market structure models to explain and to predict businessfirm behavior	6	Ap
CO - 5	identify the basic features of alternative representations of human behaviour in economics.	2	Un
CO - 6	analysis of the economic behaviour of individuals, firmsand markets.	1	Kn

Semester –I			
Core - II	**ADVANCED MACROECONOMIC ANALYSIS- I**		
Course Code: 21PECC12	**Hrs / Week: 6**	**Hrs / Semester : 90**	**Credits : 4**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO - 1	analysis of the establishment of the functional relationship between the large aggregates.	2	Un
CO - 2	understand the macroeconomic theoretical structure that is considered essential for the proper comprehension of thedifferent issues and policies.	3	Un
CO - 3	study of Macroeconomics and analysis of body of empirical economic knowledge.	1	Kn
CO - 4	identify the determinants of various macroeconomic aggregates such as output, unemployment, inflation, productivity and the major challenges associated with the measurement of these aggregates.	6	Ap
CO - 5	discuss the linkages between financial markets and the real economy, and how these linkages influence the impact of economic policies over differing time horizons	5	Kn
CO - 6	critically evaluate the consequences of basicmacroeconomic policy options under differing economic conditions within a business cycle.	4	Ev

Semester– I			
Core - III	**STATISTICS FOR ECONOMISTS- I**		
Course Code: 21PECC13	**Hrs/Week: 6**	**Hrs/ Semester: 90**	**Credits: 4**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO Addressed	CL
CO - 1	increase the skills in describing, analysing and interpreting statistical data	3	Le
CO - 2	make basic statistical calculations and critically evaluate the basis for these calculations;	1	Kn
CO - 3	use graphical and numerical methods to calculate and illustrate descriptive statistics	5	Ap
CO - 4	identify the appropriate regression model to apply to an economics dataset	5	Ap
CO - 5	manipulate the probability models that are most widely used in economics, and apply them correctly and carry out the appropriate statistical analysis	6	An
CO - 6	use the basic concepts of probability and bayes Theorem	2	Ap

Semester– I			
Core - IV	**LABOUR ECONOMICS**		
Course Code: 21PECC14	**Hrs/Week: 6**	**Hrs/ Semester: 90**	**Credits: 4**

Course Outcome

CO. No	Upon Completion of this course, students will beable to	PSO Addressed	CL
CO - 1	understand how labour markets can be analysed from different economic perspectives	3	Un
CO - 2	obtain an understanding of how the experimental method of inquiry can be applied	1	Un
CO - 3	create, integrate and analyse labour data in preparation for bargaining	2	An
CO - 4	describe types and modules of discrimination within the work place	6	Ev
CO - 5	differentiate the collective bargaining environment between the private and public sector of the economy	5	Ap
CO - 6	use the basic concepts of labour economics with the practical laws	1	Ap

Semester– I			
Core - V	**ECONOMICS OF FARM BUSINESS**		
Course Code: 21PECC12	**Hrs/Week: 6**	**Hrs/ Semester: 90**	**Credits: 4**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO - 1	apply economic principles to understand the conduct and performance of agricultural sector.	1	Ap
CO - 2	understand the causes of green revolution.	1	Un
CO - 3	understand role and impact of institutional support to agricultural sector.	3	Kn
CO - 4	be able to demonstrate an awareness of various agricultural market structures.	6	Ap
CO - 5	understand the role of pricing policy in agricultural sector.	5	Ev
CO - 6	develop critical thinking and problem solving skills applicable to farm business and management practices	2	Kn

Semester– II			
Core- VI	**ADVANCED MICRO ECONOMIC ANALYSIS- II**		
Course Code: 21PECC21	**Hrs/Week: 5**	**Hrs/ Semester: 75**	**Credits: 4**

Course Outcome

CO. No	Upon Completion of this course, students will be able to	PSO Addressed	CL
CO - 1	identify and apply relevant terminology and concepts to economic issues and problems.	2	Ap
CO - 2	compare and contrast the market system of economics with other systems.	6	Un
CO - 3	use demand and supply models in the analysis of real-world issues.	1	Kn
CO - 4	use market structure models to explain and to predict business firm behaviour	3	Ap
CO - 5	use the theory of consumer choice to explain and to predict consumer behaviour.	5	Ap
CO - 6	students will be able to identify the basic features of alternative representations of human behaviour in economics.	1	An

Semester – II			
Core - VII	**ADVANCED MACRO ECONOMIC ANALYSIS- II**		
Course Code: 21PECC22	**Hrs/Week: 5**	**Hrs/ Semester: 75**	**Credits: 4**

Course Outcome

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO - 1	analyse of the establishment of the functional relationship between the large aggregates.	4	An
CO - 2	understand the macroeconomic theoretical structure that is considered essential for the proper comprehension of the different issues and policies.	3	Un
CO - 3	study of Macroeconomics and analysis of body of empirical economic knowledge.	2	Kn
CO - 4	understand the systemic facts and latest theoretical developments for empirical analysis.	1	Un
CO - 5	students will be able to discuss the linkages between financial markets and the real economy, and how these linkages influence the impact of economic policies over differing time horizons.	6	Ap
CO - 6	students will be able to critically evaluate the consequences of basic macroeconomic policy options under differing economic conditions within a business cycle.	2	Ev

Semester – II			
Core - VIII	**STATISTICS FOR ECONOMISTS- II**		
Course Code: 21PECC23	**Hrs/Week: 5**	**Hrs/ Semester: 75**	**Credits: 4**

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Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO - 1	increase the skills in describing, analysing and interpreting statistical data	1	Un
CO - 2	make basic statistical calculations and critically evaluate the basis for these calculations;	4	Ev
CO - 3	use graphical and numerical methods to calculate and illustrate descriptive statistics	7	Kn
CO - 4	identify the statistical concepts in questions about economic models	1	Ap
CO - 5	identify the appropriate regression model to apply to an economics dataset	6	Ap
CO - 6	manipulate the probability models that are most widely used in economics, and apply them correctly and carry out the appropriate statistical analysis	5	Kn

Semester- II			
Core - IX	**DEMOGRAPHY**		
Course Code: 21PECC24	**Hrs/Week: 5**	**Hrs/ Semester: 75**	**Credits: 4**

Course Outcome

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO -1	compare the advantages and disadvantages of the different sources of demographic data	1	Un
CO - 2	present appropriate techniques to ensure comparability of the measures across population.	2	Kn
CO - 3	describe the basic demographic indicators and elaborate on their computation and interpretation	3	Ap
CO - 4	discuss the key assumptions underlying techniques and tools.	4	Kn
CO - 5	describe the relations and calculate indicators in a stationary population.	6	Kn
CO - 6	recognize and analyse typical demographic patterns arising from the data.	7	Un

Semester- II			
Core - X	**INTERNATIONAL BUSINESS**		
Course Code: 21PECC25	**Hrs/Week: 5**	**Hrs/ Semester: 75**	**Credits: 4**

Course Outcome

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO - 1	develop communications skill through international trade in reality .	2	Ap
CO - 2	present appropriate techniques to ensure comparability of the measures to accelerate trade.	3	Kn
CO - 3	describe the basic trade rules and regulations in an elaborate way	5	Kn
CO - 4	discuss the key assumptions underlying techniques and tools.	3	Un
CO - 5	describe the relations and calculate indicators in an international trade.	4	An
CO - 6	estimate the rate of change in export and import of India.	6	Ap

Semester – II			
Core Elective - I	**FISCAL ECONOMICS**		
Course Code: 21PECC21	**Hrs/Week: 5**	**Hrs/ Semester: 75**	**Credits: 4**

Course Outcome

CO. No	Upon Completion of this course, students will beable to	PSO addressed	CL
CO - 1	describe the basic concepts and theories that explain the function and evolution of fiscal economics.	1	Un
CO - 2	demonstrate insight into the properties and role of money and other financial assets within a modern economy.	2	Kn
CO - 3	critically evaluate the functions and operations of fiscal Economics and international financial institutions.	4	Ev
CO - 4	analyse the role of the Fiscal Economy of Indian Status.	3	An
CO - 5	familiarize learners with the vital fiscal policies functions and various banking operations required for smooth functioning of a bank.	6	Ap
CO - 6	inculcate in the participants a comparative understanding of theTraditional and modern functions of fiscal policies.	7	Ap

Semester – III			
Core - XI	**HISTORY OF ECONOMIC THOUGHT**		
Course Code: 21PECC 31	**Hrs / Week: 6**	**Hrs / Semester: 90**	**Credits : 4**

Course Outcome

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO - 1	debate similarities and differences among different economy schools.	8	Ap
CO - 2	comprehend the development of the theory of economics in historical perspective.	4	Kn
CO - 3	understand the development of economic thought in the context of the evolving global economy.	1	Un
CO - 4	identify the development of economic thought from a historical perspective and how the economic thought of one historical period	2	An
CO - 5	clearly identify how economic theory has developed as a result of the evolution of economic thought.	5	Ev
CO - 6	promote the autonomy of judgment in selecting the most reliable sources of research, in applying a constructive critical approach of the research outcomes	7	Ap

Semester– III			
Core - XII	**INDIAN ECONOMY**		
Course Code: 21PECC32	**Hrs/Week: 6**	**Hrs/ Semester: 90**	**Credits: 4**

Course Outcome

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO - 1	know the development process in India after independence	1	Le
CO - 2	understand the problems and measures in their contextual perspective	3	Kn
CO - 3	identify and analyse current issues	5	An
CO - 4	analyse economic behaviour in practice	4	Ap
CO - 5	understand the economic way of thinking.	6	Un
CO - 6	create students ability to suggest of the various economic problems	8	Ev

Semester – III			
Core - XIII	**RURAL DEVELOPMENT**		
Course Code: 21PECC33	**Hrs / Week: 5**	**Hrs / Semester: 75**	**Credits : 4**

Course Outcome

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO - 1	understand different categories of rural development policies and programmes and its impact on rural poverty and unemployment.	1	Un
CO - 2	know the various advantages with regard to social upliftment especially in rural areas	3	Kn
CO - 3	inculcate about the scope, importance and sources o Rural Development Programmes	2	An
CO - 4	acquire the knowledge on rural industries and entrepreneurship and appraise the value of participatory rural appraisal and conventional methodology in solving human problems	4	Ap
CO - 5	understand the problem of rural sector, backwardness, income inequalities, regional imbalances, gender disparities and remedial measures.	5	Un
CO - 6	doctorate in Rural Development increases the chances to obtain a high profile job in future	7	Kn

Semester – III			
Core –XIV	**RESEARCH METHODOLOGY**		
Course Code: 21PECC 34	**Hrs/Week: 5**	**Hrs/ Semester: 75**	**Credits: 4**

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Course Outcome

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO - 1	understand a general definition of research design.	1	Un
CO - 2	know why educational research is undertaken, and the audiences that profit from research studies.	2	Kn
CO - 3	identify the overall process of designing a research study from its inception to its report.	3	Un
CO - 4	be familiar with ethical issues in educational research, including those issues that arise in using quantitative and qualitative research	3	Ap
CO - 5	familiar with how to write a good introduction to an educational research study and the components that comprise such an introduction	5	An
CO - 6	distinguish a purpose statement, a research question or hypothesis, and a research objective.	6	Ap

Semester – III			
Core - XV	**PUBLIC FINANCE**		
Course Code: 21PECC35	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits: 4**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO - 1	develop written and verbal skills in communicating public finance and economic perspective.	1	Un
CO - 2	describe the effects of taxation on production, distribution and economic stability, role of public expenditure in developing country	3	Kn
CO - 3	increase the student's ability to analyze public finance policies through a deeper understanding of economic behavior and incentives	2	Kn
CO - 4	analyze the fiscal policy practices in the real world using economics methods and tools.	3	An
CO - 5	demonstrate the ability to model public finance issues using fundamental fiscal and economic skills.	5	Ap
CO - 6	understand the possible burden, benefits and distribution of various types of taxes among various classes of people, know the general trend and impact on general welfare and arouse them to suggest good and bad tax system.	3	Ap

Semester- III			
Core Elective - II	**HUMAN RESOURCE MANAGEMENT**		
Course Code: 21PECE 31	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits: 4**

Course Outcome

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO - 1	explain the importance of human resources and their effective management in organizations	1	Un
CO - 2	demonstrate a basic understanding of different tools used in forecasting and planning human resource needs	3	Kn
CO - 3	ability to implement Employee benefits and Welfare measures	2	Ev
CO - 4	develop, analyze and apply advanced training strategies and specifications for the delivery of training programs	4	An
CO - 5	effectively manage and plan key human resource functions within organizations	5	Kn
CO - 6	describe trends in the labour force composition and how they affect human resource management	3	Ap

Semester - IV			
Core - XVI	**MONETARY ECONOMICS**		
Course Code: 19PECC 41	**Hrs/Week: 6**	**Hrs/ Semester: 90**	**Credits: 4**

Course Outcome

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO - 1	explain the role of short-term monetary policy, and the key strategies and techniques used	1	Un
CO - 2	calculate contemporary measures of monetary measures of performance and risk.	2	Kn
CO - 3	describe contemporary monetary risk management oversight processes	3	Kn
CO - 4	identify the major sources of short-term and long term monetary finance available to the firm.	3	Le
CO - 5	analyse financial statements using standard financial ratios of liquidity, activity, debt, profitability, and market value.	5	An
CO - 6	apply techniques to project financial statements forforecasting long-term financial needs.	4	Ap

Semester – IV			
Core - XVII	**ENVIRONMENTAL ECONOMICS**		
Course Code: 21PECC 42	**Hrs/Week: 6**	**Hrs/ Semester: 90**	**Credits: 4**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO - 1	apply microeconomic theory to the study of environmental issues.	4	Ap
CO - 2	identify and critically evaluate alternative environmental policy instruments.	3	Kn
CO - 3	develop written and verbal skills in communicating an environmental economic perspective.	2	An
CO - 4	enhance the student's ability to conduct professional economic research and to develop and present professional proposals, papers, and presentations	6	Ap
CO - 5	demonstrate the ability to model environmental policy issues using fundamental environmental and economics skills.	5	Kn
CO - 6	engage in self-directed research and learning about environmental economics.	2	Kn

Semester- IV			
Core -XVIII	**FINANCIAL INSTITUTION AND MARKETS**		
Course Code: 21PECC43	**Hrs/Week: 6**	**Hrs/ Semester: 75**	**Credits: 4**

Course Outcome

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO - 1	explain the role of short-term financial management, and the key strategies and techniques used	5	Ap
CO - 2	describe the dimensions of performance and risk relevant to financial firms.	4	Kn
CO - 3	calculate contemporary measures of financial measures of performance and risk.	2	An
CO - 4	apply techniques to project financial statements for forecasting long-term financial needs.	6	Ap
CO - 5	manage cash, marketable securities, accounts receivable and inventory.	7	Kn
CO - 6	identify the major sources of short-term financing available to the firm.	3	Un

Semester– IV			
Core -XIX	**DIGITAL ECONOMY**		
Course Code: 21PECC44	**Hrs/Week: 6**	**Hrs/ Semester: 90**	**Credits: 4**

Course Outcome

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO - 1	able to know the fundamentals of the digital economy	1	Un
CO - 2	able to evaluate the various challenges thatthe globalization of digital economy presents	3	Kn
CO - 3	having a framework for analyzing advancement in technological innovation in the global	2	An
CO - 4	development and global scope of digital economy	5	Ap
CO - 5	contemporary and potential challenges arising from global digital transformation	4	An
CO - 6	future opportunities and implications related to digital economy expansion.	7	Ap

Department of M.A.HRM

SEMESTER I			
Core I	**Principles and Practices of Management**		
Code: 21PHRC11	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits: 4**

Course Outcome

CO No.	On completion of this course students will be able to	PSOs Addressed	CL
CO-1	understand the managerial function, role of manager and managerial skills.	1,3,5	Un
CO-2	gain knowledge on the development of managerial thought.	1	Un
CO-3	examine the concepts of planning to make planning effective.	1,3	An , Cr
CO-4	analyse the concept of organizing and departmentation and identify the need, strategy for planned change and organisational development	1,3	An
CO-5	gain knowledge on decision making and co-ordinating .	1,3,5	Un
CO-6	analyse the stages of conflict and management of conflict.	1,3,5	Ap , An

SEMESTER I			
Core II	**Human Resource Management**		
Code: 21PHRC12	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits: 4**

Course outcome:

CO No.	Upon completion of this course students will be able to	PSOs Addressed	Cognitive Level
CO -1	summarize the concepts of Human Resource Management	1	Un
CO-2	interpret the objectives, scope, functions, importance and evolution of HRM and personnel Management.	1	Un
CO-3	examine the approach and process of job design, job analysis, job specification and job description.	1	An
CO-4	formulate the process of selection, placement.	5	An, Cr
CO-5	understand and explain and analyse the induction programme.and evaluate job satisfaction, morale, industrial peace and harmony.	1	Un, An, Ev
CO-6	examine the process of performance appraisal and potential appraisal and understand the concept of QWL and QC	1	An, Un

SEMESTER I			
Core III	**Accounting for HR Managers**		
Code: 21PHRC13	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits: 4**

Course Outcome

CO No.	On completion of this course students will be able to	PSOs Addressed	CL
CO-1	understand the concept of accounting	1,4	Un , Re
CO-2	prepare final accounts	1,4	Ap
CO-3	understand the nature ,scope and functions of managerial accounting.	1,4	Un , Re
CO-4	prepare cash flow statement and able to use the various types of ratios for managerial decision.	4,6	Ap, An ,Cr
CO-5	prepare fund flow statement and apply accounting knowledge for planning and control.	1,4,6	Ap, Un
CO-6	understand the objectives and steps in budgetary control and prepare the various types of budget.	4,6	Un , Ap

SEMESTER I			
Core IV	**Organisational Behaviour**		
Code: 21PHRC14	**Hrs/Week: 6**	**Hrs/Sem: 60**	**Credits: 4**

Course Outcome

CO No.	Upon completion of this course students will be able to	PSOs Addressed	CL
CO-1	understand the concept of Organisational behaviour and Personality.	1,3	Un
CO-2	gain insights on Perception and Attitude.	3	Re
CO-3	understand the concept of Learning and evaluate the Organisation Change.	3	Un, Ev
CO-4	examine the concepts and theories of Motivation, Organisational Development and Effectiveness and Leadership.	1,3	An
CO-5	understand the Characteristics and types of Group behaviour.	3	Un
CO-6	describe and apply the concept of Team Building.	1,3	Re , Ap

SEMESTER I			
Core V	**Industrial Relations**		
Code: 21PHRC15	**Hrs/Week: 6**	**Hrs/Sem: 60**	**Credits: 4**

Course Outcome

CO No.	On completion of this course students will be able to	PSOs Addressed	C L
CO-1	understand the interaction pattern among labour, management and the State and have a basic knowledge of the Indian Industrial Relations System and it's distinctive features.	2 ,1	Un
CO-2	understand the various approaches to Industrial Relations.	2,3	Un
CO-3	examine the concepts, functions, structures and evaluate the problems of trade union.	2	Ev
CO-4	understand the importance, types and process of collective bargaining and discuss the negotiation process during collective bargaining.	2,3	Re , An
CO-5	analyse and apply the concept, forms ,levels of WPM and evaluate the reasons for failure of WPM.	2,3	An, Ap
CO- 6	be efficient enough to handle the grievance measures according to the changing scenario of social and industrial environment.	2,3	Un, Ap

SEMESTER II			
Core VI	**Human Resource Planning and Development**		
Code: 21PHRC21	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits: 4**

COURSE OUTCOME:

CO No.	On completion of this course students will be able to	PSOs Addressed	CL
CO-1	understand the objectives, importance and techniques of human resource planning and discuss the concept of employee empowerment.	1,3,5	Re, Un
CO-2	know the concepts of job evaluation and job performance.	1,5	Re
CO-3	recall the process, system and strategies of hrd. understand the features and process of career planning.	1	Re
CO-4	recall and interpret the objectives, scope and steps in hr audit.	1,5	An
CO-5	examine the ethical issues in organization and the factors influencing ethical behaviour at work.	1	An
CO-6	discuss the concept of international human resource management	1,3	Re, Un

SEMESTER II			
Core VII	**Behavioural HRM**		
Code: 21PHRC22	**Hrs/Week: 6**	**Hrs/Sem: 60**	**Credits: 4**

Course Outcome:

CO No.	Upon completion of this course students will be able to	PSOs Addressed	CL
CO-1	acquire the basic knowledge of psychology of Human Resource Management.	3	Un
CO-2	understand the schools of psychology.	3	Un
CO-3	understand the theories and measurement of intelligence.	1,3	Un
CO-4	understand the concept, types and factors influencing perception and examine the functions of industrial psychologist.	1,3	An, Un
CO-5	know the process of learning, aptitude and attitude.	3	Un , Ap
CO-6	determine the factors, causes, effects, classification of adjustment and develop ways to manage stress and discuss the meaning, factors, theories and identify the ways of measuring personality.	1,3	Ev, Ap

SEMESTER II			
Core VIII	**Labour Legislation**		
Code: 21PHRC23	**Hrs/Week: 5**	**Hrs/Sem: 90**	**Credits: 4**

Course Outcome:

CO No.	**On completion of this course, students will be able to**	**PSOs Addressed**	**CL**
CO-1	gain knowledge of labour laws and enable the students to acquire skills to handle employment relations.	2	Un , Ap
CO-2	familiarise the students to the practical problems inherent in the implementation of the labour statutes.	2	Un ,Ev
CO-3	understand the basic concepts of Labour Legislation and labour related provisions in the constitution of India.	2	Un ,Ev
CO-4	understand the structure and functioning of ILO and be competent with the various legal aspects of women and children.	2	Un, Ap
CO-5	examine the Acts related to health, safety and welfare and make use of the Acts in case of Factories contract labourers and plantation labours. And interpret the knowledge in laws related to society security and apply the laws according to the needs.	2 ,5	Un , Ap
CO-6	understand the implications of labour laws for industrial relations to know how to resolve industrial relations and human relations problems and promote welfare of industrial labour.	2	Un , Ap

SEMESTER II			
Core IX	**Recruitment and Selection Procedures**		
Code: 21PHRC24	**Hrs/Week: 5**	**Hrs/Sem: 90**	**Credits: 4**

Course Outcome:

CO No.	Upon completion of this course students will be able to	PSOs Addressed	CL
CO-1	understand the skills needed for recruitment and selection.	5	Un
CO-2	understand the meaning, sources, advantage and disadvantages of internal and external hiring and illustrate the process of internal and external hiring.	5	Un , Ap
CO-3	write application form, bio data and resume and design different ability tests and practice interview techniques.	5	Cr, Ap
CO-4	determine the features, purpose, types, process, advantage and disadvantage of testing and interviewing.	5	Ev
CO-5	discuss the purpose, methods of collecting reference data, contents of appointment order and medical examination and develop appointment orders.	5	Un ,Cr
CO -6	describe the meaning, functions, objective, importance of recruitment and hiring process.	5	Un

SEMESTER II			
Core X	**Total Quality Management**		
Code: 21PHRC25	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits: 4**

Course Outcome

CO No.	On completion of this course students will be able to	PSOs Addressed	CL
CO-1	discuss the concept of quality and total quality management.	4	Un
CO-2	gain insights on TQM approaches and knowledge on the tools and techniques of TQM.	4 ,6	Ev ,Re, Ap
CO-3	define and list the steps in supplier partnering and state the Quality systems and ISO 9000	4	Re
CO-4	gain knowledge on the concept of six sigma and quality circles	4	Re , Ap
CO-5	discuss the concept of benchmarking	4	Un
CO-6	examine ISO 14000.	4	An

SEMESTER II			
Core XI Practical –I	**Skills for HR Managers**		
Code: 21PHRCR1	**Hrs/Week: 4**	**Hrs/Sem:60**	**Credits: 3**

Course Outcome

CO No.	On completion of this course students will be able to	PSOs Addressed	CL
CO-1	become self-confident individuals by mastering the skills needed.	5& 8	Ap
CO-2	develop the way of thinking to increase creativity and critical thinking.	5& 8	Un , ap
CO-3	converse fluently in English and obtain a sense of responsibility for the multi-disciplinary nature of event management.	5& 8	Un, Cr
CO-4	develop proper dressing skills and business dining etiquette effectively.	5& 8	Cr
CO-5	create newsletters, magazines and also write reviews on books and films.	5& 8	Ap , Cr
CO-6	create blogs and design brochures and develop better workplace etiquettes.	5& 8	Un ,Ap

SEMESTER III			
Core XII	**Research Methodology**		
Code: 21PHRC31	**Hrs/Week: 5**	**Hrs/Sem:90**	**Credits: 4**

Course Outcome

CO No.	**Course Outcome** On completion of this course students will be able to	**PSOs Addressed**	**CL**
CO-1	help students develop a thorough understanding of the fundamental theoretical ideas and logic of research.	7	Ap
CO-2	understand the objectives of research, types of research and criteria of good research and also decide the methods of data collection and process of data collection.	7	Un , An
CO-3	demonstrate the research problem and research design and experiment with the collection, processing and interpretation of data.	7	Ap
CO-4	gain knowledge of sampling design and scaling techniques and demonstrate the knowledge of scaling methods.	7	Un ,Ev
CO-5	train students in learning the accepted formats for writing research report.	7	An
CO-6	analyse the findings and formulate their own reports.	7	Cr

SEMESTER III			
Core XIII	**Compensation Management**		
Code: 21PHRC32	**Hrs/Week: 5**	**Hrs/Sem:75**	**Credits: 4**

Course Outcome

CO No.	**Course Outcome** Upon completion of this course students will be able to	**PSOs Addressed**	**CL**
CO-1	summarize the concepts of Compensation Management.	5	Un
CO-2	describe the objectives, types, theories, factors of compensation administration and demonstrate compensation administration.	5	Un
CO-3	understand and calculate compensation structure and ESOP	5	Un , Ap
CO-4	examine the legal framework of wages and salary administration and investigate the types of Fringe benefits and other benefit programmes.	2	An
CO-5	determine the determinants and types of incentives.	5	Ev
CO-6	understand the types of rewards for employees and the meaning, objectives, features and forms of employee benefits and services.	5	Un

SEMESTER III			
Core XIV	**Statistics for Management**		
Code: 21PHRC33	**Hrs/Week: 5**	**Hrs/Sem:90**	**Credits: 4**

Course Outcome

CO No.	On completion of this course students will be able to	**PSOs Addressed**	**CL**
CO-1	learn the basic statistical methods with a focus on the application of these methods to the business world.	6 ,7	Ap
CO-2	understand the basic statistical concepts such as types of data, classification of data, frequency distribution and construct frequency distributions.	6 ,7	Un ,Ap
CO-3	become aware of the concepts of sampling, sampling distributions and estimation.	6 , 7	An
CO-4	understand the concept and steps of performing a hypothesis (z, t, F) test and use it as a tool for statistical decision making in a business context.	6 ,7	An ,Ev
CO-5	understand the assumptions of an ANOVA model and apply ANOVA in a business context and to use correlation and regression models to analyse the relationships between variables.	6 , 7	Un , Ap
CO-6	understand the concept of Chi-square and use it as an analytical tool for making business decisions and to appreciate the importance and application of non parametric tests.	6 , 7	Un ,Ap

SEMESTER III			
Elective I	**Performance Management**		
Code:21PHRE31	**Hrs. / Week : 4**	**Hrs / Sem : 60**	**Credits: 3**

Course Outcome

CO No.	**On completion of this course students will be ableto**	**PSOs Addressed**	**CL**
CO-1	acquire in-depth knowledge about performance management.	5	Un
CO-2	gain a working knowledge of performance management systems.	5	Un
CO-3	distinguish between performance management and performance appraisal	5	Ev
CO-4	understand about KPA's and KRA's and acquire knowledge about the performance evaluation.	5	Un
CO-5	the different methods of measuring performance	5	Un
CO-6	gain knowledge and analyse about the different performance tools and learn and conduct appraisal interviews and BARS	5	Un ,An , Ap

SEMESTER III			
Elective I	**Business Ethics and Governance**		
Code: 21PHRE31	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits: 3**

Course Outcome

CO No.	**Course Outcome** On completion of this course students will be able to	**PSOs Addressed**	**CL**
CO-1	understand the nature and characteristics of Business ethics and identify the challenges and implementation of Corporate Sociql Responsibility.	6	Un, Ap
CO-2	gain Knowledge on the Evolution of Business Ethics and Kohlber's Six Stage Moral Development .	6	Un
CO-3	examine the concepts of management of ethics in the wake of changing business ambience.	4,6,7	An , Ap
CO-4	analyse the role and function of ethical managers in real-life situations.	5,6	An , Ap
CO-5	gain knowledge on the Legal Aspects of Ethics and Economic Environment and its implications for business.	4,6,7	Un
CO-6	gain knowledge on the concept of corporate governance and analyse the cases in Corporate Governance.	4,6	Ap , An

SEMESTER III			
Elective II	**Business Environment**		
Code: 21PHRE32	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits: 3**

Course Outcome

CO No.	On completion of this course students will be able to	**PSOs Addressed**	**C L**
CO-1	understand the Overview of Business Environment	4	Un
CO-2	gain knowledge of Business and Its Environment and the influence of the forces in the external environment.	4,6	An ,Ev
CO-3	understand the concept of Economic System and explain the Economics of development and help in preparing appropriate strategies for organisations to face the challenges.	4	Un ,Re
CO-4	understand the concept of Political Environment and gain knowledge of the technological developments and the impact of informational technology.	4	Un ,Ap
CO-5	gain knowledge of the Economic Environment	4,6	Un , An
CO-6	understand the influence of Social Environment in business.	4,6	Un ,Ap

SEMESTER- III			
Elective II	**Managerial Economics**		
Code: 21PHRE32	**Hours / Week :4**	**Hrs / Semester: 60**	**Credits :3**

Course Outcome

CO No.	On completion of this course students will be able to	**PSOs Addressed**	**CL**
CO-1	understand the concept of managerial economics.	4	Un
CO-2	gain knowledge on the nature and scope of Managerial Economics.	4	Re
CO-3	understand and determine the types of demand	4	Un , Ap
CO-4	infer the supply factors	4	Re
CO-5	understand the concept of production and cost and gain knowledge on the monetary and fiscal policies..	4	Un , Ap
CO -6	gain knowledge of market structure , pricing and insights to the macro economic factors.	4	Un , Ap

SEMESTER III			
Core XV	**Summer Internship**		
Code: 21PHRI31	**Hrs/Week 7**	**Hrs/Sem 105**	**Credits: 5**

Course Outcome

CO No.	**Expected Learning Outcome** On completion of this course students will be able to	**PSOs Addressed**	**CL**
CO-1	collect data and submit a comprehensive report on the objective of their internship topic.	8	Cr
CO-2	compare their theoretical knowledge with the professional environment.	8	An
CO-3	gain exposure about industry and understand the current management practices.	8	An , Ap

SEMESTER IV			
Core XVI	**Strategic Human Resource**		
Code: 21PHRC41	**Hrs/Week: 6**	**Hrs/Sem:90**	**Credits: 4**

Course Outcome

CO No.	On completion of this course students will be able to	**PSOs Addressed**	**CL**
CO-1	understand the kinds of strategies and importance of strategic management and the features of effective evaluation and control.	3,7	Un
CO-2	gain knowledge of strategic management process.	3	Un
CO-3	understand the strategy formation for objectives, policies and company mission.	1,3	Un
CO-4	analyse the strategy for internal and external environment.	3	An
CO-5	gain knowledge and use the business level strategy .	3,6,7	Re , Ap
CO-6	evaluate the corporate level strategy and describe the concept of strategy implementation.	3,6	Ev , Re

SEMESTER IV			
Core XVII	**Human Resource Information System**		
Code: 21PHRC42	**Hrs/Week: 6**	**Hrs/Sem:75**	**Credits: 4**

Course Outcome:

CO No	**Course Outcomes** On completion of this course, students will be able to	**PSOs Addressed**	**CL**
CO-1	describe the role of Human resource Information Systems in business and understand the concepts and methods of HR accounting.	7	Un
CO-2	understand the concepts of HRIS and evaluate the usage of different software packages for HRIS.	7	Un, Ev
Co-3	effectively utilize database, DBMS and RDBMS to organise, store and retrieve data.	7	Un , Ap
CO-4	create database using MS – Access.	7	Un, Ap
CO-5	evaluate the steps in system development, and describe the process of system design and implementation.	7	Un, Ev
CO-6	discuss the types of IS threats and various kinds of security technology and emerging trends of HRIS and outsourcing of HR.	7	An

SEMESTER IV			
Core XVIII	**Training and Development**		
Code: 21PHRC43	**Hrs/Week: 5**	**Hrs/Sem:75**	**Credits: 4**

Course Outcome

CO No.	**Course Outcome** Upon completion of this course students will be able to	**PSOs Addressed**	**CL**
CO-1	understand the meaning, objectives, values, Difference between training, development and education.	5	Un
CO-2	analyse the types, benefits principles and changing facets in training and discuss the need, approaches and examine the types and stages of evaluation.1.	5	An ,Un
CO-3	identify the roles and responsibilities of trainers.	5	Ev
CO-4	illustrate the needs, identification of needs and process of training	5	Ap
CO-5	discuss the different methods of training and determine the training method necessary for training.	5	Cr, Ev
CO-6	describe the different types of training tools and recommend it for training purposes.	5	Un, Ev

SEMESTER IV			
Core XIX	**Coaching , Mentoring and Counselling**		
Code: 21PHRC44	**Hrs/Week: 5**	**Hrs/Sem:75**	**Credits: 4**

Course Outcome

CO No.	**Course Outcome** Upon completion of this course students will be able to	**PSOs Addressed**	**CL**
CO-1	understand the concepts of Coaching, Mentoring and Counselling. And identifying Roadblocks.	3	Un , Ap
CO-2	understand and exhibiting skills of coaching techniques.	3	Un
CO-3	understand the concepts of mentoring and stages of mentoring relationship.	3	Un
CO-4	explain the counselling types and distinguish between individual and group counselling.	3	Un ,Cr
CO -5	describe the principles, functions, goals, concept and roles of employee counselling.	3	Un
CO-6	evaluate the problems faced by employees in industries and learn about creating a physical environment for rapport building.	3	Ev , An

SEMESTER IV			
Core XX	**Project**		
Code: 21PHRP41	**Hrs/Week: 8**	**Hrs/Sem:120**	**Credits: 8**

Course Outcome

CO No.	**Expected Learning Outcome** On completion of this course students will be able to	**PSOs Addressed**	**CL**
CO-1	collect data and analyse the data using research methods and techniques.	8,10	Cr
CO-2	compare their theoretical knowledge with the professional environment and enrich their competencies, Knowledge and skills.	10	An
CO-3	produce reports and recommend changes in human resource practices.	8,10	Cr &Ev