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

2019 - 21

M.A. English

SEMESTER - I			
Core I	**British Poetry**		
19PENC11	**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	discuss British poetry from the earliest era to the modern	4	Un, An
CO-2	understand social, political and intellectual contexts of Elizabethan England	1	Un, An
CO-3	analyse the influences of a variety of cultures on the development of early British Literature	3	Re, An
CO-4	distinguish the artistry of early British poets	2	Re, An
CO-5	originate the impetus to master the literary canon of the representative poets	1, 2	Un, Ap, An
CO-6	cultivate in them the impetus to master the representative writers	8	Un, Ap
CO-7	develop their abilities to interpret, analyze and evaluate poems in the perspective of literary history and theory	2	Ap, Ev
CO-8	build knowledge of the content and methods of literary studies	3	Re, Un

SEMESTER - I			
Core II	**British Prose**		
19PENC12	**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	display a working knowledge of the historical and cultural contexts of British prose pieces.	1	Un, An
CO-2	identify and describe distinct literary characteristics of British prose.	2	Re, An
CO-3	relate the greatness of major prose writers and their relationships to the significant literary traditions of their time.	4	Un, Ap
CO-4	communicate ideas related to the distinct characteristics of British prose.	7	An, Ev
CO-5	classify the dimensions of British Literature in the universal context.	6	An
CO-6	acquire a comprehensive knowledge of British prose.	3	Un
CO-7	cultivate necessary impetus to study more of the representative prose writers.	1, 2	Ap, Cr
CO-8	label the characteristics of literature in English from the contemporary literary historical period and culture.	3, 4	An, Ev

SEMESTER - I			
Core III	**Indian Writing in English**		
19PENC13	**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	analyse major movements and figures of Indian Literature in English.	1	Un, An
CO-2	create literary sensibility and emotional response to the Indian context in the literary texts.	2	Re, Cr
CO-3	appraise the wide spectrum of Indian writing in English.	4	An, Ev
CO-4	perceive the values and the human concern inherent in the Indian cultural context.	5	Re,Un
CO-5	modify Indian sensibility and contrive new vistas to the issues at hand.	7	Ev, Cr
CO-6	acquire the philosophy of Indian thinkers.	2,3	Un
CO-7	learn the meaning of 'Indianness' through representative works.	2, 4	Un, An
CO-8	explore Indian identity, values and morals.	4	An

SEMESTER - I			
Core IV	**American Literature**		
19PENC14	**Hrs / Week: 4**	**Hrs / Semester: 60**	**Credits: 4**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	explain the historical and literary contexts, genres and themes and ethical dimensions of representative works of American literature.	2	Re, Un
CO-2	survey a diverse group of authors and reveal the evolving American experience and character.	3	An, Ev
CO-3	analyse major movements and figures of American Literature.	5	An
CO-4	discuss the strengths, limitations, and cultural assumptions of various literary forms practised in America.	4	Un, An
CO-5	evaluate the roles which gender, race, age, class, ethnicity and geography have played in creating American ethnic literature.	6	An, Ev
CO-6	understand the dimensions of American Literature in the universal context.	1, 2	Un
CO-7	acquire a historical and socio-cultural background of American Literature.	3	Un
CO-8	critically examine the works of representative writers of American Literature.	1	Ap, An

SEMESTER - I			
Elective I A	**Computer Literacy**		
19PENE12	**Hrs / Week: 4**	**Hrs / Semester: 60**	**Credits: 3**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	demonstrate basic computer operational skills.	7	Un
CO-2	update knowledge through electronic resources.	8	Un, Ap
CO-3	design the study material and enhance its effectiveness through presentation programme.	6	Ap, Cr
CO-4	utilize their operational skills through e- platform.	10	Ev, Cr
CO-5	adapt the application skills in their career in future.	9	Ap, Cr,
CO-6	carry out computer-oriented projects.	5, 6	Cr
CO-7	acquire knowledge of the latest trends in Information Technology and assessment techniques.	6, 7	Un
CO-8	design teaching modules using multimedia	6	Ap, Cr

SEMESTER - I			
Elective I B English Literature for Career Advancement			
19PENE11	**Hrs / Week: 4**	**Hrs / Semester: 60**	**Credits: 3**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	demonstrate a broad knowledge of major and minor authors, major texts and contexts.	7	Un, Ap
CO -2	formulate an excellent foundation for a very wide range of careers.	8	Cr
CO -3	develop expertise ideally suited to a range of careers in the age of information.	6	An, Cr
CO -4	improve the objective knowledge of the subject required for the career paths.	10	An, Ev
CO -5	modify competencies necessary for success in the job market, or in furthering their academic career.	9	Ev, Cr
CO – 6	prepare themselves for a career.	5, 6	Cr
CO – 7	face NET/SET and other competitive examinations.	6, 7	Re, Ap
CO - 8	Appreciate and enjoy the rich cultural background and grandeur of English Literary trends.	6	Un, An

SEMESTER – I			
Elective II A	**Eco Literature**		
Code: 19PENE12	**Hrs/week : 4**	**Hrs/Sem : 60**	**Credits : 3**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	analyze eco- consciousness in literature.	3	An
CO-2	relate environment and living through literature.	3, 7	Ap
CO-3	analyse Literature in its universal context of the environment.	3, 4	An
CO-4	acquire an in-depth analysis and relationship between Literature and physical environment.	4, 8	Un
CO-5	explore the themes of Eco Literature.	7, 8	An
CO-6	acquaint themselves with the recent trends and current theories on Eco Literature.	2, 3	Un
CO-7	apply the current theories and analyse their impact on literature.	5, 7	Ap, An
CO-8	appreciate the literary value of Eco Literature.	4, 8	Re, Ap

SEMESTER – I			
Elective II B	**Journalism and Mass Communication**		
Code:19PENE12	**Hrs/week : 4**	**Hrs/Sem : 60**	**Credits : 3**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	acquire knowledge in the theories and principles of Journalism.	5	Un
CO-2	acquire hands-on experience in reporting, editing and other aspects of journalism.	6, 8	Ap, Cr
CO-3	develop their communicative skills in print media with emphasis on writing, interviewing, observing, reacting and synthesizing.	5, 6	Ap, Cr
CO-4	acquire experience in written analysis, reporting and data collection.	5, 7	Ap, Cr
CO-5	contribute to journals and magazines.	7, 8	Cr
CO-6	understand the legal, moral and ethical responsibilities inherent in a free press.	3, 4	Un
CO-7	acquire an awareness of the world around him, both social and political.	2, 3	Un
CO-8	create and design emerging media products, including blogs, digital audio, digital video, social media, digital photography, and multimedia.	5, 6, 8	Ap, Cr

SEMESTER – II			
Core V	**British Drama**		
Code : 19PENC21	**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 representative dramas in British Literature	1	An
CO-2	develop methods for critical interpretation through reading	3	Ap
CO-3	discuss the aesthetic, cultural and historical aspects of British Drama	4	An
CO-4	value the artistic and innovative use of language employed by the representative dramatists	5	Ev
CO-5	improve the skills of critical thinking, elucidation and effective writing	8	Cr
CO-6	enhance critical outlook on the representative dramatists	7	Cr
CO-7	get a comprehensive picture of the contemporary age	3	Un
CO-8	analyze the unique difference in the theme and stylistic features of British Drama	5	An

SEMESTER –II			
Core VI	**Critical Theory-I**		
Code : 19PENC22	**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 theories of various early schools of criticism	8	An
CO-2	apply literary terminology for narrative, poetic and dramatic genres	5	Ap
CO-3	modify their perspectives of various trends in criticism	4	Ev
CO-4	assume a greater sense of how rhetoric and literary principles function to shape society and culture	3	Ev
CO-5	make use of critical theories to interpret literary texts	8	Ap
CO-6	apply theories of various schools of criticism	6	Ap
CO-7	interpret literary texts with literary theories	1	Cr
CO-8	develop their critical perspectives of various trends	5	Ap

Semester – II			
Core VII	**Women's Writing**		
Code : 19PENC23	**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	spell the range of feminist perspectives on literature	8	Re
CO-2	explore the writer's philosophy, aesthetics and techniques	4	Ev
CO-3	analyse women writers from the sixteenth to the twentieth century, who wrote about womanhood and authorship	1	An
CO-4	classify the changing role women have experienced culturally, sexually, and psychologically through their writing	3	Ev
CO-5	discuss the women writers who challenged gender stereotypes and questioned the patriarchal status quo	6	An
CO-6	explore the ideologies of women writers across cultures	1	Cr
CO-7	understand the nuances of women's writings in English	2	Un
CO-8	discuss questions of social conflict as they are reflected in works of literature	4	An

Semester – II			
Core VIII	**Religion and Literature**		
Code : 19PENC24	**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	develop and apply critical toolkit to the study of religion and religious traditions	2	Ap
CO-2	understand and interpret religious traditions by examining religion as historical, social and cultural phenomena	3	Un
CO-3	explore philosophical, psychological and cognitive dynamics of religion	1	Ev
CO-4	focus on the plurality of religious voices and expressions	2	Un
CO-5	evaluate the significance of certain literary works in shaping larger social, cultural and historical contexts	3	Ev
CO-6	interpret and explain religion emphasizing systematic, historically based and cross cultural perspectives	3	An
CO-7	demonstrate how social, cultural contexts influence the construction of literary works	8	Cr
CO-8	distinguish among various kinds of evidence by identifying reliable sources and valid arguments	4	An

SEMESTER – II			
Elective III A	**Psychology and Literature**		
Code : 19PENE21	**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	assess the ways in which various aspects of identity, subject positions and affiliations influence the development of literary traditions	3	Ev
CO-2	appraise how race, gender, class and sexuality influence psychology concepts and literature	4	An
CO-3	develop an understanding of the various types of development that an individual experiences across the life- course	6	Un
CO-4	demonstrate an understanding of human experiences through the study of literature	2	Ap
CO-5	analyze and relate psychological theories in literary context	1	An
CO-6	critically examine the relation between life and literature	3	Ev
CO-7	understand the depth and range of psychologists' unique vision	1,3	Un
CO-8	critically evaluate literary writings in its modern context	1	Ev

SEMESTER – II			
Elective III B	**Communication Skills**		
Code 19PENE21	**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	display competence in oral, written and visual communication	2	Ap
CO-2	originate a uniquely practical and creative grasp of the English language	3	An
CO-3	demonstrate appropriate and professional ethical behaviour	2	Ap
CO-4	expose themselves to various forms of personal and professional communication	4	Un
CO-5	hone effective communication skills in a modern, globalised context	5	Cr
CO-6	prepare themselves for a career	6	Cr
CO-7	develop artistic and innovative use of language	8	Cr
CO-8	enhance their literary and linguistic competence	6	Cr

SEMESTER – II			
Elective IV A	**English Language Teaching**		
Code: 19PENE22	**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	compare and contrast language structures and explain the relationship between language and literature	1	Ev
CO-2	originate a uniquely practical and creative grasp of the English language	5	Cr
CO-3	develop pedagogic skills required for teaching English	8	Ap
CO-4	adapt methods of teaching English for different levels	5	Ap
CO-5	appraise the ways in which the content could be taught through whole class activities, pair work and small group or individual activities	3	An
CO-6	prepare themselves for a career	6	Ev
CO-7	develop artistic and innovative use of language	6	Ap
CO-8	enhance their literary and linguistic competence	8	Cr

SEMESTER – II			
Elective IV B	**Comparative Literature**		
Code 19PENE22	**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	gain knowledge on the study of Indian Literature and the importance and influence of European language and literature on the Indian language and literature	1	Un
CO-2	look beyond the national frontiers of languages and cultures	2	Un
CO-3	examine the divides that exist between tradition and modernity	4	Ev
CO-4	understand literature across linguistic and cultural borders	3	Un
CO-5	analyze the methodological problems in the practice of comparative literature	7	An
CO-6	explore the global diversity of literary forms	6	Cr
CO-7	acquaint themselves with a broad range of interdisciplinary and cross cultural perspectives	8	Un
CO-8	respond articulately to literary works both orally and in writing	7	Ev

SEMESTER III			
Core IX	**British Fiction**		
Code : 19PENC31	**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 social and cultural background of the British writers.	1,2	Un
CO-2	analyse the socio-cultural problems reflected in the novels	5	An
CO-3	acquire a comprehensive knowledge of British novels.	2	Un, An
CO-4	relate how language shapes human understanding.	4	An
CO-5	differentiate the uniqueness of British fiction from their counterparts belonging to other nationality.	4,5	Ap
CO-6	develop a fascination to write fiction.	5	An
CO-7	evaluate the theme and the nuances of narrative techniques employed in British fiction.	7,8	An
CO-8	modify their perspective of reading and to kindle the spirit of doing research.	6,7,8	Cr

SEMESTER III			
Core X	**Critical Theory – II**		
Code : 19PENC32	**Hrs / Week : 6**	**Hrs / Sem : 90**	**Credits:4**

CO.No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	understand different schools of criticism	1	Un
CO-2	evaluate literary texts with a critical outlook	2	Ev
CO-3	develop the ability to apply the theories in their endeavour on an in depth study of a literary text.	8	Cr
CO-4	analyse recent developments in complex critical theories.	6	An
CO-5	interpret literary texts based on the knowledge of the critical theories.	5	Ap
CO-6	locate the dominance of either the creative faculty or the critical faculty present within them	3	Un
CO-7	define the function of theories in literary works.	5	Re
CO-8	read text between lines.	8	Ev

SEMESTER III			
Core XI	**Study of the English Language**		
Code : 19PENC33	**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 phonological aspects of English Language	2	Un
CO-2	evaluate the relationship between phonetics and phonology.	5	Ev
CO-3	construct grammatically correct sentences	6	Cr
CO-4	imbibe an in depth knowledge of the phonology of the English language	3	Ap
CO-5	enhance writing competency	6	Cr
CO-6	categorise the different types of phonemes.	4	An
CO-7	identify the basic units of phonology.	4	An
CO-8	explain distinctive feature theory.	2	Un

SEMESTER III			
Core XII	**Research Methodology**		
Code : 19PENC34	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcome:

CO.No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	understand the process involved in writing a thesis.	5	Un
CO-2	apply and incorporate the mechanics of writing while writing research papers	4	Ap
CO-3	learn how to document the collected sources.	6	Re
CO-4	develop the ability to identify the different forms of plagiarism and avoid them in writing.	2	Re
CO-5	organise the research paper coherently.	8	Cr
CO-6	design quality research papers.	8	Cr
CO-7	edit research articles.	8	Cr
CO-8	define the purpose of research.	4	Re

SEMESTER III			
Elective V A	**Translation: Theory and Practice**		
Code : 19PENE31B	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 3**

Course Outcome:

CO.No	Upon Completion of this course, students will be able to	PSO addressed	C L
CO-1	evaluate the history of translation of works	4	Un
CO-2	apply the various theories and techniques of translation while translating a literary piece.	6	Ap
CO-3	locate and synthesise cultural complexities involved in translation.	8	Co
CO-4	evaluate the resultant change of meaning evolved in the process of translation.	2	Ev
CO-5	develop their ability to translate.	6	Re
CO-6	compile new terms of expression from different fields.	3	Re
CO-7	interpret the difficulties involved in translation.	5	Un
CO-8	evaluate personal language skills.	4	Ev

SEMESTER III			
Elective V B Transformational Generative Grammar			
Code : 19PENE31	**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	evaluate the linguistic aspects of English Language	1	Ev
CO-2	interpret the structure of English language	5	Ap
CO-3	formulate grammatically correct sentences	8	Cr
CO-4	imbibe an in depth knowledge of the morphology of the English language	3	Ap
CO-5	enhance writing competency	8	Cr
CO-6	categorise the structure of the Phonemes.	4	An
CO-7	compile analytically the different types of Morphemes.	6	An
CO-8	analyse syntactic theories.	2	An

1.

SEMESTER III			
Elective VI A	**Travel Literature**		
Code : 19PENE32	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 3**

Course Outcome :

CO.No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	read the rhetoric of travel writing.	4	Un
CO-2	demonstrate a sound knowledge of the various primary sources studied.	6	Ap
CO-3	develop their critical thinking and reach conclusions both about the society observed and the subjectivity of the observer in the prescribed texts.	6	Re
CO-4	analyse the theoretical issues involved in using colonial and travel literature as a source.	2	An
CO-5	evaluate the concepts and issues such as race, gender, class, caste, criminality coercion, resistance, identity etc.	2	Ev
CO-6	interpret different historical methodologies, travel texts theoretical properties.	5	Ap
CO-7	locate the theoretical positions of ‘gaze’ and there by infer as to how it infiltrates the society at large.	8	Co
CO-8	disseminate the acquired knowledge of the uniqueness of other cultures worldwide to their own .	4	An

SEMESTER III			
Elective VI B Detective Fiction			
Code : 19PENE32	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 3**

Course Outcome:

CO.No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	recognize genre conventions specific to detective fiction across different media forms.	2	Re
CO-2	understand critical dialogues surrounding detective fiction.	5	Un
CO-3	analyse the distinct features of detective fiction.	6	Cr
CO-4	adapt the innovative techniques and themes used in detective fiction.	3	Ap
CO-5	identify and appreciate the uniqueness of individual writers	6	Ev
CO-6	enhance the cognitive level of the students.	4	Co
CO-7	compare and contrast the special feature of the literary pieces with the literary works of other ages.	4	An
CO-8	write critical and comparative essays based on the core concepts learnt.	2	Ap

SEMESTER III	
Self –Study Course **Caribbean Fiction**	
Code : 19PENSS1	**Credits : 2**

Course Outcome:

CO.No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the social and cultural themes of tradition, landscape, culture and community of the Caribbean writers.	1,2	Un
CO-2	identify and analyse the related themes of home and exile, colonialism and decolonization.	5	An
CO-3	acquire a comprehensive knowledge of Caribbean novels.	2	Un, An
CO-4	explore the myriad expressions of Caribbean identity.	4	Ap
CO-5	adapt the innovative narrative techniques and themes used by various writers.	4	An
CO-6	modify their perception of reading and analysing fiction.	6	Ev
CO-7	exercise their creativity in writing fiction.	2	Cr
CO-8	kindle the spirit of doing research.	8	Cr

	SEMESTER IV		
Core XIII	**Shakespeare**		
Code:19PENC41	**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	demonstrate mastery of the discipline by understanding the social and intellectual background of Shakespeare.	1,2	Un
CO-2	analyse the cultural problems that reflect an insight into the relevant, historical, traditional and social contexts.	5	An
CO-3	infer a comprehensive knowledge of the dramatic and the poetic structures in Shakespeare's work.	2	Un, An,
CO-4	relate how language shapes human understanding.	4	An
CO-5	implement Shakespeare's works in the modern context– involving the structuralist, existentialist and linguistic approaches.	4,5	Ap
CO-6	differentiate the distinctiveness of Shakespeare's plays with special reference to the immortal characters he has created intuitively.	5	An
CO-7	distinguish Shakespearean philosophy, feminism, aesthetics and techniques.	7,8	An
CO-8	create an ability to reconstruct the dramatic and theatrical conventions of his craftsmanship.	6,7,8	Cr

SEMESTER IV			
Core XIV	**Canadian Literature**		
Code: 19PENC42	**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	demonstrate mastery of the history and background of Canadian Literature.	1	Ap
CO-2	develop comprehensive knowledge by combining theory with practical application for a wider understanding of Canadian Literature.	2,6	Ap, Cr
CO-3	develop an ability to recognize and identify the uniqueness of Canadian Literature.	6	Cr
CO-4	analyse the themes of cultural identity with that of the socio economic conditions of Canada.	5	An
CO-5	perceive, categorise, interpret and dramatise the characters, dramatic situations and devices used.	9	Ev
CO-6	appraise, differentiate and distinguish the magnitude of Canadian literary genres with that of other Literatures.	5	Ev
CO-7	make use of theory as a lens for thinking critically the central aspects of Canadian culture and the complexities of Canadian society.	3	Ap
CO-8	modify high-level applied, active learning experiences to bring out the new avenues for future research work.	8	Cr

SEMESTER IV			
Core XV	**New Literatures in English**		
Code: 19PENC43	**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	demonstrate diverse genres of various countries and develop a taste for New Literatures across cultures.	1	Un, Ap
CO-2	infer a comprehensive knowledge about the problems related to the early days of colonization and the challenges faced by the early settlers.	2	An
CO-3	develop an ability to recognize the universality of the representative writers and their works through critical thinking.	6	Cr
CO-4	make use of theory to value the social inequities of various cultures.	3	Ap
CO-5	analyse, examine, interpret, adapt and evaluate the characters, of various cultures through critical thinking .	6	An, Cr
CO-6	appraise, categorise and distinguish the writers of new literatures and enjoy various cultures through their works.	9	Ev
CO-7	develop habits to evaluate, judge and asses the concept of hybridity and cultural plurality, to recognize the complexities in every culture.	6	Cr
CO-8	develop a critical understanding of how literature can both uphold and resist existing structures of power.	6	Cr

SEMESTER IV			
Core XVI	**World Literature in Translation**		
Code: 19PENC44	**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	demonstrate mastery of the literary genres of World Literatures through translation.	1	An
CO-2	infer a comprehensive knowledge of the diversity of cultures.	2	Un
CO-3	build broad-based knowledge and skills necessary to recognize professional goals.	7	Cr
CO-4	make use of theory to comprehend the values behind every work.	3	Ev
CO-5	relate the connections among theories and principles to examine the various interpretations and methods adopted.	4,	An
CO-6	appraise, categorise, enjoy and practice the values of various cultures on their own.	5,6	Ev
CO-7	develop habits to evaluate, revise and estimate the conventions and ideologies of world's greatest writers and comprehend the philosophy put forth.	6	Cr
CO-8	formulate professional activities, like producing a variety of academic and multimodal genres, proposals, presentations, reports, and review essays.	8,9,10	Cr

SEMESTER IV			
Project and Viva-Voce			
Code: 19PENC45	**Hrs/ Week: 8**	**Hrs/ Sem:120**	**Credits : 4**

Course Outcome:

CO. No.	Upon completion of this course, students will be able to:	PSO addressed	CL
CO-1	make use of the critical theories to perceive how to write papers in literature.	3,9	Ap, Ev
CO-2	Acquaint with the fundamentals of Research process in characterizing, instantiating, and critiquing the dominant critical theories, methodologies, and practices in the field.	2	Un
CO-3	Cultivate research culture by combining theory with practical application for an exceptional professional foundation.	2	Ev
CO-4	Interpret new literary works to build broad-based knowledge and skills necessary to fulfil their goals.	7	Ev
CO-5	Formulate an original, increasingly complex thesis of their own.	6	Cr
CO-6	Evaluate critically the sources they find.	6	Ev
CO-7	Develop the thesis into a well-supported argument**.**	6	Cr
CO-8	Document and present their work in accordance with the concepts of research methodology.	10	Cr

M.A. History

SEMESTER - I			
Core I	**History of Ancient India up to A.D. 647**		
Sub. Code: 19PHIC11	**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 knowledge of Ancient History of India.	1, 2	Un, Re
CO-2	understand the geographical features of India and its impact.	1,2	Un, Re
CO-3	appreciate the town planning skills of Indus Valley people.	1,2	Un, Re
CO-4	enhance the legacy of Vedic Civilisation.	1,2	Un, Re
CO-5	understand the teachings and principles of Buddhism and Jainism.	1,2	Un, Re
CO-6	analyse the Persian and Macedonian Invasion.	4	An
CO-7	know the genealogy of various king and their administration.	1,2	Un, Re
CO-8	analyse the significance of foreign accounts.	4	An

SEMESTER - I			
Core II	**Dravidian Movement up to A. D. 1969**		
Sub. Code: 19PHIC12	**Hrs / Week: 6**	**Hrs / Semester: 90**	**Credits: 4**

Course Outcome:

C.O.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the contribution of Tamil scholars.	1,2	Un, Re
CO-2	know the rich heritage of Tamils and promote their antiquity.	1,2	Un, Re
CO-3	analyse politics and society in Madras Presidency.	4	An
CO-4	evolve various associations of Non-Brahmin Movement.	1,2	Un, Re
CO-5	analyse the legislations passed.	4	An
CO-6	appreciate the work of Justice Party.	1,2	Un, Re
CO-7	enhance the role of EVR and Self-Respect Movement.	1,2	Un, Re
CO-8	understand the emergence of DMK.	1	Un, Re
CO-9	analyse social welfare schemes.	4	An

SEMESTER – I			
Core III	**Principles and Methods of Archaeology**		
Sub. Code: 19PHIC13	**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	provide basic knowledge in Archaeology.	1,2	Un, Re
CO-2	understand the methods of excavation.	1,2	Un, Re
CO-3	appreciate the kinds of archaeology.	1,2	Un, Re
CO-4	analyse the work of archaeologists.	4	An
CO-5	understand scientific dating system.	1	Un, Re
CO-6	enhance archaeological recordings.	1,2	Un, Re
CO-7	apply archaeological skills to enhance historical writing.	3	Ap
CO-8	analyse the history of archaeology in the world.	4	An

SEMESTER – I			
Core IV	**History of China from A. D. 1840 to 1931**		
Sub. Code: 19PHIC14	**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	understand the rule of Manchu dynasty.	1,2	Un, Re
CO-2	analyse Opium Wars.	4	An
CO-3	understand foreign embassies in China.	1,2	Un, Re
CO-4	anlayse the Chinese revolution of 1911.	4	An
CO-5	understand Chinese culture.	1,2	Un, Re
CO-6	estimate Dr.Sun-Yat-Sen's role.	5	Ev
CO-7	appreciate the work of Mao-Tse-Tung.	1,2	Un, Re
CO-8	analyse Tanaka's New China policy.	4	An

SEMESTER – I			
Elective I A	**Human Rights**		
Sub. Code: 19PHIE11	**Hrs / Week: 4**	**Hrs / Semester: 60**	**Credits: 3**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	define human rights.	1,2	Un, Re
CO-2	understand the kinds of human rights.	1,2	Un, Re
CO-3	analyse French revolution and chartist movement.	4	An
CO-4	appreciate UN Declaration of human rights.	5	Ap
CO-5	analyse women and child rights.	4	An
CO-6	study the threats to human rights and violations.	1,2	Un, Re
CO-7	find out the means to overcome the challenges.	4	An
CO-8	enrich the ideals of human rights for women.	1,2	Un, Re

SEMESTER - I			
Elective I B	**Women in Politics and Governance**		
Sub. Code: 19PHIE11	**Hrs / Week: 4**	**Hrs / Semester: 60**	**Credits: 3**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	provide Women of good governance and empowerment of power in politics.	1,2	Un, Re
CO-2	train women in strategies of politics.	1,2	Un, Re
CO-3	empower women in politics and governance	1,2	Un, Re
CO-4	analyse the significant role of women in politics	4,	An
CO-5	understand the revolutionary tactics of women in politics.	1,2	Un, Re
CO-6	develop leadership and governing skills of women	1,2	Un, Re
CO-7	appraise the role of women in public life	5	Ev
CO-8	appreciate the skills of women in politics	1,2	Un, Re

SEMESTER – I			
Elective II A	**Liberal Movements (Excluding India)**		
Sub. Code: 19PHIE12	**Hrs / Week: 4**	**Hrs / Semester: 60**	**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.	1,2	Un, Re
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 comparative study of revolutions in the world.	4	An
CO-5	evaluate the liberal reforms.	5	Ev
CO-6	analyse the impact of revolutions.	4	An
CO-7	understand the legacy of revolutions.	1,2	Un, Re
CO-8	develop the art of self determination of the people.	1,2	Un, Re

SEMESTER - I			
Elective II B History of South East Asia – The 20th Century			
Sub. Code: 19PHIE12	**Hrs / Week: 4**	**Hrs / Semester: 60**	**Credits: 3**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the problems of migration.	1,2	Un, Re
CO-2	make aware of present resistance.	1,2	Un, Re
CO-3	evaluate the radicalism.	5	Ev
CO-4	analyse the Vietnamese revolution.	4	An
CO-5	appreciate the union of Burma(Myanmar)	1,2	Un, Re
CO-6	enumerate the revolutionary ideas and its impact.	1,2	Un, Re
CO-7	assess the work of Sukarno .	5	Ev
CO-8	analyse the Vietnam wars and its unification.	4	An

SEMESTER - II			
Core V	**History of Medieval India from A. D. 647 to 1800**		
Sub. Code: 19PHIC21	**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	appreciate Rajputs contribution.	1,2	Un, Re
CO-2	analyse foreign invasions and its impact.	4	An
CO-3	understand Delhi Sultanate rule.	1	Un, Re
CO-4	analyse the contribution of Delhi Sultanate.	4	An
CO-5	appreciate the Bhakti Movement.	1,2	Un, Re
CO-6	analyse Vijayanagar and Bahmani conflict.	4	An
CO-7	understand Deccan policy of Mughals.	1	Un, Re
CO-8	appreciate the advent of Europeans.	1,2	Un, Re

Semester – II			
Core – VI	**Ancient World Civilisations (Excluding India)**		
Sub Code : 19PHIC22	**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 birth of civilisations.	1,2	Un, Re
CO-2	know the date and extent of the civilisations.	1,2	Un, Re
CO-3	know the favourable factors of geographical features.	1,2	Un, Re
CO-4	appreciate the work of great personalities.	1,2	Un, Re
CO-5	trace out the river valley civilisations.	1,2	Un, Re
CO-6	estimate the legacy of civilisations.	5	Ev
CO-7	analyse and compare the ancient civilisations.	4	An
CO-8	estimate the causes for the decline of the civilisations.	5	Ev

Semester – II			
Core – VII	**Contemporary World Since 1945**		
Sub Code : 19PHIC23	**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 organization and functions of UNO.	1	Un, Re
CO-2	analyse the nature of Cold War.	4	Un, Re
CO-3	analyse the apartheid policy of South Africa.	4	Un, Re
CO-4	assess the role of OPEC in International Politics.	5	Ev
CO-5	acquire the knowledge of Emerging New World Order.	1,2	Un, Re
CO-6	understand decolonisation.	1,2	Un, Re
CO-7	estimate regional organizations.	5	Ev
CO-8	analyse civil rights, labour and feminist movements.	4	An

Semester – II			
Core – VIII	**History of Tamil Nadu up to 1336 A. D.**		
Sub Code : 19PHIC24	**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 impact of geographical features of Tamil Nadu.	1,2	Un, Re
CO-2	know about the Kalabhra interregnum.	1,2	Un, Re
CO-3	appreciate the contribution of Pallavas, Cholas and Pandyas.	1,2	Un, Re
CO-4	study the impact of Muslim invasions.	1,2	Un, Re
CO-5	appreciate Bhakti Movement.	1,2	Un, Re
CO-6	know the various styles of architecture.	1,2	Un, Re
CO-7	evaluate the rule of Madurai Sultanate.	5	Ev
CO-8	analyse the administration of various dynasties.	4	An

Semester – II			
Elective III A India – The Making of a Colony			
Sub Code : 19PHIE21	**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 the factors behind the geographical discoveries.	1,2	Un, Re
CO-2	analyse the importance of geographical discoveries in Indian history.	4	An
CO-3	learn the different phases of the war for supremacy.	1,2	Un, Re
CO-4	evaluate the administration of Governor - Generals.	5	Ev
CO-5	analyse the British imperialist policy.	4	An
CO-6	understand the British revenue settlements.	1,2	Un, Re
CO-7	appreciate the reforms of British period.	1,2	Un, Re
CO-8	trace out the transfer of power from the British crown.	1,2	Un, Re

Semester – II			
Elective III B	**Historical Tourism – Theory and Practice**		
Sub Code : 19PHIE21	**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 art and architecture in India.	1,2	Un, Re
CO-2	promote historical spot study.	1,2	Un, Re
CO-3	learn the architectural styles of various periods.	1,2	Un, Re
CO-4	analyse the Indo-Persian architecture.	4	An
CO-5	conducting research in historical sites.	5	Ev
CO-6	know the ways and means to conserve rich heritage.	1,2	Un, Re
CO-7	become aware of modalities of conducting historical tourism.	1,2	Un, Re
CO-8	enhance the historical skills.	1,2	Un, Re

Semester – II			
Elective IV A	**Archives Keeping**		
Sub Code : 19PHIE22	**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	update the primary sources of History.	1,2	Un, Re
CO-2	understand the latest micro filming data collections.	1,2	Un, Re
CO-3	know the structure and functions of Archives.	1,2	Un, Re
CO-4	appreciate the work of organisation.	1,2	Un, Re
CO-5	understand the significance of record maintenance.	1,2	Un, Re
CO-6	estimate the History of Archives.	5	Ev
CO-7	learn the pool of resources of history.	1,2	Un, Re
CO-8	know the mending of records.	4	An

Semester – II			
Elective IV B Understanding Heritage			
Sub Code : 19PHIE22	**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 the meaning of Antiquity.	1,2	Un, Re
CO-2	learn the types of heritage sites.	1,2	Un, Re
CO-3	know the challenges facing tangible and intangible heritage.	1,2	Un, Re
CO-4	analyse the causes for smuggling of statues .	4	An
CO-5	highlight the Conventions and Acts to promote heritage.	1,2	Un, Re
CO-6	enhance the National and International heritage.	1,2	Un, Re
CO-7	evaluate the relationship between cultural heritage and landscape.	5	Ev
CO-8	able to promote heritage travel.	1,2	Un, Re

Semester – III			
Core – IX	**Freedom Struggle in India from A. D. 1800 to 1947**		
Sub Code : 19PHIC31	**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 freedom movement and the role of freedom fighters to achieve Independence.	1,2	Un, Re
CO-2	assess the foreign rule and interpret their colonial and imperialist policy.	1,2	Un, Re
CO-3	inculcate the value of patriotism and nationalism.	1,2	Un, Re
CO-4	appreciate and respect National leaders sacrifice.	1,2	Un, Re
CO-5	widen thorough knowledge of Indian Freedom Struggle.	1,2	Un, Re
CO-6	evaluate the British colonial policy in India.	4	An
CO-7	apply the noble ideals of freedom fighters.	5	Ap
CO-8	understand the values of Independence of India.	1,2	Un, Re

Semester – III			
Core – X	**History of USA up to A. D 1865**		
Sub Code : 19PHIC32	**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	apply the acquired knowledge of colonization and the war of Independence.	1,2	Un,Re
CO-2	analyze sectional conflict and interpret civil war in USA.	4	An
CO-3	understand the dynamics of multi-cultural society.	1,2	Un,Re
CO-4	become aware of important landmarks in the History of USA.	1,2	Un,Re
CO-5	highlight Westward expansion and its issues.	1,2	Un,Re
CO – 6	appreciate the service of Abraham Lincoln.	1,2	Un,Re
CO- 7	understand the lifestyle of Indian tribes in USA.	1,2	Un,Re
CO-8	make aware of the Foreign Policy of USA towards Latin America.	1,2	Un,Re

Semester – III			
Core – XI	**Epigraphy**		
Sub Code : 19PHIC33	**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	identify the ancient scripts to determine history.	3	Un, Ap
CO-2	explain the skills of estampaging and learn its historical importance.	1,3	Un, Ap
CO-3	appreciate the importance of epigraphical evidence.	1,2	Un, Re
CO-4	assess the dating methods of various Eras.	4	An
CO-5	understand the sample study of selected inscriptions.	1,2	Un, Re
CO-6	highlight the significance of copper plates.	1,2	Un, Re
CO-7	understand the Genealogy of various dynasties.	1,2	Un, Re
CO – 8	make aware of Eras in historical writings.	1,2	Un, Re

Semester – III			
Core – XII	**Research Methodology**		
Sub Code : 19PHIC34	**Hrs / Week : 4**	**Hrs / Sem : 90**	**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.	1,2	Un,Re
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	acquire skills regarding selection of topic, hypothesis, project outline and field work.	1,2	Un,Re
CO-5	equip and expose objectivity and subjectivity to present authentic facts.	1,2	Un,Re
CO-6	analyse the work of Historical writings.	4	An
CO-7	assess the work of various historians .	5	Ev
CO-8	understand the documentation in Thesis writing.	1,2	Un, Re

Semester – III			
Elective V A	**Women Studies**		
Sub Code : 19PHIE31	**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 the nature and scope of Women studies.	1,2	Un,Re
CO-2	become aware of gender issues and gender equity.	1,2	Un,Re
CO-3	analyse the social evils of the society.	4	An
CO-4	comparative study of pre and post Independent India.	1,2	Un,Re
CO-5	make aware of women legislations in India.	4	An
CO-6	appreciate the services of social reformers.	1,2	Un,Re
CO-7	prepare to face the challenges of women.	1,2	Un,Re
CO-8	understand the means to women empowerment.	1,2	Un,Re

Semester – III			
Elective V B	**Rise of Modern West**		
Sub Code : 19PHIE31	**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 the features of Feudalism.	1,2	Un, Re
CO-2	analyse the role of capitalism.	4	An
CO-3	highlights the adventurous voyages.	1,2	Un, Re
CO-4	appreciate the geographical sea routes to the East.	1,2	Un, Re
CO-5	analyse the classical works of Greek and Rome.	4	An
CO-6	learn the significance of Humanist movement.	1,2	Un, Re
CO-7	appreciate the Renaissance and Reformation movement.	1,2	Un, Re
CO-8	assess the Counter Reformation movement.	5	Ev

Semester – III			
Elective VI A Indian History for Competitive Examinations			
Sub Code : 19PHIE32	**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	prepare them for various competitive exams	1,2	Un, Re
CO-2	enhance the writing and spoken skills of English language	3	Ap
CO-3	understand the Indian History and administration	1,2	Un, Re
CO-4	train to become an efficient professionalist	6	Cr
CO-5	highlight the Indian history to become a responsible and patriotic citizens of India	1,2	Un, Re
CO-6	update Contemporary Indian history	1,2	Un, Re
CO-7	aware of the Current affairs in India	1,2	Un, Re
CO-8	apply the learning skills in competitive exams	1,2	Un, Re

Semester – III			
Elective VI B Introduction to Indian Art			
Sub Code : 19PHIE32	**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 the historical values of Indian art.	1,2	Un, Re
CO-2	analyse the significance of arts.	4	An
CO-3	appreciate the craftsmanship skill.	1,2	Un, Re
CO-4	learn the different architectural styles.	1,2	Un, Re
CO-5	become aware of the types of paintings art.	1,2	Un, Re
CO-6	appreciate the popular art forms.	1,2	Un, Re
CO-7	evaluate the phases of art.	5	Ev
CO-8	understand the different schools of art.	1,2	Un, Re

SEMESTER III	
Self Study Course	**Understanding Popular Culture**
Code: 19PHISS1	**Credits : 2**

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	Define Popular Culture	1,2	Un, Re
CO-2	Understand the culture in historical sequence	1,2	Un, Re
CO-3	Enumerate folk arts to promote heritage	1,2	Un, Re
CO-4	Analyse the popular appeal of Calendar art and Photography	4	An
CO-5	Evaluate in different culture	5	Ev
CO-6	Trace out the influence of Cinema in Freedom Struggle	1,2	Un, Re
CO-7	Assess the fairs and festivals	5	Ev
CO-8	Learn the impact of internet and audio-visual media	1,2	Un, Re

Semester – IV			
Core XIII	**Indian Art**		
Sub Code : 19PHIC41	**Hrs / Week : 6**	**Hrs / Sem : 90**	**Credits : 4**

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	assess the architectural styles of different dynasties	5	Ev
CO-2	understand the legacy of our ancestors to art	1,2	Un, Re
CO-3	appreciate the sculptors work	1,2	Un, Re
CO-4	estimate the materials of sculpture	5	Ev
CO-5	know the nature of different paintings	1,2	Un, Re
CO-6	learn the various types of dances	1,2	Un, Re
CO-7	appreciate the work of eminent artists	1,2	Un, Re
CO-8	draws inspiration from eminent artists	1,2,4	Un, Re An

Semester – IV			
Core XIV	**Contemporary History of India from 1947 to 2014 A.D**		
Sub Code : 19PHIC42	**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 Prime Ministers	1,2	Un, Re
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	1,2	Un, Re
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
CO-7	highlight the role of various political parties in India	1,2	Un, Re
CO-8	make aware of communal issues and their solutions	1,2	Un, Re

Semester – IV			
Core XV	**History of USA from A. D. 1865 to 2010**		
Sub Code : 19PHIC43	**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	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	trace out awareness about the Civil Rights movement.	1,2	Un, Re
CO-4	assess the impact of US foreign policy since the I World War.	5	Ev
CO-5	understand the emergence of USA as a super power in the world.	1,2	Un, Re
CO-6	aware of Pan – American movement.	1,2	Un, Re
CO-7	analyse the historical background of Twin Tower attack.	4	An
CO-8	assess the role of USA in International politics.	5	Ev

Semester – IV			
Core XVI	**History of Tami Nadu from 1336 to 2000 A. D**		
Sub Code : 19PHIC44	**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.	1,2	Un, Re
CO-2	evaluate their problems and interpret to solve it.	5	Ev
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	acquire the knowledge of Tamil Integration movement.	1,2	Un, Re
CO-6	make aware of the cultural diversity in Tamil Nadu.	1,2	Un, Re
CO-7	analyze the policy of the British revenue, educational and judiciary system.	4	An
CO-8	understand the impact of political parties in Tamil Nadu.	1,2	Un, Re

Semester – IV			
Core XVII	**Project**		
Sub Code : 19PHIP41	**Hrs / Week : 8**	**Hrs / Sem : 120**	**Credits : 8**

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, Re
CO-2	appreciate the value of historical sites.	1	Un, Re
CO-3	enhance the data collections through various means.	1	Un, Re
CO-4	appreciate the role of Archives and Libraries.	1	Un, Re
CO-5	know the recent methodology in historical writing.	1	Un, Re
CO-6	evaluate the sources in historical writings.	5	Ev
CO-7	apply methodology in historical writings.	3	Ap
CO-8	promote thesis writing and articles.	1, 2	Un, Re

M.A. Economics

Semester– I			
Core I	**Advanced Micro Economic Analysis - I**		
19PECC11	**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	identify and apply relevant terminology and concepts to economic issues and problems.	3	Ap
CO-2	compare and contrast the market system of economics with other systems.	4	Ap
CO-3	use demand and supply models in the analysis of real-world issues.	2	Kn
CO-4	use market structure models to explain and to predict business firm behaviour	6	Ap
CO-5	use the theory of consumer choice to explain and to predict consumer behaviour.	5	Kn
CO-6	evaluate the consequences of economic activities and institutions for individual and social welfare.	7	Ev
CO-7	identify the basic features of alternative representations of human behaviour in economics.	4	Ev
CO-8	analysis of the economic behaviour of individuals, firms and markets.	1,3	Ap

Semester– I			
Core II	**Advanced Macro Economic Analysis – I**		
19PECC 12	**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	analysis of the establishment of the functional relationship between the large aggregates.	7	Ap
CO-2	understand the macroeconomic theoretical structure that is considered essential for the proper comprehension of the different issues and policies.	3	Ev
CO-3	study of Macroeconomics and analysis of body of empirical economic knowledge.	6	Ap
CO-4	understand the systemic facts and latest theoretical developments for empirical analysis.	5	An
CO-5	identify the determinants of various macroeconomic aggregates such as output, unemployment, inflation, productivity and the major challenges associated with the measurement of these aggregates.	4	Un
CO-6	discuss the linkages between financial markets and the real economy, and how these linkages influence the impact of economic policies over differing time horizons.	7	An
CO-7	describe the main macroeconomic theories of short term fluctuations and long term growth in the econo	1	Ap
CO-8	critically evaluate the consequences of basic macroeconomic policy options under differing economic conditions within a business cycle.	3	Re

Semester– I			
Core III Statistics			
19PECC 13	**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	increase the skills in describing, analysing and interpreting statistical data	1	An
CO-2	make basic statistical calculations and critically evaluate the basis for these calculations;	8	Ap
CO-3	use graphical and numerical methods to calculate and illustrate descriptive statistics	2	Un
CO-4	identify the statistical concepts in questions about economic models	6	Re
CO-5	identify common problems which may affect regression analyses	4	An
CO-6	identify the appropriate regression model to apply to an economics dataset	5	Ap
CO-7	manipulate the probability models that are most widely used in economics, and apply them correctly and carry out the appropriate statistical analysis	4	An
CO-8	use the basic concepts of probability and Baye's Theorem	6	Un

Semester – I			
Core IV Economics of Infrastructure			
19PECC 14	**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	create well-planned and managed communities with a focus on infrastructure.	3	Ap
CO-2	plan for the impact of climate change on urban growth.	7	An
CO-3	lead whole-of-government approaches to land	8	Ap
CO-4	use, major project developments and infrastructure policy planning, coordination and delivery	4	Un
CO-5	support project proponents—through facilitation services	3	Ap
CO-6	deliver innovative solutions and value for money	5	Re
CO-7	promote public and private investment in infrastructure	7	Un
CO-8	build and protect India's Infrastructures in competitive advantages	8	Ap

Semester – I			
Elective I Environmental Economics			
19PECE 11	**Hrs/Week: 6**	**Hrs/ Semester: 60**	**Credits: 3**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	apply microeconomic theory to the study of environmental issues.	6	Ap
CO-2	identify and critically evaluate alternative environmental policy instruments.	4	Un
CO-3	develop written and verbal skills in communicating an environmental economic perspective.	5	An
CO-4	enhance the student's ability to conduct professional economic research and to develop and present professional proposals, papers, and presentations	4	Ap
CO-5	increase the student’s ability to analyze environmental policies through a deeper understanding of economic behavior and incentives	8	Re
CO-6	analyze the environmental policy practices in the real world using economics methods and tools.	4	An
CO-7	demonstrate the ability to model environmental policy issues using fundamental environmental and economics skills.	6	Ap
CO-8	engage in self-directed research and learning about environmental economics.	4	An

Semester – I			
Elective I – Basic Econometric Analysis			
Code:19PECE11	**Hours / Week :4**	**Hrs / Semester: 60**	**Credits :3**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	have the knowledge to research with econometrics	1	An
CO-2	explain econometrics concepts and results intuitively	8	Ap
CO-3	easily derive econometric results mathematically	6	Ap
CO-4	have a deeper understanding of economic statistics, econometrics, and have greater confidence in its application.	4	Un
CO-5	learn the basics of ordinary least squares model estimation, with its advantages and disadvantages.	3, 2	Un
CO-6	learn appropriate alternatives to ordinary least squares, when assumptions underlying the classical linear regression model are violated.	5	Ap
CO-7	learn model construction and estimation, with applications in consumer and producer theory.	6	Un
CO-8	gain insights into the relationship between econometric estimation and diagnostic testing.	1	Un

Semester – I			
Elective II Energy Economics			
19PECE12	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits: 3**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	understand the role of energy in economic activity.	2	Un
CO-2	have a knowledge of methods to assess alternative energy projects technologies, and policies	3	Ap
CO-3	apply this knowledge to the analysis of specific energy issues in India	5	Ap
CO-4	know what key factors and principles need to be considered in evaluating alternative energy policy options.	6	An
CO-5	understand of economic and ability to apply economic and financial evaluation of energy projects.	7	Un
CO-6	learning the basics of cost calculation for electricity and heat production from CHP and power plants	6	Ap
CO-7	provide students with a thorough grounding in the key concepts of energy economics.	5	Re
CO-8	illustrate how these concepts and standard economic tools can be used to analyse energy-related policy issues	7	Un

Semester – I			
Elective - II Gender Economics			
19PECE12	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits: 3**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	demonstrate a general understanding of the theoretical debates surrounding the construction of gender and gender relations in the discipline of economics.	7	Un
CO-2	critically examine and assess mainstream and heterodox economic theories and policies from a gender perspective.	3	Ap
CO-3	evaluate the ways in which current economic realities in developed and developing countries have different effects on men and women.	2	An
CO-4	identify the connections between feminist economic theory and feminist economic reality in developed and developing countries.	1	Un
CO-5	the basis of a solid understanding of alternative, gendered economic theory, propose alternative policies that address gender- inequalities in different economic spheres	8	An
CO-6	analyze and compare proposed policy responses to measurable and perceived gender inequalities in such economic outcomes as labour force participation, educational attainment, and retirement savings.	7	An
CO-7	understand the market implications of such non-market activities as partner selection.	5	Un
CO-8	use gender auditing and gender budgeting to uncover inequalities hidden by conventional statistical methodologies.	5	Un

Semester– II			
Core I Advanced Micro Economic Analysis- II			
19PECC21	**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	identify and apply relevant terminology and concepts to economic issues and problems.	7	Ap
CO-2	compare and contrast the market system of economics with other systems.	6	An
CO-3	use demand and supply models in the analysis of real-world issues.	5	An
CO-4	use market structure models to explain and to predict business firm behaviour	4	Re
CO-5	use the theory of consumer choice to explain and to predict consumer behaviour.	3	Ap
CO-6	students will be able to evaluate the consequences of economic activities and institutions for individual and social welfare.	6	An
CO-7	students will be able to identify the basic features of alternative representations of human behaviour in economics.	3	Ap
CO-8	analysis of the economic behaviour of individuals, firms and markets.	3	Ap

Semester - II			
Core II Advanced Macro Economic Analysis- II			
19PECC22	**Hrs/Week: 6**	**Hrs/ Semester: 90**	**Credits: 4**

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	analyse 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 the different issues and policies.	4	Un
CO-3	study of Macroeconomics and analysis of body of empirical economic knowledge.	1	Ap
CO-4	understand the systemic facts and latest theoretical developments for empirical analysis.	5	Un
CO-5	students will be able to identify the determinants of various macroeconomic aggregates such as output, unemployment, inflation, productivity and the major challenges associated with the measurement of these aggregates.	7	Re
CO-6	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.	3	Ap
CO-7	students will be able to describe the main macroeconomic theories of short term fluctuations and long term growth in the economy.	6	An
CO-8	students will be able to critically evaluate the consequences of basic macroeconomic policy options under differing economic conditions within a business cycle.	5	An

Semester – II			
Core VII –Welfare Economics			
Code: 19PECC23	**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 different ways to measure welfare changes for individuals and know how to aggregate them	2	Un
CO-2	be able to properly interpret compensated welfare changes and know how they relate to actual welfare changes typically isolated in demand-supply diagrams	4	Ap
CO-3	understand how to construct models and use general equilibrium analysis	1	An
CO-4	use general equilibrium analysis to evaluate the welfare effects of policy changes in a coherent way and be able to explain the economic intuition for the results	5	Ev
CO-5	be exposed to the applied welfare and public economics literatures and be able to relate the two literatures using conventional welfare economics tools	7	Un
CO-6	solve the problems of proportionality and coherence between objectives and tools in welfare systems.	3	Ap
CO-7	allocate mechanisms to allow for freedom of choice, contestability and competition.	6	Un
CO-8	investigate the distributive and allocate implications of adopting tools to imitate the working of markets	5	Re

Semester- II			
Core –VIII – Mathematics For Economists			
Code: 19PECC24	**Hours / Week :4**	**Hrs / Semester: 60**	**Credits :3**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	provide for professional cadres in the field of mathematics to support the national development programs within public and higher education institutes.	2	Un
CO-2	encourage scientific research and publications in the accredited scientific publications.	3	Un
CO-3	encourage scientific research and publications in the accredited scientific publications.	5	Ev
CO-4	encourage participation in scientific forums and seminars.	6	Un
CO-5	encourage follow up of latest scientific research and techniques in the field.	7	Ap
CO-6	encourage Scientific all abortion with other related areas such as statistics and mathematics	5	Un
CO-7	establish industry links to develop mathematical models and help the industry.	8	Ap
CO-8	encourage students to conduct student projects to develop their analytical and logical thinking.	3	Ev

Semester – II			
Elective I Modern Banking			
19PECE 21	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits: 3**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	describe the basic concepts and theories that explain the function and evolution of banking and finance.	7	Ap
CO-2	demonstrate insight into the properties and role of money and other financial assets within a modern monetary economy.	4	Ev
CO-3	examine the operations of modern banking and financial institutions as influenced by different market structures, regulatory regimes and degrees of international openness.	6	An
CO-4	critically evaluate the functions and operations of modern central banks and international financial institutions.	1	Ap
CO-5	analyse the role of the Bank of International Settlements and the functioning of international banking	4	An
CO-6	analyse the role of the financial markets and the interrelationships between theories, policy and impact of external shocks on the banking and financial sector	4	An
CO-7	familiarize learners with the vital banking functions and various banking operations required for smooth functioning of a bank.	3	Ap
CO-8	inculcate in the participants a comparative understanding of the Traditional and Modern functions of Banks.	4	Ev

Semester- II			
Elective I– Economics of Tourism			
Code: 19PECE21	**Hours / Week :4**	**Hrs / Semester: 60**	**Credits :3**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	critique tourism practices for their implications locally and globally.	7	Un
CO-2	contextualize tourism within broader cultural, environmental, political and economic dimensions of society.	3	Ev
CO-3	interpret and evaluate tourism as a phenomenon and as a business system.	3	Ev
CO-4	explain the diverse nature of tourism, including culture and place, global/local perspectives, and experience design and provision.	1	Ap
CO-5	identify and assess relationships and networks relative to building tourism capacity.	3, 2	An
CO-6	apply principles of sustainability to the practice of tourism in the local and global context.	4	Ap
CO-7	practice empathy and respect for diversity and multicultural perspectives.	6	Ev
CO-8	evaluate and apply various research methods commonly used in the context of tourism.	8	Ev

Semester- II			
Elective II Health Economics			
19PECE22	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits: 3**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	analyze and evaluate complex policy and organizational challenges at both the micro level and at higher levels within health care systems	4	An
CO-2	differentiate between the functions, roles and responsibilities of healthcare managers	6	Ap
CO-3	make successful negotiations	7	Ev
CO-4	define and apply key quality concepts in health care organizations	3	Ap
CO-5	manage organizational processes, including redesigning organizations	3	Ap
CO-6	effectively and efficiently foster innovation within care settings	2	An
CO-7	demonstrate personal and professional ethical responsibility in all managerial and organizational decision making	8	Ev
CO-8	use economic models to understand behaviors of actors in the health care sector and do analyses of needs for health care services	6	An

Semester –II			
Elective – II	**International Economics**		
19PECE22	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits:3**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	develop an in-depth understanding about Import-Export Procedures & Regulations involved.	3	An
CO-2	compare at the level of formal analysis, the major models of international trade and be able to distinguish between them in terms of their assumptions and economic implications.	2	Ap
CO-3	understand the step by step procedures of exporting business	3	Un
CO-4	know the registration requirements to obtain an IEC number to be entitled for export business	3	Un
CO-5	know the ways to arrange finance pre and post shipment for various export obligations	3	Un
CO-6	know the ways for the various export incentives schemes	7	Ap
CO-7	describe how International trade rules could affect your market entry strategy, Customs and distribution.	2	Ev
CO-8	clarify which one are the foreign trade procedures from documentation to payment methods.	2	Ev

Semester - III			
Core IX Growth and Development of Economics			
19PECC31	**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	demonstrate theoretical and empirical analysis of economic growth process.	4	Un
CO-2	demonstrate an understanding of economic growth theory, development and policy implications.	7	Un
CO-3	demonstrate an awareness of economic growth problems, issues in globalisation, and provide grounding in major growth strategies and	4	Ap
CO-4	apply empirical analysis of growth models to developing countries and/or regions, and draw appropriate policy recommendations"	1	An
CO-5	analyse empirical evidence on the patterns of economic development.	6	Ev
CO-6	application of Economic Theory in the context of India	8	Ap
CO-7	exposure to Indian Economic Data	4	Ev
CO-8	critical Review of Research Papers	3	Ap

Semester– III			
Core X Indian Economy			
19PECC32	**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	know the development process in India after independence	6	Ap
CO-2	understand the problems and measures in their contextual perspective	7	Un
CO-3	identify and analyse current issues	1	An
CO-4	analyse economic behaviour in practice	3	An
CO-5	understand the economic way of thinking.	6	Un
CO-6	analyse historical and current events from an economic perspective.	3	An
CO-7	write clearly expressing an economic point of view.	5	Ev
CO-8	create students ability to suggest of the various economic problems	6	Re

Semester- III			
Core XI Social Economics			
Code:19 PECC33	**Hours / 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	discuss the structure and functions of the society and the process of social interaction for change towards better human relationships.	1	An
CO-2	describe the roles of philosophy and sociology in education.	2	Ap
CO-3	explain the philosophy of idealism, realism, naturalism and pragmatism and their contributions to educational theory and practice.	7	Un
CO-4	examine the current social problems relating to education in India based on equalization of educational opportunities, education of the backward classes, literacy of girls' education and freedom and discipline.	6	Un
CO-5	develop the educational planning and to create the skill of employment	4	Ap
CO-6	develop the skill of students regarding creating the opportunities of the employment	5	An
CO-7	make the students to aware the socio economic conditions regarding the employment and education	6	Ap
CO-8	create the knowledge to make a difference between the self employment and the sectoral employment	7	Re

Semester - III			
Core XII Research Methodology			
19PECC 34	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits: 4**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	understand a general definition of research design.	6	Un
CO-2	know why educational research is undertaken, and the audiences that profit from	3	Ap
CO-3	identify the overall process of designing a research study from its	1	Ap
CO-4	be familiar with ethical issues in educational research, including those issues that	8	Un
CO-5	Know the primary characteristics of quantitative research and qualitative research.	2	Ap
CO-6	identify a research problem stated in a study.	8	Ev
CO-7	familiar with how to write a good introduction to an educational research study	6	Ap
CO-8	distinguish a purpose statement, a research question or hypothesis, and a research objective.	4	An

Semester - III			
Elective - I Marketing Management			
19PECE 31	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits: 3**

Course Outcome:

CO.No.	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	develop an ability to understand and develop the marketing mix for an organisation.	2	An
CO-2	develop an ability to assess the impact of the environment on marketing function	2	An
CO-3	develop suitable marketing strategies in light of the environment	1	Ap
CO-4	develop marketing strategies based on product, price, place and promotion objectives.	3	Un
CO-5	create an integrated marketing communications plan which includes promotional strategies and measures of effectiveness.	5	Ev
CO-6	communicate the unique marketing mixes and selling propositions for specific product offerings.	7	Un
CO-7	understanding about marketing management concepts and frameworks, and apply these to a new or existing business.	7	Un
CO-8	apply knowledge and skills to real-world experiences in an internship.	1	Ap

Semester – III			
Elective – I Computer Application In Economic Analysis			
Code: 19PECE31	**Hrs / Week: 4**	**Hrs / Semester: 60**	**Credits : 3**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	handle real data with confidence	4	Ap
CO-2	apply econometric methods of analysis to new circumstances	1	Ap
CO-3	understand the conditions under which particular estimators are appropriate	7	Un
CO-4	apply the theoretical methods to numerical data	7	Un
CO-5	write and present technical material lucidly	3	Ap
CO-6	understand the basic theory of the ordinary least squares, generalized least squares and panel data models	2	An
CO-7	apply appropriate estimators to the type of numerical data given in seminar exercises and computing classes	8	Ev
CO-8	interpret empirical results in applied economics literature	6	Un

Semester- III			
Elective II Human Resource Management			
19PECE32	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits: 3**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	explain the importance of human resources and their effective management in organizations	7	Un
CO-2	demonstrate a basic understanding of different tools used in forecasting and planning human resource needs	2	Un
CO-3	analyze the key issues related to administering the human elements such as motivation, compensation, appraisal, career planning, diversity, ethics, and training	8	Ap
CO-4	research the advantages and disadvantages of induction processes for new incumbents in a role	3	An
CO-5	develop, analyze and apply advanced training strategies and specifications for the delivery of training programs	8	Ev
CO-6	describe appropriate implementation, monitoring and assessment procedures of training	6	Un
CO-7	describe the fundamental concepts and rules of law that apply to business activities, the employment function, and labour	5	Ap
CO-8	describe trends in the labour force composition and how they affect human resource management	4	Ap

Semester - III			
Elective II Logistic Management			
19PECE32	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits: 3**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	Understand the concepts of Logistics and Supply Chain Management.	8	Un
CO-2	understand the relationship between logistics and supply chain management	8	Un
CO-3	understand the principles of Procurement and Outsourcing	2	Ap
CO-4	apply the principles of Inventory Management	1	Ap
CO-5	use the principles of Warehousing to improve their Warehousing Operations	7	Ap
CO-6	relate to Marketing and Physical Distribution concepts	4	Ev
CO-7	apply Packaging and Materials handling Principles to Logistics Operations	1	Ap
CO-8	recognise the requirements for Transportation and International Logistics	4	Re

Semester – IV			
Core XIII	**INDIAN ECONOMIC HISTORY AND THOUGHT**		
Code: 19PECC41	**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	debate similarities and differences among different economy schools.	7	Ap
CO-2	comprehend the development of the theory of economics in historical perspective.	2	Un
CO-3	comprehend emerging paradigms and aberrations with its reasons	8	Ap
CO-4	understand the development of economic thought in the context of the evolving global economy.	3	Un
CO-5	identify the development of economic thought from a historical perspective and how the economic thought of one historical period	7	Ev
CO-6	clearly identify how economic theory has developed as a result of the evolution of economic thought.	6	Ap
CO-7	promote the autonomy of judgment in selecting the most reliable sources of research, in applying a constructive critical approach of the research outcomes	5	Un
CO-8	promote communication abilities, such as how to communicate in English the research targets and outcomes, and how the communicate in an effective	9	Ap

Semester- IV			
Core XIV Demography			
19PECC42	**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	compare the advantages and disadvantages of the different sources of demographic data	8	Ap
CO-2	present appropriate techniques to ensure comparability of the measures across population.	2	Un
CO-3	describe the basic demographic indicators and elaborate on their computation and interpretation	1	Ap
CO-4	discuss the key assumptions underlying techniques and tools.	4	Un
CO-5	describe the relations and calculate indicators in a stationary population.	8	Un
CO-6	estimate the rate of change in population.	1	Ev
CO-7	define and differentiate the demographic concepts.	7	Ap
CO-8	recognize and analyse typical demographic patterns arising from the data.	4	An

Semester- IV			
Core XV Financial Institution and Markets			
19PECC43	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits: 4**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	explain the role of short-term financial management, and the key strategies and techniques used	4	Un
CO-2	describe the dimensions of performance and risk relevant to financial firms.	7	Un
CO-3	calculate contemporary measures of financial measures of performance and risk.	8	Ap
CO-4	describe contemporary managerial risk management oversight processes	1	Ap
CO-5	manage cash, marketable securities, accounts receivable and inventory.	4	Un
CO-6	identify the major sources of short-term financing available to the firm.	2	Ap
CO-7	analyse financial statements using standard financial ratios of liquidity, activity, debt, profitability, and market value.	3	Ev
CO-8	apply techniques to project financial statements for forecasting long-term financial	2	Ap

Semester - IV			
Core XVI Monetary Economics			
19PECC44	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits: 4**

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	explain the role of short-term monetary policy, and the key strategies and techniques used	4	Ap
CO-2	describe the dimensions of performance and risk relevant to financial firms.	7	Un
CO-3	calculate contemporary measures of monetary measures of performance and risk.	8	Ap
CO-4	describe contemporary monetary risk management oversight processes	1	An
CO-5	manage cash, marketable securities, accounts receivable and inventory.	4	Ap
CO-6	identify the major sources of short-term and long term monetary finance available to the firm.	2	Un
CO-7	analyse financial statements using standard financial ratios of liquidity, activity, debt, profitability, and market value.	3	An
CO-8	apply techniques to project financial statements for forecasting long-term financial	2	Un

M.Sc. Mathematics

Semester I			
Core I	**Groups and Rings**		
Code: 19PMAC11	**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	determine 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	Ev
CO-2	explain Sylow's theorem for all finite groups.	5	Ev
CO-3	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	Un
CO-4	analyze and demonstrate the examples of Ideals and Quotient Rings.	5	An
CO-5	assess properties implied by the definition of Euclidean Rings and to illustrate and apply the concepts of Polynomial Rings.	6	Ev
CO-6	determine and use orthogonality and matrices	2	Ev
CO-7	show procedural fluency with polynomial expressions including basic factoring.	4	Un
CO-8	apply the definitions of matrix multiplication that corresponds to composition of linear transformations.	2	Ap

Semester I			
Core II	**Real Analysis**		
Code: 19PMAC12	**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	determine the basic properties of real numbers.	5,6	Ev
CO-2	demonstrate the knowledge of real functions, limit of functions and their properties	2,5	Ap
CO-3	analyze the concept of differentiability of real functions and related theorems	6	Un
CO-4	determine the continuity, differentiability and integrability of functions defined on the real line.	2,5	Ev
CO-5	analyse the concepts of continuous functions and their properties	6	Ap
CO-6	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-7	apply the concept of the series of real numbers and convergence.	2,5	Ap
CO-8	describe fundamental properties of the real numbers that lead to the formal development of real analysis.	2	Un

Semester I			
Core III	**Ordinary Differential Equations**		
Code:19PMAC13	**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	find the solution of second order differential equations by variation of parameters.	2	Re
CO-2	use power series methods to solve differential equations about ordinary points.	6	Ap
CO-3	use the method of Frobenius to solve differential equations about regular singular points.	5	Ap
CO-4	Approximate polynomials in terms of Legendre and Bessel equations.	2	Un
CO-5	understand the importance of Picard's Theorem.	2	Un
CO-6	solve scientific and engineering problems	8	Ap
CO-7	comprehend the Euler equation, Bessel equation and Regular singular points.	2	An
CO-8	solve the Homogenous linear system with constant co-efficient	2,5	Un

Semester I			
Core IV	**Mathematical Statistics**		
Code: 19PMAC14	**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	provide a description of 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	provide a conclusion to the study including a discussion of limitations of the analysis.	2,8	An
CO-5	test statistical hypothesis.	2	Cr
CO-6	explain 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	Un
CO-7	define a probability generating function, a moment generating function and derive them in simple cases.	5,8	Re
CO-8	state the central limit theorem, and apply it.	1,5	Ap

Semester I			
Core V	**Operations Research**		
Code: 19PMAC15	**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	classify and formulate integer programming problems and solve them with Cutting Plane Algorithm, Branch and Bound Algorithm.	2,4	Un
CO-2	formulate and solve classical dynamic programming problems.	2,6	Un
CO-3	formulate and solve inventory models and other related models.	2	Un
CO-4	understand and solve problems regarding decision theory and game theory.	2	Un
CO-5	analyze a network of queues with Poisson external arrival, exponential service requirements and independent routing.	1,6	An
CO-6	explain the concept of complementary slackness and its role in solving prime and dual problems	2	Un
CO-7	set up decision models and use some solutions method for nonlinear optimization problems.	2,6	Cr
CO-8	propose the best strategy using decision making methods under uncertainty and game theory.	2	Ev

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Semester II			
Core VI	**Linear Algebra**		
Code: 19PMAC21	**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	compute 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	Ev
CO-3	demonstrate accurate and efficient use of field extension and Galois Theory.	5,6	Un
CO-4	study Polynomial Rings and its effect in Galois Theory.	6	Ap,Ev
CO-5	define and illustrate the concepts of various polynomials and represent a linear transformation by a matrix with respect to a given basis.	2 ,6	Re
CO-6	understand the significance of various canonical forms.	5	Un
CO-7	explain the fundamental concepts of algebra and their role in modern mathematics and applied contexts.	2	Ev
CO- 8	provide information on polynomials, matrices and transformations.	2	Re

Semester II			
Core VII	**Mathematical Analysis**		
Code: 19PMAC22	**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	determine the Riemann integrability and the Riemann-Stieltjes integrability of a bounded function and able to prove theorems concerning integration.	4	Ev
CO-2	recognize the difference between point wise and uniform convergence of a sequence of functions.	2,6	Ev
CO-3	illustrate the effect of uniform convergence on the limit function with respect to continuity, differentiability and integrability.	2	Un
CO-4	illustrate the convergent properties of power series.	2	Un
CO-5	analyze the concepts of Fourier Series and Beta, Gamma functions.	2	An
CO-6	propose rigorous proofs of results that arise in the context of real analysis	5,6	Cr
CO-7	prove theorems about the differentiability of functions and relate to the integrability of functions.	6	Ev
CO-8	describe fundamental properties of the real numbers that lead to the formal development of real analysis.	1	Re

Semester II			
Core VIII	**Classical Mechanics**		
Code: 19PMAC23	**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	calculate the principle co-ordinates and the principle moment of inertia for arbitrary rigid body.	2	Re
CO-4	understand the concepts and derivations of Hamilton's equations of motion.	5	Un
CO-5	explain Hamiltonian principles and establish the Hamiltonian equations.	2,5	Re
CO-6	calculate the magnitude of selected mechanical properties of materials.	2	Re
CO-7	distinguish the concept of the Hamilton equation of motion and the Principle of least Action.	6	An
CO-8	analyze the Canonical transformation and Hamilton Jacobi theory.	5	Un

Semester II			
Core IX	**Calculus of Variations and Integral Equations**		
Code: 19PMAC24	**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	apply variational problems and isoperimetric problems.	2	Ap
CO-3	expose to the decomposition method.	2	E
CO-4	apply different types of integral equations.	2	Ap
CO-5	solve variational problems with constraints both algebraic and isoperimetric.	2,6	Ap
CO-6	derive the Euler - Lagrange equation for variational problems including the case of general variations.	2,5	Re, Ap
CO-7	derive conserved quantities from symmetries and use them to solve the Euler- Lagrange equations.	2,6	Re,Ap
CO-8	solve integral equations and analyze the relation between differential equations and Volterra integral equations	2	Ap

Semester II			
Core X	**Fuzzy Algebra**		
Code :19PMAC25	**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	decide the difference between crisp sets and fuzzy sets.	6	Ev
CO-2	use the fuzzy set theory on statistical methods.	7	Ap
CO-3	compare statistical methods against fuzzy logic methods.	1,7	Ev
CO-4	apply fuzzy logic membership function.	2,6	Ap
CO-5	solve problems on fuzzy set theory.	2	Ap
CO-6	evaluate fuzzy statistics applications	2,7	Ap
CO-7	apply the methods of fuzzy sets and fuzzy logic in solving problems in the theory of fuzzy control.	1,7	Ap
CO-8	explain the theory of statistics fuzzy logic	5	Re, Un

Semester II			
Elective I A	**Combinatorics**		
Code:19PMAE21	**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	recognize the properties and behavior of permutations and combinations.	1, 6	Un
CO-2	solve problems involving strings, combinations, distributions and partitions.	2	Cr
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	understand the addition and multiplication principles of counting.	3	Un
CO-6	apply diverse counting strategies to solve varied problems involving combinations and distributions	2,3	Ap
CO-7	identify, formulate and solve combinatorial problems.	2	Ap
CO-8	apply combinatorial ideas to practical problems	1,6	Ap

Semester - II			
Elective I B	**Stochastic Processes**		
Code: 19PMAE21	**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 stochastic models for many real life probabilistic situations.	8	Un
CO-2	explain the well known models like birth-death and queueing to reorient their knowledge of stochastic analysis.	7	Cr
CO-3	understand the random walk associated with real life situation to solve.	1	Un
CO-4	analyze the transition probabilities and its classifications.	2	An
CO-5	discuss erlang process and execute it.	5	Un
CO-6	apply into real life problems	1,8	Ap
CO-7	understand the notions of stochastic process.	5	Un
CO-8	apply markov chains to practical problems	4	Ap

Semester III			
Core XI	**Topology**		
Code: 19PMAC31	**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 and illustrate the concepts of topological spaces and product topology.	5	Re
CO-2	explain how the topology on a space is determined by the collection of open sets, by the collection of closed sets, or by a basis of neighbourhoods at each point, and the conditions for a function to be continuous.	2	Ev
CO-3	explain the concepts concerned with properties that are preserved under continuous deformation of objects.	5&6	Ev
CO-4	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-5	define Connectedness and Compactness and prove the related theorems.	5	Re
CO-6	understand the separation axioms in different spaces.	5	Un
CO-7	familiar with the Uryshon lemma and the Tietze extension theorem, and can characterize metrizable spaces.	1&5	Ap
CO-8	explain the relation between the three types of compactness in general topological spaces and in metric spaces.	5	An

Semester III			
Core XII	**Graph Theory**		
Code: 19PMAC32	**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	develop the critical and analytical thinking about Matchings.	1	Ap
CO-4	analyze the properties of Trees and Connectivity	5,7	An
CO-5	solve the problems involving vertex and edge coloring.	2,7	Ap
CO-6	understand and apply the fundamental concepts of independent sets.	2	Un
CO-7	show a series of graph theoretical problems which have real world applications	1	Re
CO-8	discuss and understand the importance of the concepts Matchings and Colorings.	1,7	An,Un

Semester III			
Core XIII	**Measure Theory**		
Code: 19PMAC33	**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 L^p spaces.	1,2	An
CO-4	explain the concept of simple functions and Lebesgue integral of nonnegative integral functions.	6	Ap
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
CO-7	develop probabilistic concepts within the frame work of measure theory.	7	Cr
CO-8	integrate a measurable function with respect to a measure.	1	Cr, Ap

Semester III			
Core – XIV	**Partial Differential Equations**		
Code: 19PMAC34	**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	formulate and solve the differential equations using Laplace Equation.	2	Un
CO-6	extract information from partial derivative models in order to interpret reality.	6	Cr
CO-7	apply partial derivative techniques to predict the behavior of certain phenomena.	2	Ap
CO-8	extract information from partial derivative models in order to interpret reality.	5	An

SEMESTER III			
Core XV	**Research Methodology**		
Code: 19PMAC35	**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	use Mathematical and Statistical techniques for research.	5,8	Ap
CO-2	acquire basic knowledge about various instruments and techniques in Mathematical research.	5,1	Un
CO-3	acquire knowledge in research publication and thesis writing.	5	Un
CO-4	understand the basic aspects in research.	5	Un
CO-5	practice and improve the research presentation skills with latest tools.	5	Re
CO-6	organize and conduct research in a more appropriate manner.	5	Cr
CO-7	identify appropriate research topics.	5	Ap
CO-8	select and define appropriate research problems and parameters.	5	Re

Semester III			
Elective II A	**Fluid Mechanics**		
Code: 19PMAE31	**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	employ Archimedes principle to solve numerical examples on Buoyancy.	2,5	Ap
CO-3	develop understanding about 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-4	imbibe basic laws and equations used for analysis of static and dynamic fluids.	1,8	Un
CO-5	examine stability of submerged and floating bodies.	6	An
CO-6	differentiate horizontal motion and vertical motion.	1	An
CO-7	describe methods of implementing fluid mechanics laws and phenomena.	5,6	Re
CO-8	calculate and optimize operational parameters of hydraulic problems, systems and machines	2	Cr,Ap

Semester - III			
Elective II B	**Wavelet Analysis**		
Code: 19PMAE31	**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	analyze discrete wavelet transforms with multirate digital filters	8	An
CO-4	discuss and explain the main merits and limitations of wavelet analysis	2	An
CO-5	explain the properties and applications of wavelet transform	1	Ev
CO-6	apply into real life problems	2,3	Ap
CO-7	explain brief features and strength of transform beyond wavelet.	2	Ev
CO-8	design certain classes of wavelets to specification and justify the basis of the application of wavelet transforms to different fields	1,6	Cr

Semester III	
Self-Study Course **Discrete Mathematics**	
Code: 19PMASS1	**Credits: 2**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	simplify and evaluate basic logic statements including compound statements, implications, inverses, converses, and contra positives using truth tables and the properties of logic.	1,6	**Cr**
CO-2	express a logic sentence in terms of predicates, quantifiers, and logical connectives.	1	Ev
CO-3	solve problems using the principle of inclusion-exclusion and use Venn diagrams to solve problems.	2	Cr
CO-4	determine simple or a multigraph, directed or undirected graph, cyclic or acyclic graph and determine the connectivity of a graph.	1,6	Un
CO-5	analyze the growth of elementary functions and determine their Big-O value; analyze simple algorithms and compare two algorithms based on computational complexity.	5	An
CO-6	explain the Inclusion- Exclusion principle and pigeonhole principle.	6	Ev
CO-7	apply counting principles to determine probabilities	1,6	Ap
CO-8	determine the level of a node, the height of a tree or sub tree and apply counting theorems to the edges and vertices of a tree.	1,6	Un

Semester IV			
Core XVI	**Complex Analysis**		
Code: 19PMAC41	**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	analyze the sequence and series of analytic functions and types of convergence.	1,6	An
CO-6	represent complex numbers algebraically and geometrically	6	Un
CO-7	demonstrate accurate and efficient use of complex analysis techniques	6	An
CO-8	apply the methods of complex analysis to evaluate definite integrals and infinite series.	1,2	Ap

SEMESTER IV			
CORE XVII	**Functional Analysis**		
Code: 19PMAC42	**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	get clear ideas about the finite dimensional Spectral Theory.	1	Re
CO-7	independently decide if a linear space is a Banach space.	5	An
CO-8	understand the statements and proof of important theorems and explain the key steps in proofs sometimes with variation	1	Un

Semester IV			
Core XVIII	**Number Theory**		
Code:19PMAC43	**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	give an account of fundamental theorems of the course and apply them in specific cases.	1,6	Re
CO-4	calculate and solve the system of linear congruences and warning problem.	2,6	Re
CO-5	differentiate the greatest integer functions and arithmetic function.	1,6	An
CO-6	define and interpret the concepts of divisibility, congruence and prime factorization.	5	Re
CO-7	apply Euler-Fermat's theorem to prove relations involving prime numbers.	2	Ap
CO-8	solve problems on quadratic reciprocity and the Jacobi symbol.	2,6	Cr

Semester IV			
Core XIX	**Differential Geometry**		
Code: 19PMAC44	**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	understand the concepts of the contact between curves and surfaces.	5	Un
CO-4	analyze the different consequences and meanings of parallelism on Euclidean and hyperbolic planes.	1	An
CO-5	demonstrate the knowledge of the historical developments of Euclidean and Non- Euclidean geometry.	5	Un
CO-6	demonstrate the knowledge of family of curves, geodesics and the fundamental forms.	1,6	Un
CO-7	use concrete models to demonstrate geometric concepts	2	Ap
CO-8	evaluate the principal curvatures, the mean curvature and Gauss curvature of a given surface.	2,6	Ev

M.Sc. Physics

SEMESTER - I			
Core - I	**Classical Mechanics**		
Code : 19PPHC11	**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 and understand basic concepts related to continuous mechanical system.	1	Re
CO - 2	explain the motion of bodies under the influence of the system of force.	5	Un
CO - 3	understand the method of separation of variables	2	Un
CO - 4	estimate the motion of rigid bodies, molecules, planets, satellites and ships by studying Euler's angles.	3	Ev
CO - 5	interpret extremely accurate results when studying large objects and speeds approaching the speed of light.	3	Ap
CO - 6	explain the difference between Lagrangian and Hamiltonian formulation.	1	Un
CO - 7	understand the planar and spatial motion of rigid body.	1	Un
CO - 8	describe problems using their knowledge and skills in classical mechanics.	2	Un

SEMESTER - I			
CORE - II	**Mathematical Physics – I**		
Code : 19PPHC12	**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	evaluate the area of irregular shape by Green's theorem.	2	Ev
CO 2	recall the basic and the special types of matrices.	1	Re
CO 3	understand the concepts of feedback control systems with finite dimensional vector spaces.	7	Un
CO 4	apply special functions for Wireless communication and alternating current transmission.	2	Ap
CO 5	understand the geometrical interpretation of complex numbers.	1	Un
CO 6	explain the characteristic equation of a matrix using Cayley Hamilton Theorem.	3	Ev
CO 7	recall the incompleteness of the statistical interpretations relating to the summing of an infinite number of probabilities to yield a meaningful solution.	2	Re
CO 8	apply group theory to various disciplines of Physics.	3	Ap

SEMESTER - I			
Core - III	**Electronics and Experimental Methods**		
Code : 19PPHC13	**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	discuss the working principle of Tunnel Diode, photodiode, LED, LCD, photo conductor and Gunn diode	1	Un
CO - 2	define Hall Effect	1	Re
CO - 3	sketch waveform generators such as Square wave generator,triangular wave generator and Schmitt trigger	1, 3	Ap
CO - 4	discuss the functions of registers and counters	1	Un
CO - 5	describe the different types of registers	1	Un
CO - 6	explain the working of D/A and A/D converters	1	Un
CO - 7	identify the working mechanism of different types of transducers	1	Un
CO - 8	recognise intrinsic and extrinsic semiconductors	1	Un

SEMESTER - I			
Core - IV	**Crystal Growth & Thin films**		
Code :19PPHC14	**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	generate an understanding of self-assembly during the process of growth	1	Un
CO - 2	apply the process skills of scientific inquiry during experimentation	4	Ap
CO - 3	understand the foundation of SEM, TEM	4	Un
CO - 4	apply the techniques of SEM and TEM to their own research projects	5	Ap
CO - 5	distinguish the differences and similarities between different deposition techniques.	1	An
CO - 6	categorize selection of deposition techniques for various applications	1	An
CO - 7	use more techniques for the preparation of crystals and thin films	4	Ap
CO - 8	recognise appropriate material for the fabrication of a device	4	Un

SEMESTER – II			
Core VII	**Nanoscience and Technology**		
Code : 19PPHC21	**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	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	aware of challenges, risks and promises of nano technological development	6	An
CO - 6	synthesise the nanomaterials by physical, chemical and biological methods and evaluate their properties.	6	Ev
CO - 7	characterise the synthesized nanomaterials by various techniques.	5	Ev
CO - 8	apply the nanomaterials in energy storage, food and in day-to-day life.	8	Ap

SEMESTER - II			
Core VIII	**Mathematical Physics II**		
Code : 19PPHC22	**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 the experimental data with the aid of Fourier transform	4	An
CO - 2	understand the basic of tensor calculus and to describe motion and deformation of body	1	Un
CO - 3	recall the basic notations of generating functions and special functions	1	Re
CO - 4	apply computational techniques to solve a wide range of numerical problems arising in physics	2	Ap
CO - 5	explain the concepts of Laplace Integral	1	Un
CO - 6	solve mathematical problems arising in physics by a variety of mathematical techniques.	2	Cr
CO - 7	employ the knowledge of critical thinking and problem solving	5	Ap
CO - 8	employ correct method to solve a particular problem	2	Ap

SEMESTER - II			
Core IX	**Electromagnetic Theory**		
Code : 19PPHC23	**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	recall the fundamental concepts of electromagnetic theory	1	Re
CO - 2	compare electrostatics with magnetostatics	1	Un
CO - 3	construct Maxwell's equations and identify each mathematical operator and physical quantity in the equations	3	Ap
CO - 4	formulate potential problems within electrostatics, magnetostatics	2	Cr
CO -5	analyze different waves and conduct a mock trial on electromagnetic radiation	5	An
CO - 6	summarize the types of wave guides	1	Un
CO - 7	distinguish transmission lines and waveguides and analyze propagation of signal in different modes	1	An
CO - 8	obtain solutions for the problems in electromagnetic theory	2	Cr

SEMESTER - II			
Core X	**Microprocessor and Microcontroller**		
Code :19PPHC24	**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 the architectures and instruction sets of microprocessors and microcontrollers	1	Un
CO - 2	Understand and explain bus transactions, memory organisation and address decoding, basic I/O interfaces and port addressing	1	Un
CO - 3	Apply and implement learned algorithm design techniques and data structures to solve the problems	2	Ap
CO - 4	Understand the interfacing of peripheral devices like I/O ports, keyboards, displays, ADCS, DACs, stepper motor	1	Un
CO - 5	Recall concepts associated with interfacing a microprocessor to memory and to I/O devices	6	Re
CO - 6	Understand how to control components of a microprocessor based system through the use of interrupts	4	Un
CO - 7	Recall a microprocessor programming model at a level that enables to write assemble language programs for the processor meeting given specifications	6	Re
CO - 8	Understand the popular 8051 Microcontroller, the processor family and ARM Architecture	1	Un

SEMESTER - III			
Core XII	**Quantum Mechanics -I**		
Code :19PPHC31	**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	recall Schrodinger equation	1	Re
CO 2	describe Ehrenfest's theorem and its verification	1	Un
CO 3	discuss Heisenberg Uncertainty principle	1	Un
CO 4	evaluate the commutation relations between the various quantum mechanical operators	1	Ev
CO 5	list the properties of Ket and Bra vectors	1	Re
CO 6	discuss the linear harmonic oscillator problem using wave formalism and matrix formulation	2	Un
CO 7	interpret equations of motion in the Schrodinger picture, Heisenberg picture and Interaction picture	1, 2	Ap
CO 8	explain Schrodinger picture, Heisenberg picture and Interaction picture	1	Un

SEMESTER - III			
Core XIII	**Atomic and Molecular Spectroscopy**		
Code :19PPHC32	**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 structure of atoms and the origin of the observed spectra	1	Un
CO - 2	interpret rotational spectra, get information about molecular dimension and atomic masses	4	Un
CO - 3	explain pure rotational Raman spectra and understand the techniques in instrumentation	3	Un
CO - 4	apply knowledge of Mossbaur spectroscopy in solid state physics and nanotechnology	4	Ap
CO - 5	assess how nuclear spins are affected by magnetic field and able to explain what happens when radio frequency radiation is observed	1	Ev
CO - 6	recall the basic hydrogen spectra	1	Re
CO - 7	explain the key properties of many electron atoms and the importance of the Pauli's exclusion principle	1	Ev
CO - 8	understand problems in atomic and molecular physics	2	Un

SEMESTER - III			
Core XIV	**Thermodynamics and Statistical Mechanics**		
Code : 19PPHC33	**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 working knowledge of the zeroth, first, second and third law of thermodynamics	1	Un
CO - 2	apply statistics in different systems containing atoms and molecules	2	Ap
CO - 3	demonstrate the partition function for the microcanonical, canonical, grand canonical ensemble	1	Un
CO - 4	recall the loss of thermodynamics and equipartition theorem from the statistical description using microstates	1	Re
CO - 5	extend knowledge about phase transitions and fluctuations in ensembles	5	Un
CO - 6	apply energy changes in chemical reaction using the first law of thermodynamics	2	Ap
CO -7	understand the Statistical properties of Random Walks	1	Un
CO - 8	determine the physical properties of the system using various correlation functions in Ising Model	6	Ev

SEMESTER - III			
Core XV	**Research Methodology**		
Code : 19PPHC34	**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	list the types of research depending on the approaches	1	Re
CO 2	explain the criteria of a good research	6	Un
CO 3	understand the selection process of the problem based on necessity.	4	Un
CO 4	recall the features of good research	4	Re
CO 5	apply secondary data methods of collecting primary data	6	Ap
CO 6	understand the formulation of the selected problem	4	Un
CO 7	understand the meaning of interpretation techniques	4	Un
CO 8	list the types of reports based on the research mechanism	6	Re

SEMESTER - IV			
CORE XVIII	**Quantum Mechanics -II**		
Code :19PPHC41	**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	Describe time independent perturbation theory and its application to the first order Stark effect in Hydrogen atom	1	Re
CO 2	Discuss time dependent perturbation theory and transition probability	1	Un
CO 3	Describe Einstein coefficients	2	Un
CO 4	Define classical scattering cross section	1	Re
CO 5	Describe scattering by a square well potential using Born approximation and Partial wave analysis	1	Un
CO 6	Define Identical particles, symmetric and antisymmetric wavefunctions	1	Re
CO 7	Explain Dirac's equation for a free particle	1	Ev
CO 8	Explain spin of a Dirac particle	1	Ev

SEMESTER - IV			
Core XIX	**Condensed Matter Physics**		
Code :19PPHC42	**Hrs/Week: 5**	**Hrs/Semester: 60**	**Credits: 4**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO 1	Recall about the crystal structure and degree of ordering to atom binding and packing	1	Re
CO 2	Compare the Energy Bands and the number of orbitals	5	Un
CO 3	Explain the physics of different types of bonds in crystalline structure	1	Un
CO 4	Classify condensed matter upon its degree of order with emphasis on scattering experiments	5	Un
CO 5	Explain the effective electron mass and apply it to describe electron dynamics in semiconductors	1	Un
CO 6	Estimate the thermal ionization of donors and acceptors	4	Ev
CO 7	Apply the knowledge of magnetism to explain natural physical process and related technological advances	2	Ap
CO 8	Assess ferromagnetic order from ant ferromagnetic order	4	Ev

SEMESTER - IV			
Core - XX	**Nuclear and Particle Physics**		
Code :19PPHC43	**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	List the basic atomic properties of nuclei	1	Re
CO 2	Classify the different types of nuclear reactions	5	Un
CO 3	Explain the different types of nuclear models and their properties	6	Un
CO 4	Discuss the nuclear forces and the theories related to it	1	Un
CO 5	Classify the types of elementary particles	1	Un
CO 6	Distinguish the fission and fusion	1	An
CO 7	Understand the deuteron properties and reactions	2	Un
CO 8	Explain the origin of various terms in nuclear physics	1	Un

SEMESTER - IV			
Elective - I A	**Bio-Medical Instrumentation**		
Code :19PPHE41	**Hrs/Week: 3+**	**Hrs/Semester: 45**	**Credits: 3**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO 1	define resting and action potentials	1	Re
CO 2	list the uses of electrode paste	1	Re
CO 3	discuss the principle of operation of different types of transducers	1	Un
CO 4	interpret the output of bio potential recorders such as ecg, eeg and emg	1	Ev
CO 5	explain internal and external pacemakers	1	Un
CO 6	describe the working of different kinds of radiation monitoring instruments	1	Un
CO 7	recognise the importance of computers in medicine	1	Un
CO 8	evaluate the need for various imaging techniques such as computer tomography, thermography and mri	1	Ev

SEMESTER -IV			
Elective - I	**B**	**Laser and its Types**	
Code : 19PPHE41	**Hrs/Week: 3+**	**Hrs/Semester: 45**	**Credits:3**

Course Outcome

CO No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO 1	Recall the forms of Polarisation modifiers	1	Re
CO 2	Explain the laser Exposition Pumping methods	1	Un
CO 3	Examine the confinement of laser beam with resonator	1	An
CO 4	Design the basic structure of p-n junction laser	1	Cr
CO 5	Interpret population inversion by the method of collision	1	Ev
CO 6	Compare semiconductor and gas lasers	1	Un
CO 7	Identify plasma and non-plasma schemes	1	Ap
CO 8	Find the scientific and historical origin of laser	1	Re

M.Sc. Chemistry

SEMESTER - I			
Core - I	**Classical Mechanics**		
Code : 19PPHC11	**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 and understand basic concepts related to continuous mechanical system.	1	Re
CO - 2	explain the motion of bodies under the influence of the system of force.	5	Un
CO - 3	understand the method of separation of variables	2	Un
CO - 4	estimate the motion of rigid bodies, molecules, planets, satellites and ships by studying Euler's angles.	3	Ev
CO - 5	interpret extremely accurate results when studying large objects and speeds approaching the speed of light.	3	Ap
CO - 6	explain the difference between Lagrangian and Hamiltonian formulation.	1	Un
CO - 7	understand the planar and spatial motion of rigid body.	1	Un
CO - 8	describe problems using their knowledge and skills in classical mechanics.	2	Un

SEMESTER - I			
CORE - II	**Mathematical Physics – I**		
Code : 19PPHC12	**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	evaluate the area of irregular shape by Green's theorem.	2	Ev
CO 2	recall the basic and the special types of matrices.	1	Re
CO 3	understand the concepts of feedback control systems with finite dimensional vector spaces.	7	Un
CO 4	apply special functions for Wireless communication and alternating current transmission.	2	Ap
CO 5	understand the geometrical interpretation of complex numbers.	1	Un
CO 6	explain the characteristic equation of a matrix using Cayley Hamilton Theorem.	3	Ev
CO 7	recall the incompleteness of the statistical interpretations relating to the summing of an infinite number of probabilities to yield a meaningful solution.	2	Re
CO 8	apply group theory to various disciplines of Physics.	3	Ap

SEMESTER - I			
Core - III	**Electronics and Experimental Methods**		
Code : 19PPHC13	**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	discuss the working principle of Tunnel Diode, photodiode, LED, LCD, photo conductor and Gunn diode	1	Un
CO - 2	define Hall Effect	1	Re
CO - 3	sketch waveform generators such as Square wave generator,triangular wave generator and Schmitt trigger	1, 3	Ap
CO - 4	discuss the functions of registers and counters	1	Un
CO - 5	describe the different types of registers	1	Un
CO - 6	explain the working of D/A and A/D converters	1	Un
CO - 7	identify the working mechanism of different types of transducers	1	Un
CO - 8	recognise intrinsic and extrinsic semiconductors	1	Un

SEMESTER - I			
Core - IV	**Crystal Growth & Thin films**		
Code :19PPHC14	**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	generate an understanding of self-assembly during the process of growth	1	Un
CO - 2	apply the process skills of scientific inquiry during experimentation	4	Ap
CO - 3	understand the foundation of SEM, TEM	4	Un
CO - 4	apply the techniques of SEM and TEM to their own research projects	5	Ap
CO - 5	distinguish the differences and similarities between different deposition techniques.	1	An
CO - 6	categorize selection of deposition techniques for various applications	1	An
CO - 7	use more techniques for the preparation of crystals and thin films	4	Ap
CO - 8	recognise appropriate material for the fabrication of a device	4	Un

SEMESTER – II			
Core VII	**Nanoscience and Technology**		
Code : 19PPHC21	**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	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	aware of challenges, risks and promises of nano technological development	6	An
CO - 6	synthesise the nanomaterials by physical, chemical and biological methods and evaluate their properties.	6	Ev
CO - 7	characterise the synthesized nanomaterials by various techniques.	5	Ev
CO - 8	apply the nanomaterials in energy storage, food and in day-to-day life.	8	Ap

SEMESTER - II			
Core VIII	**Mathematical Physics II**		
Code : 19PPHC22	**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 the experimental data with the aid of Fourier transform	4	An
CO - 2	understand the basic of tensor calculus and to describe motion and deformation of body	1	Un
CO - 3	recall the basic notations of generating functions and special functions	1	Re
CO - 4	apply computational techniques to solve a wide range of numerical problems arising in physics	2	Ap
CO - 5	explain the concepts of Laplace Integral	1	Un
CO - 6	solve mathematical problems arising in physics by a variety of mathematical techniques.	2	Cr
CO - 7	employ the knowledge of critical thinking and problem solving	5	Ap
CO - 8	employ correct method to solve a particular problem	2	Ap

SEMESTER - II			
Core IX	**Electromagnetic Theory**		
Code : 19PPHC23	**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	recall the fundamental concepts of electromagnetic theory	1	Re
CO - 2	compare electrostatics with magnetostatics	1	Un
CO - 3	construct Maxwell's equations and identify each mathematical operator and physical quantity in the equations	3	Ap
CO - 4	formulate potential problems within electrostatics, magnetostatics	2	Cr
CO -5	analyze different waves and conduct a mock trial on electromagnetic radiation	5	An
CO - 6	summarize the types of wave guides	1	Un
CO - 7	distinguish transmission lines and waveguides and analyze propagation of signal in different modes	1	An
CO - 8	obtain solutions for the problems in electromagnetic theory	2	Cr

SEMESTER - II			
Core X	**Microprocessor and Microcontroller**		
Code :19PPHC24	**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 the architectures and instruction sets of microprocessors and microcontrollers	1	Un
CO - 2	Understand and explain bus transactions, memory organisation and address decoding, basic I/O interfaces and port addressing	1	Un
CO - 3	Apply and implement learned algorithm design techniques and data structures to solve the problems	2	Ap
CO - 4	Understand the interfacing of peripheral devices like I/O ports, keyboards, displays, ADCS, DACs, stepper motor	1	Un
CO - 5	Recall concepts associated with interfacing a microprocessor to memory and to I/O devices	6	Re
CO - 6	Understand how to control components of a microprocessor based system through the use of interrupts	4	Un
CO - 7	Recall a microprocessor programming model at a level that enables to write assemble language programs for the processor meeting given specifications	6	Re
CO - 8	Understand the popular 8051 Microcontroller, the processor family and ARM Architecture	1	Un

SEMESTER - III			
Core XII	**Quantum Mechanics -I**		
Code :19PPHC31	**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	recall Schrodinger equation	1	Re
CO 2	describe Ehrenfest's theorem and its verification	1	Un
CO 3	discuss Heisenberg Uncertainty principle	1	Un
CO 4	evaluate the commutation relations between the various quantum mechanical operators	1	Ev
CO 5	list the properties of Ket and Bra vectors	1	Re
CO 6	discuss the linear harmonic oscillator problem using wave formalism and matrix formulation	2	Un
CO 7	interpret equations of motion in the Schrodinger picture, Heisenberg picture and Interaction picture	1, 2	Ap
CO 8	explain Schrodinger picture, Heisenberg picture and Interaction picture	1	Un

SEMESTER - III			
Core XIII	**Atomic and Molecular Spectroscopy**		
Code :19PPHC32	**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 structure of atoms and the origin of the observed spectra	1	Un
CO - 2	interpret rotational spectra, get information about molecular dimension and atomic masses	4	Un
CO - 3	explain pure rotational Raman spectra and understand the techniques in instrumentation	3	Un
CO - 4	apply knowledge of Mossbaur spectroscopy in solid state physics and nanotechnology	4	Ap
CO - 5	assess how nuclear spins are affected by magnetic field and able to explain what happens when radio frequency radiation is observed	1	Ev
CO - 6	recall the basic hydrogen spectra	1	Re
CO - 7	explain the key properties of many electron atoms and the importance of the Pauli's exclusion principle	1	Ev
CO - 8	understand problems in atomic and molecular physics	2	Un

SEMESTER - III			
Core XIV	**Thermodynamics and Statistical Mechanics**		
Code : 19PPHC33	**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 working knowledge of the zeroth, first, second and third law of thermodynamics	1	Un
CO - 2	apply statistics in different systems containing atoms and molecules	2	Ap
CO - 3	demonstrate the partition function for the microcanonical, canonical, grand canonical ensemble	1	Un
CO - 4	recall the loss of thermodynamics and equipartition theorem from the statistical description using microstates	1	Re
CO - 5	extend knowledge about phase transitions and fluctuations in ensembles	5	Un
CO - 6	apply energy changes in chemical reaction using the first law of thermodynamics	2	Ap
CO -7	understand the Statistical properties of Random Walks	1	Un
CO - 8	determine the physical properties of the system using various correlation functions in Ising Model	6	Ev

SEMESTER - III			
Core XV	**Research Methodology**		
Code : 19PPHC34	**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	list the types of research depending on the approaches	1	Re
CO 2	explain the criteria of a good research	6	Un
CO 3	understand the selection process of the problem based on necessity.	4	Un
CO 4	recall the features of good research	4	Re
CO 5	apply secondary data methods of collecting primary data	6	Ap
CO 6	understand the formulation of the selected problem	4	Un
CO 7	understand the meaning of interpretation techniques	4	Un
CO 8	list the types of reports based on the research mechanism	6	Re

SEMESTER - IV			
CORE XVIII	**Quantum Mechanics -II**		
Code :19PPHC41	**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	Describe time independent perturbation theory and its application to the first order Stark effect in Hydrogen atom	1	Re
CO 2	Discuss time dependent perturbation theory and transition probability	1	Un
CO 3	Describe Einstein coefficients	2	Un
CO 4	Define classical scattering cross section	1	Re
CO 5	Describe scattering by a square well potential using Born approximation and Partial wave analysis	1	Un
CO 6	Define Identical particles, symmetric and antisymmetric wavefunctions	1	Re
CO 7	Explain Dirac's equation for a free particle	1	Ev
CO 8	Explain spin of a Dirac particle	1	Ev

SEMESTER - IV			
Core XIX	**Condensed Matter Physics**		
Code :19PPHC42	**Hrs/Week: 5**	**Hrs/Semester: 60**	**Credits: 4**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO 1	Recall about the crystal structure and degree of ordering to atom binding and packing	1	Re
CO 2	Compare the Energy Bands and the number of orbitals	5	Un
CO 3	Explain the physics of different types of bonds in crystalline structure	1	Un
CO 4	Classify condensed matter upon its degree of order with emphasis on scattering experiments	5	Un
CO 5	Explain the effective electron mass and apply it to describe electron dynamics in semiconductors	1	Un
CO 6	Estimate the thermal ionization of donors and acceptors	4	Ev
CO 7	Apply the knowledge of magnetism to explain natural physical process and related technological advances	2	Ap
CO 8	Assess ferromagnetic order from ant ferromagnetic order	4	Ev

SEMESTER - IV			
Core - XX	**Nuclear and Particle Physics**		
Code :19PPHC43	**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	List the basic atomic properties of nuclei	1	Re
CO 2	Classify the different types of nuclear reactions	5	Un
CO 3	Explain the different types of nuclear models and their properties	6	Un
CO 4	Discuss the nuclear forces and the theories related to it	1	Un
CO 5	Classify the types of elementary particles	1	Un
CO 6	Distinguish the fission and fusion	1	An
CO 7	Understand the deuteron properties and reactions	2	Un
CO 8	Explain the origin of various terms in nuclear physics	1	Un

SEMESTER - IV			
Elective - I A	**Bio-Medical Instrumentation**		
Code :19PPHE41	**Hrs/Week: 3+**	**Hrs/Semester: 45**	**Credits: 3**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO 1	define resting and action potentials	1	Re
CO 2	list the uses of electrode paste	1	Re
CO 3	discuss the principle of operation of different types of transducers	1	Un
CO 4	interpret the output of bio potential recorders such as ecg, eeg and emg	1	Ev
CO 5	explain internal and external pacemakers	1	Un
CO 6	describe the working of different kinds of radiation monitoring instruments	1	Un
CO 7	recognise the importance of computers in medicine	1	Un
CO 8	evaluate the need for various imaging techniques such as computer tomography, thermography and mri	1	Ev

SEMESTER -IV			
Elective - I	**B**	**Laser and its Types**	
Code : 19PPHE41	**Hrs/Week: 3+**	**Hrs/Semester: 45**	**Credits:3**

Course Outcome

CO No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO 1	Recall the forms of Polarisation modifiers	1	Re
CO 2	Explain the laser Exposition Pumping methods	1	Un
CO 3	Examine the confinement of laser beam with resonator	1	An
CO 4	Design the basic structure of p-n junction laser	1	Cr
CO 5	Interpret population inversion by the method of collision	1	Ev
CO 6	Compare semiconductor and gas lasers	1	Un
CO 7	Identify plasma and non-plasma schemes	1	Ap
CO 8	Find the scientific and historical origin of laser	1	Re

M.Sc. Botany

SEMESTER I			
Core I Plant Diversity I (Phycology, Mycology, Lichenology and Bryology)			
19PBOC11	**Hrs/week: 6**	**Hrs/Semester : 90**	**Credit :4**

Course Outcome

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 primitive plants using their characteristic features	1, 2	An
CO-2	discuss the different life cycle patterns of lower plants	1, 2	Cr
CO-3	know the basic skills and techniques in micropreparation of diversified cryptogams	6	Ap
CO-4	apply the practical knowledge to identify a various cryptogams	1, 6	Ap
CO-5	understand that the cryptogams are unique in plant kingdom	1, 2	Un
CO-6	describe the economic and ecological significance of lichens	1, 2	Ap
CO-7	know the origin and phylogenetic evolution of Bryophyte	1, 2	Re
CO-8	know the scientific contribution done by eminent scientists in the field of cryptogams	1, 2	Un

SEMESTER I			
Core II Plant Diversity II (Pteridophytes, Gymnosperms and Paleobotany)			
19PBOC12	**Hrs/week: 6**	**Hrs/Semester : 90**	**Credit :4**

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	An
CO-2	discuss different life cycle patterns in different groups	1, 2	Cr
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	infer pteridophytes are pioneer in the evolution of seed habit	1, 2	Re
CO-6	compare and contrast the origin and evolution of steles, foliage, seeded and seedless plants.	1, 2	An
CO-7	compare and contrast the seeded and seedless plants.	1, 2	Ev
CO-8	review critically the biology , ecology of fossils and methods of fossilization.	1, 7	Un

SEMESTER I			
Core III	**Microbiology and Plant pathology**		
19PBOC13	**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	describe bacterial cell structure,microbial growth, metabolism and the ways to control their growth by physical and chemical means	1	Re
CO-2	differentiate gram positive and gram negative	4	An
CO-3	explain the microbial processes of replication, survival, and interaction with their environment.	3	Un
CO-4	evaluate the beneficial and harmful microbes in plants water, milk and food	4	Re
CO-5	use various microbiological techniques to isolate, characterize and identify bacterial colonies.	4	Ap
CO-6	understand the basic principles related to plant diseases	1	Un
CO-7	provide tools to design innovative, sustainable and tailored control methods to prevent plant diseases or to reduce their impacts	4	Cr
CO-8	understand the role of microorganisms in biotechnology, fermentation, medicine and other industries important to human well being	1	Un

SEMESTER-I			
Core IV	**Histology, Embryology and Morphogenesis**		
19PBOCI4	**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	classify the shoot and root apical meristems	1,2	Ev
CO-2	explain the function and types of epidermal tissue systems	1,2	Ap
CO-3	Identify different types of cells through micro preparation and microscopic observation	4	An
CO-4	Give illustrious explanation and differentiate the primary and secondary structure of plant.	1,2	Un
CO-5	understand the mode of development of reproductive structures identify the different stages of dicot and monocot embryo	3,6	Ap
CO-6	explain the fertilization process including pollen pistil interaction and self incompatibility	1	Ev
CO-7	recognize different types of endosperm and their role in seed development	4	Re
CO-8	identify the different stages of dicot and monocot embryo	4	Ap

Semester II			
Core V	**Horticulture , Plant breeding and Evolution**		
19PBOC21	**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	use the garden implements using in horticultural techniques	4	An
CO-2	identify good and healthy plants and seeds for propagation and develop skill in propagation of useful vegetable, fruit and garden plants.	4	Ap
CO-3	understand basic concepts of gardening and able to layout different types of gardens and suggest plant choices	4	Un
CO-4	understand the use of modern technologies on raising horticultural plants for economic benefits and adapt modern methods of irrigation system in order to conserve water	4, 7	Un
CO-5	equip knowledge on disease management, improved production, storage strategies and business practices.	7	An
CO-6	describe various selection techniques and methods that can be used in genetic improvement of self and cross pollinated crops	6	Ap
CO-7	describe various molecular breeding technique and method that could be used for genetic improvements of crops	2	Ap
CO-8	understand the genetic basis of evolution and evolutionary process	1	Ap

SEMESTER II			
Core VI	**Biochemistry and Biophysics**		
19PBOC22	**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	study the polymeric biomolecules and their monomeric building blocks	1	Re
CO-2	outline the metabolic pathways and be able to trace the regulatory process in the biological system	1	Re
CO-3	outline enzyme groups and know the nomenclature that be able to explain the specificity of enzyme's role and mode of action	3	An
CO-4	construct electromagnetic spectrum and understand the properties to relate biological applications.	6	Ap
CO-5	characterise thermodynamic systems at thermal equilibrium	3	Cr
CO-6	sketch molecular structures and bonding of bio-molecules. upon that knowledge be able to deduce the packaging and foldings of biomolecules	4	Re
CO-7	set up and operate variety of experiments to analyse data accompanied by problem solving and documentation.	6	Ap
CO-8	detect the source of vitamins and their chemistry and distinguish their symptoms specific to their deficiency	7	Re

SEMESTER II			
Core VII	**Taxonomy of Angiosperms**		
19PBOC23	**Hrs/week: 5**	**Hrs/Semester : 75**	**Credit : 4**

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	apply the basic principles and rules of botanical nomenclature, and use taxonomic literature and describe the general principles of classification and binomial nomenclature for species naming.	1	Ap
CO-2	relate taxonomy to other sciences	4	Re
CO-3	understand the preparation and importance of herbarium, role of BSI	6	Un
CO-4	identify the common species of plants growing in Thoothukudi and their systematic position, their distinguishing morphological/ecological attributes.	1	Ap
CO-5	utilize the taxonomical terminology for identification of taxa	1	Un
CO-6	understand the comparative account among the families of angiosperms.	4	Un
CO-7	able to gain proficiency in the use of keys and manuals for identifying any unknown plants to species level	7	Ap
CO-8	combine classical plant taxonomy with modern molecular phylogeny	1	An

SEMESTER II			
Core VIII	**Biostatistics and Bioinformatics**		
19PBOC24	**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	understand the fundamentals of statistics and statistical analysis	4	Un
CO-2	apply the learned procedure for collecting data, analyzing and representation of the same	4	Ap
CO-3	calculate the central tendency and dispersion in collected data	4	An
CO-4	do statistical analysis and communicate the results of statistical analyses accurately and effectively	6	Ap
CO-5	apply knowledge of the most important bioinformatics databases and able to identify what information they contain?	4	Re
CO-6	analyze concepts and approaches in bioinformatics and its application in various biological fields	4	An
CO-7	explain the major steps and principles for doing different types of sequence alignments	6	Ap
CO-8	demonstrate the use of bioinformatics tools in biological research	6	Ap

SEMESTER III			
Core IX	**Marine Biotechnology**		
19PBOC31	**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	analyze how marine organism adapt to their dynamic environment	5	Un
CO-2	recall how natural events and human activities affect coastal habitats	7	Re
CO-3	critically analyze and evaluate pollution issues, their sources and the influences humans have with the dynamic marine environment	7	An
CO-4	achieve practical skills in processing, preserving and culturing marine plants	6	Ev
CO-5	evaluate the uses of marine resources and realize the role of phytoplankton and bacteria in the economy of the ocean	5	Ap
CO-6	able to signify the characteristic feature of coral reefs and their role in biodiversity conservation	1	An
CO-7	able to identify and understand the role of mangroves in coastal protection and their adaptation to its hostile environment	5	Ap
CO-8	explain the ecological relationship between organisms and their environment	2	An

SEMESTER - III			
Core X	**Ecology**		
19PBOC32	**Hrs / Week: 6**	**Hrs / Semester: 90**	**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	reveal the range of plant diversity in terms of structure, function and their environmental relationships.	5	Un
CO-2	describe the climatic and edaphic factors and ecological succession	5	Un
CO-3	categorize the plants based on adaptation	3	An
CO-4	address the global environment crisis and the strategies applicable for environmental problem mitigation	7	Ev
CO-5	learn the global level environmental summit organized that focused for sustainable future	7	Cr
CO-6	know the importance of remote sensing in finding the current status of global health	7	Cr
CO-7	recognize the causes of environmental problems	7	Un
CO-8	discuss ecological issues and concept	5	Re

SEMESTER III			
Core XI	**Molecular Biology and r-DNA Technology**		
19PBOC33	**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	know chemistry of genetic material and details of its replication at molecular level	2	Un
CO-2	understand the general principles of chromosome organization at different phases of cell cycle	2	Un
CO-3	explain gene regulation mechanisms at various levels by which she can learn how it controls growth and development of an organism	4	Cr
CO-4	know complexity of gene expression in eukaryotes over prokaryotes	3	Un
CO-5	understand vector mediated gene transfer techniques including screening and identification of recombinants	6	Un
CO-6	know the gene cloning tools and their mysteries in success of gene cloning technology	8	Un
CO-7	attain hands on experiences in the techniques associated there of	4	Cr
CO-8	practice the advanced techniques in genetic engineering such as DNA sequencing, blotting, DNA amplification and fingerprinting	3	Ap

Semester III			
Core XII	**Research Methodology**		
19PBOC34	**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	know and explain the importance of the internet in research and be able to use it for gathering their reference materials	1	Un
CO-2	acquainted with different tools and techniques essential for research work	6	Cr
CO-3	examine the basic framework of research process and able to learn how to address research problem and what is to be done to solve it.	8	An
CO-4	develop an understanding of the ethical dimensions of conducting applied research	7	An
CO-5	determine the appropriate quantitative methodologies to be used for the study	1	Ev
CO-6	understand a general concept of paradigms of research design.	7	Un
CO-7	familiarise with mixed methods of research.	6	Cr
CO-8	communicate the research findings to the scientific forums	6	Cr

SEMESTER III	
Self Study **Pharmacognosy**	
19PBOSS1	**Credit: 2**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	know the alternative system of medicines.	4	Un
CO-2	understand the systematic classification of crude drugs from natural source	4	Un
CO-3	describe the cultivation, collection and post harvesting technology of crude drugs	4	Re
CO-4	identify the crude drugs by morphological, organoleptic and histological characters	4	An,Ap
CO-5	understand crude drug adulteration and its evaluation	4, 6	Un
CO-6	describe the therapeutic value of phytoconstituents	4, 6	An
CO-7	active constituents and medicinal uses of important herbal drugs	4,7	Re
CO-8	explain the modern extraction, isolation and purification techniques of phytoconstituents	4	Un

SEMESTER IV			
Core: XIII	**Plant Physiology**		
19PBOC41	**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 water relation and nutritional needs of the plant from the soil, and assess the symptom specific nutritional deficiencies and the need of fertilizers for crop improvement	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 their assimilation of inorganic molecules into organic molecular components.	3	Un
CO-4	analyse light enhanced photochemical reactions that culminates in the synthesis of ATP and NADPH and fixation of carbon dioxide into organic compounds	3	Un
CO-5	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-6	investigate plant's functions and adaptations under altered environmental conditions	7	Cr
CO-7	comment on the hormone controlled and light mediated morphogenetic events in plants	3	An
CO-8	design and conduct scientific experiments and analyse the data critically	6	Cr

Semester IV			
Core XIV	**Plant Biotechnology**		
19PBOC42	**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	understand principles of plant tissue culture and media preparation	3	Re,Un
CO-2	acquire knowledge and skill in various micropropagation techniques.	4	Un,Ap
CO-3	understand meristem culture, Somaclonal variations, haploid plants, androgenesis, gynogenesis, embryogenesis.	4	Un
CO-4	describe meristem culture and clonal propagation of plants	4	Re
CO-5	synthesize synthetic seeds and understand their applications	3	Un
CO-6	understand the fermentation processes and their importance in industries	3	Un
CO-7	study and apply nanotech process for her research pursuit	4	Ap
CO-8	discuss the advances in genetic engineering and production of monoclonal antibodies and their novelty	1	Re

SEMESTER IV			
Core XV	**Biodiversity and Conservation**		
19PBOC43	**Hrs/week:4**	**Hrs/Semester : 60**	**Credits:4**

Vision:

- To impart knowledge about the crucial need to maintain biodiversity and ecosystem services.
- Biodiversity conservation contributes to poverty eradication and vice versa through the sustainable use and management.

Mission:

- Conservation of biodiversity is utmost important for the adaptation and mitigation to climate change.
- Influence, encourage and assist students to conserve the integrity and diversity of nature and get an idea of environmental issues and its conservation

Course Outcome

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	know that biodiversity encompasses diversity of genes,species and community.	1, 7	Un
CO-2	investigate the key threats to biodiversity	7	Un
CO-3	find why *in situ* and *ex situ* conservations are imperative for conservation of nature .	7	Un
CO-4	explain different levels of biodiversity	1	Un
CO-5	Analyze the vegetation by different methods	4	An
CO-6	Earn adequate knowledge on biodiversity legislations.	7	Ap
CO-7	estimate the primary productivity of an aquatic and terrestrial ecosystem	4	Ev
CO-8	Manage and conserve the biological resources	7	Cr

SEMESTER - IV			
Elective I	**Agroforestry**		
19PBOE41	**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 concept and benefit of agroforestry	5	Un
CO-2	discuss and design an agroforestry system	5	Cr
CO-3	justify the role of agroforestry in cultivation new tree species	2	Ev
CO-4	describe the principles and methods of silviculture.	1	Re
CO-5	develop knowledge, skills, understanding and competence in areas of forest systems management	8	Cr
CO-6	justify –positive and negative tree-crop-soil interaction	3	Ev
CO-7	understand the biological, economic and environmental factors that shape the development of forest resource management enterprises.	4	Un
CO-8	identify wood based on physical, chemical characteristics and anatomical architecture.	4	Cr

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SEMESTER - I			
Core I Cell and Molecular Biology			
Code 19PZOC11	**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 knowledge on the structure and function of biological membrane including the roles of gradients in energy transduction	1	Un
CO-2	compare the different types of transporters and its functions	2	An
CO-3	relate the mechanisms of cell to cell signaling, including intracellular second messenger pathways	1, 4	An
CO-4	understand the structure and function of proteins including the roles of amino acids in protein folding and protein-protein interactions.	1	Un
CO-5	identify the regulation of gene at the transcriptional and post transcriptional level	3	Cr
CO-6	illustrate the structural organization of gene and the control of gene expression	5	Cr
CO-7	explain the cell cycle and its regulation, including the mechanism of mitosis and meiosis	6, 7	Ap
CO-8	demonstrate the molecular pathways that are altered in cancers, including oncogenes, tumor suppressors, apoptosis and DNA repair	6, 8	Ap

SEMESTER I			
Core II : Genetics and Evolution			
Code: 19PZOC12	**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	examine the chromosomes and genetic recombination and interpret linkage and mapping data	1	Kn ,Un
CO-2	discuss the theories of crossing over and construction of chromosome map	1	Kn,Un
CO-3	infer genetic recombination mechanisms in bacteria and assess the genetic and clinical significance of transposons	2	Un,Ev
CO-4	analyse changes in gene and genotypic changes and evaluate its consequences in populations	6	An, Ev
CO-5	discriminate various human genetic disorders and genetic variations in drug metabolism	4	An
CO-6	provide detailed explanations of neo – Lamarkism, neo – Darwinism, stabilizing and experimental evolution	1 , 6	Un,Cr
CO-7	examine, summarize and integrate central ideas underpinning evolutionary patterns and processes from the molecular to the macro scale	2	Un,Ap,Cr
CO-8	critically analyse, issues such as speciation mechanisms relating to the formation of species.	2	Un, An

SEMESTER I			
Core III : Biochemistry			
Code: 19PZOC13	**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 and explain structure and functions of biomolecules	1	Un
CO-2	relate between biology and chemistry	2, 4	Un
CO-3	compare the specificity of enzymes (biochemical catalysts), and the chemistry involved in enzyme action.	3	An
CO-4	recognise the metabolic pathways of protein, amino acids,carbohydrates, fats and nuceic acids	1	Ev
CO-5	relate to real life situations and applications in research and industry	4	Un
CO-6	have firm foundations in fundamental applications of biomolecules	7	Un
CO-7	be skilled in solving the problems of biochemistry	5, 8	Ap
CO-8	design,carryout, record and analyse the results of chemical experiments	6	Cr

SEMESTER –I			
Core IV: Applied Entomology			
Code :19PZOC14	**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	know about the diversity of insects, classify and state their major different orders	1	Un
CO-2	develop skills for collecting, mounting and preserving insects	1, 6	Cr
CO-3	acquire knowledge on beneficial insects, helpful insects and insects of medicinal and aesthetic value	1	Un
CO-4	analyse the main pest species of crops based on the symptoms of the attack and morphological traits	2	An
CO-5	explain the life cycle of main pest species on crops and insect vectors	2, 1	Un
CO-6	identify, collect and manage different insects of household, man and animals.	4, 6	Ap
CO-7	apply appropriate indirect and direct measures to prevent or reduce pest attack	5, 7	Ap
CO-8	plan and implement crop protection according to the IPM principles	4, 8	Ev, Cr

SEMESTER II			
Core V : Animal Physiology			
Code :19PZOC21	**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	compare digestive and circulatory system and infer regulation of blood pressure and heart beat	1, 2	Un,An
CO-2	understanding mechanisms of respiration and point out physiological adaptations to special conditions	1, 2	Un,An
CO-3	indicate the relationship between different environments and excretory organs and osmo ionic regulation	5	Ap, An
CO-4	appraise neuromuscular and sensory mechanisms and relate the physical and chemical phenomena	2 , 6	Un,Ap
CO-5	associate the endocrine glands with physiological actions and develop healthy life style	2, 4	Un,Cr
CO-6	perceive the steps involved in transmission of nerve impulses	5	Ev
CO-7	relate the structure and physiology of muscular system	7	Un
CO-8	elaborate the integration and interactions of hormones	8	Cr

SEMESTER II			
Core VI : Immunology			
Code: 19PZOC22	**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	analyse the genetic basis of antibody diversity, organization and arrangement of immunoglobulin genes	1	An
CO-2	understand the principle of the routine serologic procedures performed in the clinical laboratory.	1, 2	Un
CO-3	describe the structure and function of MHC molecules and the immunologic responses involved in preventing and combating infections	1	Un
CO-4	describe the basic mechanisms, distinctions and functional interplay of innate and adaptive immunity	1, 4	Un
CO- 5	describe immunological response and how it is triggered and regulated	1	Un
CO -6	transfer knowledge of Immunology into clinical decision-making	5	Ev
CO-7	discuss the role and advances being made in transplantation with artificial organs and the aberrations of the immune system such as immunodeficiency and autoimmunity	1, 6	Cr
CO- 8	familiarize the modern laboratory techniques applicable in the diagnosis and monitoring of diseases involving the immune system.	6	Cr

SEMESTER – II			
Core VII : Biotechnology			
Code : 19PZOC23	**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	outline about the introduction and history of Biotechnology	1	Un
CO-2	get more insight on the basic properties and advanced functions of different vectors.	3	Un
CO-3	attain research skills in the field of manipulations of animal cell and tissue culture.	7	Ap
CO-4	understand the beneficial effects of microorganisms and the impact of microbial production on human health	3	Un
CO-5	apply their knowledge in designing techniques for enzyme production in small and large scale industries	8	Ap
CO-6	evaluate the need and impact of biotechnological methods in enzyme production through industries	3	Ev
CO-7	imbibe the practical and theoretical knowledge of nanomaterials essential for pursuing higher studies.	2	Un
CO-8	achieve skills in handling tools and techniques in Biotechnological manipulation.	6	Ev

SEMESTER II			
Core	**VIII**	**Microbiology**	
19PZOC24	**Hrs/ Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Vision : To prepare graduate students with thorough knowledge and understanding of the core concepts in the field of Microbiology

Mission : To equip the students with knowledge about Taxonomy, organization, multiplication and infection of microbes and to develop expertise in microbiological techniques.

Course Outcome :

CO.NO	Upon completion of this course, the students will be able to	PSO addressed	CL
CO- 1	classify micro organisms focusing on the modern trends of Taxonomy	1	Un
CO- 2	prepare media to be utilized in the cultivation of microorganisms	2	Ev
CO-3	understand the structural organization and life cycle of microorganisms	2	Un
CO-4	explain the role of microorganisms in fermentation, medicine and the production of microbial products	2	An
CO-5	gain familiarity with the unique role of pathogens in human infectious diseases	2	Ev
CO-6	identify the methodologies used in disease treatment and prevention	6	An
CO-7	demonstrate practical skills in the use of technologies and methods common to microbiology	8	Ev
CO-8	apply scientific methods in the design and execution of experiments	8	Ap

SEMESTER - III			
Core IX Computational Biology			
Code : 19PZOC31	**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	analyse and interpret results of descriptive statistical methods effectively	1, 3	An, Ev
CO-2	apply the methods of hypothesis testing, statistical inference and design	4	Ap
CO-3	appreciate biological data in statistical perspective correctly and contextually	4	Un
CO-4	infuse critical appraisal skills to assess the research data and produce original research	7	Cr
CO- 5	carry out correlation and regression analysis and recognise theoretical distributions	6	Un, An
CO -6	formulate and test using appropriate statistical software	4	Cr
CO-7	implement statistical methods and statistical software programmes to a variety of practical problems	5	Ap
CO- 8	demonstrate the mastery of concepts of bioinformatics	1, 2	Un,

SEMESTER – III			
Core X : Aquaculture Practices and Farm Management			
Code : 19PZOC32	**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	design aquaculture systems	1	Cr
CO-2	develop practical skills for management of culture ponds	3	Ap
CO-3	apply techniques involved in breeding and culture of various organisms	1,2	Cr,Ap
CO-4	demonstrate competency in live feed culture and feed formulation	2,3	Un,Ev
CO-5	evaluate and manage aquaculture diseases, health and safety issues in aquaculture ventures	1,6	Un Ev
CO-6	discuss important factors for performing a sustainable aquaculture	1,3	Un, Ap
CO-7	compare the principles of genetic improvement of fish stock	1	Un
CO-8	analyse aquaculture economics and marketing strategies	1,3	An,Ap

SEMESTER - III			
Core XI - Developmental Biology			
Code : 19PZOC33	**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 process of gametogenesis and describe the structure of gametes	1, 2	Un
CO-2	outline the events that lead up to and comprise the process of fertilization	2	Un
CO-3	compare and contrast the patterns of cleavage in the various model organisms	1, 2	An
CO-4	discuss the morphogenetic movements, cellular mechanisms and the functions of gastrulation	1	Un, Cr
CO-5	elaborate tissue interactions and the development of organ systems in vertebrates	1	Un, Cr
CO-6	analyse the role of genes, stem cells and the impact of teratogens in development	5	An
CO-7	illustrate the role of hormones in amphibian and insect metamorphosis	6, 1	Un
CO-8	demonstrate the ability of regeneration in different groups of organisms	6, 1	Cr

SEMESTER – III			
Core XII : Research Methodology			
Code : 19PZOC34	**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	demonstrate critical thinking and scientific approach in the design and implementation of an experiment.	1,3	Un, Cr
CO-2	effectively communicate scientific ideas in both written and oral formats	1,2	Un, Ev
CO-3	acquire a broad range of basic laboratory skills to perform experiments and for employment prospects	5	Un, Ap
CO-4	demonstrate and apply a working comprehension of the technical and procedural aspects of laboratory testing, safety and ethical standards of practices	4	Ap
CO-5	write a research report and thesis and Appreciate the components of scholarly writing and evaluate its quality.	6	Cr,Ev
CO-6	verify and test important facts and find solutions to scientific problems	7	An
CO-7	develop new scientific tools, concepts and theories to solve and understand scientific problems	7	Cr
CO-8	design and conduct independent laboratory or field research that is consistent with the highest standards and practices of research	8	Ap

SEMESTER III	
Self Study Course: Zoology for Competitive Examinations	
Code: 19PZOSS1	**Credit:2**

CO. No	Upon completion of this course, students will be able to	PSO addressed	CL
CO- 1	gain knowledge about the systematic position of the organisms.	1	Un
CO-2	able to identify the different species	2	An
CO-3	relate the various physiological mechanisms prevailing in the organism	3	An
CO-4	understand the physiological concepts and mechanism of the action of endocrine glands	1	Un
CO-5	analyse genetic concepts and laws	4	Un
CO-6	understand different theories and patterns of evolution	1	Un
CO-7	acquire in-depth knowledge about cellular components and protein synthetic machineries	1	Cr
CO-8	evaluate the techniques help in bioremediation and demonstrate gene therapy technique	7,8	E

SEMESTER IV			
Core XIII : Marine Biology			
Code: 19PZOC41	**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 various ecological zones of marine environment and their fauna and flora, their adaptations and distribution	2,3	Un
CO – 2	appraise the biological, chemical, biological and physical aspects of the marine environment and their significance to marine life	3,	Ev
CO-3	compare the marine ecosystems, types and threats to coral reefs, mangroves and salt marshes	1	An
CO- 4	relate ecological relationships that exist among marine organisms within a variety of habitats	4	An
CO-5	know the types and causes of marine pollution and their abatement	6	Un
CO-6	assess different sampling methods used in the marine biology and then using standard techniques for analysing samples in the laboratory	4,5	Ev
CO-7	analyse various types of marine resources and assess the various environmental concerns related to the use and abuse of marine resources.	2	An, Cr
CO-8	design and implement effective solutions to problems in marine environment	7,8	Ap

SEMESTER IV			
Core XIV : Conservation Biology			
Code: 19PZOC42	**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	infer the problems of unsustainable development	1	Un
CO - 2	justify that human survival depends on developing practices that will achieve sustainable systems	3	Ev
CO - 3	explore the biological, sociological and legislative perspectives for the management of flora and fauna to conserve wildlife.	5	An
CO - 4	evaluate the importance of natural resources on conservation of biodiversity	3	Ev
CO - 5	analyse the conservation management of various resources	3	An
CO - 6	gain knowledge on values and threats of biodiversity	2	Ap
CO - 7	learn the role of various organization in conservation of biodiversity	6	Un
CO - 8	apply scientific principles and modern technologies to resolve problems in disaster management	8	Ap

SEMESTER - IV			
Core XV - Commercial Zoology			
Code :19PZOC43	**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, choose suitable bees and maintain bee hive successfully	2	Ev
CO-2	understand the behavior of bees, prevent swarming and manage bee colonies	3	Un
CO-3	inspect bee colony, identify diseases of bees, recognize their enemies and take necessary control measures	4	An, Ap
CO-4	apply their knowledge to implement the procedure to extract honey and other bee products and to preserve honey	5	Ap
CO-5	demonstrate an understanding of mulberry cultivation, silkworm rearing and silk reeling	1	Un
CO-6	identify diseases, pests of mulberry and silkworm and adapt control measures	4	Ap, Cr
CO-7	utilize their knowledge in harvesting, marketing cocoons and reeling operations	5	Ap
CO-8	develop practical proficiency in apiculture and sericulture from the lab work and visit to the apiary and the department of sericulture	6	Ap

SEMESTER - IV			
Elective - I A	**Poultry**		
Code :19PZOE41	**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	attain an insight on the present status of poultry industry	1	Un
CO 2	acquire knowledge on the technological advancements in poultry farming	2	Un
CO 3	identify the problems in handling poultry	3	Un
CO 4	analyse the management techniques and handle various situations	3	An
CO 5	able to get career choices in bird production, processing, research and business	8	Ap
CO 6	attain the skill to manage the farm in a profitable manner	6	Ap
CO 7	apply the skills to become entrepreneurs	6	Ap
CO 8	manage to get a rewarding carrier in poultry industry or self employment	8	Ap

SEMESTER - IV			
Elective - I B	**Ornamental Fish Culture**		
Code : 19PZOE41	**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	2,3	Un
CO - 2	apply the knowledge and skills in aquarium management	1	Ap
CO - 3	evaluate the types and culture of live feed organisms and formulate the artificial feed	3	Ev
CO - 4	describe the factor related with taxonomy and biology of ornamental fish	3	An
CO - 5	choose the commercially important fresh water and marine ornamental fishes and their transport	8	Ev, Cr
CO - 6	analyse the different varieties of ornamental fish	2,3	An
CO - 7	acquire confidence to become an entrepreneur in ornamental fish culture	3	Un
CO - 8	develop entrepreneurial skills and make aware of National and International export earnings	2,7	Cr

SEMESTER - IV			
Elective I C Clinical Biology			
Code : 19PZOE41	**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 overview on clinical biology and its protocols	4	Un
CO – 2	Acquire knowledge on the various sub divisions and the practices and protocols of clinical biology.	6	An
CO – 3	Understand the laboratory practices and know how to maintain the laboratory instruments	4	An
CO - 4	Analyse and distinguish various types of blood cells	3	Un
CO – 5	Understand various diseases based on the laboratory analysis of body fluids.	4	Un
CO – 6	Develop skills in various lab techniques	7	Cr
CO – 7	Acquire knowledge to handle clinical equipments	6	Un
CO – 8	Design, carry out and interpret scientific experiments	7	Ap

M.Sc. Computer Science

SEMESTER –I			
Core I	**Design and Analysis of Algorithms**		
Code:19PCSC11	**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	analyze the running time and space complexity of algorithms using asymptotic analysis.	1,3,4	An
CO-2	understand different tree traversals, graph traversals and spanning tress.	2,7	Un
CO-3	apply divide and conquer to binary search, quick sort, merge sort.	3	Ap
CO-4	apply greedy method to knapsack problem, prims, kruskal algorithms.	3	Ap
CO-5	apply dynamic programming to optimal binary search trees,0/1 knapsack problem, etc.	3	Ap
CO-6	apply Backtracking ton-queen problem, sum of subsets problem, graph coloring etc.	3	Ap
CO-7	apply branch and bound to Travelling sales person problem, 0/1 knapsack problem.	3	Ap
CO-8	describe the notions of P, NP, NP-complete, and NP-hard	2,7	Un

SEMESTER – I			
Core II	**J2EE**		
Code : 19PCSC12	**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	identifying a high-level overview of the J2EE architecture	2	Re
CO-2	identify the services and components which comprise the J2EE specification	2	Re
CO-3	explain how J2EE technology applications are packaged	1,2	Un
CO-4	illustrate Web application development using Web Components Servlet and JSP	1,5,8	Un
CO-5	summarize the features of Servlet and frameworks used in web applications development	5	Un
CO-6	understand design applications using Straut and Hibernate and Spring	1,6	Un
CO-7	finding new applications from existing beans in Enterprise beans.	1,8	An
CO-8	summarizing the types of Enterprise beans	2	Un
CO-9	recognizing the Hibernate framework in the development of Java application.	1,5	Re

SEMESTER – I			
Core III	**Mathematical Foundations for Computer Science**		
Code : 19PCSC13	**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	finding the complementary relationship of skewness with measures of central tendency and dispersion in describing a set of data.	3	An
CO-2	understanding 'moments' as a convenient and unifying method for summarizing several descriptive statistical measures.	2	Un
CO-3	identifying the strength and direction of a linear relationship between two variables using Correlation.	2	Re
CO-4	illustrating how much a dependent variable changes based on adjustments to an independent variable using regression.	2	Un
CO-5	acquire the knowledge of logical operations and predicate calculus needed for computing skill.	2	Un
CO-6	finding whether the given grammar is regular or not.	1	An
CO-7	apply the acquired knowledge of formal languages to the engineering areas like Compiler Design.	1	Ap
CO-8	distinguishing Deterministic Finite automata and Non Deterministic Finite automata.	2	An

SEMESTER –I			
Core IV	**Advanced Computer Architecture**		
Code:19PCSC14	**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 basic structure of computer.	6	Un
CO-2	perform computer arithmetic operations.	6,2	Ev
CO-3	understand the concept of cache mapping techniques.	6	Un
CO-4	understand the concept of I/O organization	6	Un
CO-5	conceptualize instruction level parallelism	6	Un
CO-6	understand pipelining and its concepts	6	Un
CO-7	understand various data transfer techniques in digital computer.	6	Un
CO-8	analyze performance issues in processor and memory design of a digital computer.	6	An

SEMESTER –I			
Core V	**Neural Networks**		
Code:19PCSC15	**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 basic architecture of neural networks	1	Un
CO-2	understand basic learning algorithms	3	Un
CO-3	understand the classification taxonomy of NN	4	Un
CO-4	compare and analyse the training algorithms	4	An
CO-5	apply NN models to find solutions	4,6	Ap
CO-6	analyse the use of Associative memory	1	An
CO-7	learn to diagnose the cause and rectification of faults	4	Re
CO-8	compare different network models	4	An

SEMESTER – II			
Core VI	**Distributed Database Management System**		
Code : 19PCSC21	**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 what is Distributed DBMS	4	Un
CO-2	understand various architectures of DDBMS	4	Un
CO-3	apply various fragmentation techniques in a given problem	4	Ap
CO-4	understand the steps of query processing	4	Un
CO-5	finding how optimization techniques are applies to Distributed Database	4,6	An
CO-6	learn and understand various Query Optimization Algorithms	3	Un
CO-7	understand Transaction Management & Compare various approaches to concurrency control in Distributed database	6	Un
CO-8	understand various algorithms and techniques for deadlock and recovery in Distributed database	3	Un

SEMESTER- II			
Core VII – .Net Framework Programming			
Code: 19PCSC22	**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	set up a programming environment for ASP.net programs	1	Ap
CO-2	creating ASP.Net applications using standard .net controls	1	Cr
CO-3	develop a data driven web application	1,4	Ap
CO-4	connecting to data sources and managing them	1,4	Ap
CO-5	maintain session and controls related information for user used in multi-user web applications	1	Ap
CO-6	understand the fundamentals of developing modular application by using object oriented methodologies	1,4	Re
CO-7	learn to diagnose the cause of errors and handle it	1	Ap
CO-8	create and deploy ASP.NET web applications	1,4,6,8	Cr

SEMESTER- II			
Core VIII	**Data Mining & R Programming**		
Code: 19PCSC23	**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	display a comprehensive understanding of different data mining tasks and the algorithms most appropriate for addressing them.	1	Un
CO-2	know Strengths & Limitations of Data Mining Methods	1	Un
CO-3	display interesting patterns from large data, to extract and analyse, make predicitons and solve problems	1, 4	An
CO-4	evaluate models/algorithms with respect to their accuracy.	6	Ev
CO-5	demonstrate capacity to perform a self directed piece of practical work that requires the application of data mining techniques.	1	Ev
CO-6	develop hypotheses based on the analysis of the results obtained and test them.	1	Ev
CO-7	learn to Set Up Data for Experiments	1,4	Ap
CO-8	conceptualize a data mining solution to a practical problem.	1,4, 8	Ap

SEMESTER II			
Core IX	**Digital Image Processing**		
Code: 19PCSC24	**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	calculate the Fourier transforms of standard functions both from the definition and by using tables.	2	Ap
CO-2	design and implement the different transforms like Fourier transform and Z transform.	2	Cr
CO-3	write given function in terms of sine and cosine in Fourier series and also to get knowledge in Fourier Transforms.	2	Re
CO-4	solve finite difference equations using Z- transform using MATLAB	1	Ap
CO-5	review the fundamental concepts of a digital image processing system.	3	Re
CO-6	analyze images in the frequency domain using various transforms.	2	Re
CO-7	interpret image compression, segmentation and representation standards	3,4	An
CO-8	understand image filtering for use in various applications	1	Un

SEMESTER- II			
Core X	**Advanced Computer Networks**		
Code: 19PCSC25	**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	solve technical problems in ARQ protocols, MAC protocols and Routing Algorithm.	3,7	Ap
CO-2	demonstrate the working of HUB and Switches.	7	Ap
CO-3	examine the Performance of ARQ Protocols, Ethernet LAN, Token Ring, RIP, TCP and UDP.	7	Ap
CO-4	identify the networking technologies and associated network standards.	7	An
CO-5	solve technical problems in ARQ protocols, MAC protocols and Routing Algorithm.	3,7	Ap
CO-6	construct the route discovery algorithm to determine the shortest path in an internet represented as a weighted graph.	5,7	Ap
CO-7	understand network architecture	7	Un
CO-8	implementation of protocols like TCP, UDP and IP using OPNET and NS-2	5,7	Ap

SEMESTER-III			
Core XI	**Wireless Communication**		
Code: 19PCSC31	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits : 4**

Course Outcome:

CO.No	Upon completion of this course, students will be be able to	PSO addressed	CL
CO-1	understand wireless transceivers	7	Un
CO-2	describe the evolution and History of Wireless technology	7	Un
CO-3	compare 3G Cellular telephone data transfer rates with those over Wireless LAN	7	An
CO-4	list the use of at least two advantages of Digital encoding for cellular telephone systems	6	Ap
CO-5	identify two core networks associated with 3G Cellular networks	4	An
CO-6	describe the basic operation of GSM GPRS	7	Un
CO-7	apply the concepts learnt through theory and Laboratory in various applications to meet the empathetical needs our society.	8	Ap
CO-8	implement signal processing in wireless systems	6	Ap

SEMESTER – III			
Core XII	**Cloud Computing and Big Data**		
Code : 19PCSC33	**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	carry out the decisions based on data analytics.	3,6	Ap
CO-2	analyze the big data analytic techniques for useful business applications.	4	An
CO-3	identify the data models in relation to Big Data Storage and Analytics.	2	Re
CO-4	implemen Big Data applications Using Pig and Hive	1,8	Ap
CO-5	plan to work with big data platform	1,2	Cr
CO-6	identify the architecture, infrastructure and delivery models of cloud computing	2	Re
CO-7	apply suitable virtualization concept.	5,8	Ap
CO-8	organize the core issues of cloud computing such as security, privacy and interoperability	3,6	An

SEMESTER – III			
Core XIII	**Research Methodology**		
Code : 19PCSC34	**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	integrating knowledge of research processes.	8	An
CO-2	identifying the overall process of designing a research study.	8	Re
CO-3	carrying out ethical issues in research.	8	Ap
CO-4	explaining the concepts of research and its methodologies.	2	Un
CO-5	identifying the key elements of a research report.	8	Re
CO-6	finding the problem for research.	8	An
CO-7	understanding Plagiarism and its types.	8	Un
CO-8	apply the knowledge of teaching methods for its wide applicability.	8	Ap

SEMESTER – III			
Elective I A	**Fuzzy Logic**		
Code : 19PCSE31	**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 fuzzy concepts and develop a Fuzzy expert system to derive decisions.	2	Un
CO-2	utilize the fuzzy equivalence relations for the classification of remotely sensed data.	3	Ap
CO-3	recognize the feasibility and applicability of the design and implementation of intelligent systems (that employ fuzzy logic) for specific application areas.	3,6	Re
CO-4	understand fuzzy system design methodology and how it impacts system design and performance.	2	Un
CO-5	identifying the significant concepts on Fuzzy relations to enhance the appearance of images.	2	Re
CO-6	designing Neuro Fuzzy system model for data clustering and classification.	6	Cr
CO-7	implementing evidence theory with computational tools for data analysis.	3,6	Ap
CO-8	understand the Fuzzy measures which provide the framework to examine possibility theory.	2	Un

SEMESTER – III			
Elective I B	**Cellular Mobile Computing**		
Code : 19PCSE31	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 3**

CO No.	**Upon completion of this course, students will be able to**	**PSO addressed**	**CL**
CO-1	gain knowledge in cellular technology with various transmission techniques.	1, 7	Un
CO-2	understand the communication techniques under mobile computing.	1, 7	Un
CO-3	model radio signal propagation issues and analyze their impact on communication system performance	7,3	Cr
CO-4	understand how the various signal processing and coding techniques combat channel uncertainties	7, 1	Un
CO-5	understand the techniques of radio spectrum allocation in multi-user systems and their impact on networks capacity	7	Un
CO-6	evaluate the role of mobile applications in software intensive systems.	3	Ev
CO-7	assess and implement security principles in mobile applications.	7	An
CO-8	appraise the quality and performance of mobile applications.	6	An

SEMESTER – III			
Elective II A	**Object Oriented Software Engineering**		
Code : 19PCSE32	**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	design and implement a software system to meet desired needs.	3,6	Cr
CO-2	identify requirements of systems and applications.	3	An
CO-3	use modern software systems and tools.	1,6	Ap
CO-4	understand different software life cycle concept.	7	Un
CO-5	study and design SRS documents for software projects.	3,8	An
CO-6	study and model software projects using different modelling techniques.	3,8	An
CO-7	understand different techniques to map models to code.	7	Un
CO-8	discuss about project organisation and communication.	8	Ev

SEMESTER – III			
Elective II B	**Artificial Intelligence**		
Code : 19PCSE32	**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	find appropriate idealizations for converting real world problems into ai search problems formulated using the appropriate search algorithm.	1	An
CO-2	understand the fundamentals of knowledge representation (logic-based, frame-based, semantic nets), inference and theorem proving.	3,4	Un
CO-3	demonstrate working knowledge of reasoning in the presence of incomplete and/or uncertain information .	3	Re
CO-4	use a bayesian network to make quantitative (probabilistic) and qualitative inferences	4	Un
CO-5	express programming & simulation for solving problems by applying knowledge representation, reasoning, and machine learning techniques to real-world problems.	2, 6	Ap
CO-6	carry out independent (or in a small group) research and communicate it effectively in a seminar setting .	8	Ap
CO-7	represent difficult real life problems in a state space representation so as to solve them using ai techniques like searching and game playing.	6, 8	Ev
CO-8	develop intelligent algorithms for constraint satisfaction problems and also design intelligent systems	8	Ap

SEMESTER III	
Self Study Course / MOOC Professional Ethics	
Code: 19PCSSS1	**Credits : +2**

Course Outcome:

CO.NO	upon completion of this course, students will be able to	PSO addressed	CL
CO-1	the students will understand the importance of values and ethics in their personal lives and professional careers.	7	Un
CO-2	the students will learn the rights and responsibilities as an employee, team member and a global citizen.	7	An
CO-3	ability to engage in informed critical reflection on the nature of professionalism and ethical challenges inherent in professionalism	4	Ap
CO-4	knowledge of prominent normative ethics frameworks	7	Un
CO-5	awareness of types of ethical challenges and dilemmas confronting members of a range of professions (business, media, police, law, medicine, research)	7	Un
CO-6	ability to bring to bear ethical analysis	7	Ap
CO-7	ability to relate ethical concepts and materials to ethical problems in specific professions and professionalism	7	An
CO-8	ability to research appropriate material in relation to set questions in writing essays meeting the highest standards of rigor and clarity	7	Re

M.Com

SEMESTER –I			
Core I- Advanced Management Accounting			
Code: 19PCOC11	**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 significance of financial statements.	1,7	Un
CO – 2	understand the techniques of financial statement analysis	1,7	Un
CO – 3	prepare fund flow statements using financial statements.	1,3	Ap
CO – 4	prepare cash flow statements using financial statements.	1,3	Ap
CO – 5	compare the financial performance of companies using common size, comparative statement and trend analysis.	1,4,6	Ev
CO – 6	compare the financial performance of companies using ratio analysis.	1,4,6	Ev
CO – 7	describe Responsibility accounting.	1,4,6	An
CO – 8	prepare and apply Management Information System	8	Ap

SEMESTER –I			
Core II	**Marketing Management**		
Code: 19PCOC12	**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 prevailing modern marketing techniques.	1,3	Un
CO – 2	understand the significance of consumer behaviour and problems of Indian Consumers.	1,3	Un
CO – 3	understand the retailing strategies and retailing scene in India.	1,3,4	Ev
CO – 4	understand the important strategies for building Customer Relationship Management.	1,3,4	Ev
CO- 5	apply online marketing in various decision making techniques.	8	Ap
CO – 6	apply theories to avoid consumer exploitation.	8	Ap
CO – 7	understand how services can be marketed in an effective way.	1,2,4,6	Ev
CO - 8	understand and apply Marketing Research in business.	8	Ap

SEMESTER –I			
Core III - Statistics for Management			
Code: 19PCOC13	**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 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 sample statistics in parametrical tests in management decision making.	1,3	Ap
CO - 7	apply the Chi – Square test in statistical decisions.	1,3	Ap
CO - 8	analyse the various techniques of computing expected frequencies.	1,3,8	An

SEMESTER –I			
Core IV Entrepreneurial Development			
Code:19PCOC14	**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 significance of entrepreneurial skills.	1,4	Un
CO-2	understand the export potential of small entrepreneurs.	2,4	Ap
CO-3	know the financial assistance available to small entrepreneurs	3,4,5	Ev
CO-4	know the scope for rural industries.	1,4	Un
CO-5	know the institutional support provided to small entrepreneurs	1,4,8	Ap
CO-6	understand the procedure for setting up for MSME'S.	1,6	Un
C0-7	understand the process of preparation of project report for industries.	3,4	Ap
CO-8	study the impact of Women Entrepreneur in socio economic development	2,6,8	Ev

Semester - I			
Core V - Managerial Economics			
Code:19PCOC15	**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 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	know about market structure and pricing decisions.	3	Ev
CO - 4	know about price discrimination and its types	3	Ev
CO – 5	understand the pre-requisites of capital budgeting,	2	An
CO – 6	know about investment decisions under certainty and uncertainty.	3	Ev
CO – 7	know about business cycles, phases of economic stabilization policies	3,7,8	Ev
CO – 8	understand the fiscal and monetary policies and national income.	1,7	Un
CO – 9	understand the economic stabilization policies	1,7	Un

SEMESTER II			
Core VI	**Organisational Behaviour**		
Code: 19PCOC21	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits: 4**

Course Outcome:

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	1,5	Un
CO – 3	familiarise with the learning theories	5,8	Ev
CO-4	familiarise with the theories of motivation	4,5,8	Ev
CO-5	understand the various leadership styles and theories	4,5,8	Un
CO -6	understand the transactional analysis, group dynamics and conflicts	1,5	Un
Co - 7	understand the team building process	1,5	Un
Co - 8	understand the organisational change development and effectiveness	5,8	Un

SEMESTER –II			
Core VII	**Financial Management**		
Code: 19PCOC22	**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 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	apply the techniques of capital budgeting in financial decision making.	1,3,4,8	Ap
CO – 4	understand the importance and concepts of cost of capital.	1,3	Un
CO - 5	apply the capital structure theories to make optimal business decisions.	1,3,4	Ap
CO - 6	analyse the objectives and patterns of capital structure.	1,2 4,5	An
CO - 7	apply the capital budgeting techniques in investment proposals	1,4,5	Ap
CO - 8	analyse the various methods of valuation of shares and debentures	1,2,3	An

SEMESTER –II			
Core VIII	**Business Environment**		
Code: 19PCOC23	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits : 4**

Course Outcome:

CO No.	On completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	understand the framework and techniques of business environment.	1,4	Un
CO – 2	assess the various policies and economic reforms.	1,2	An
CO – 3	know the various roles of development banks in Industrial Development.	3,5	Un
CO – 4	know the various political and technological environment of business.	3,5	Un
CO- 5	discuss the socio-cultural environment and consumerism.	1,7	Ev
CO-6	understand the International Environment and growth of FDI.	1,8	Un
CO – 7	understand the International Environment and growth of World Bank.	1,8	Un
CO – 8	understand the International Environment and growth of IMF.	1,8	Un

SEMESTER –II			
Core IX	**Operations Research**		
Code: 19PCOC24	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits : 4**

Course Outcome:

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	understand the application of various decision making techniques	1,6,7	Ap
CO – 6	reap the maximum benefit out of the available resources through decision making techniques..	1,6,7	Ap
CO – 7	apply game theory in business decision.	7,8	Ap
CO – 8	apply simulation techniques	7,8	Ap

SEMESTER –II			
Core X Financial Markets and Institutions			
Code: 19PCOC25	**Hrs/Week: 4**	**Hrs/Sem: 60**	**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 and features of negotiable instruments like promissory note, bill of exchange and cheque.	1,3	Un
CO – 2	understand the constitutions, management and functions of RBI and commercial banks.	1,3,4	Ap
CO- 3	understand the present banking system of E-banking and its merits and constraints.	1,2,6	Ap
CO - 4	familiarise with the capital markets.	1,4	Ap
CO - 5	understand the various mutual funds prevailing in various financial institutions.	1,6	Un
CO – 6	understand various money market instruments and their utility	1,3,4	Ap
CO – 7	gain knowledge on merchant banking and services rendered by merchant banks.	1,2,6	Ap
CO - 8	learn the importance of stock exchange and their functioning	1,3,4	Ap

SEMESTER –II			
Elective I A Supply Chain Management			
Code:19PCOE21	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits : 3**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSO addressed	Cognitive Level
CO – 1	understand the concept, essentials and issues of Supply Chain Management	1,2	Un
CO – 2	understand the power of Supply Chain Management	1,2	Un
CO – 3	evaluate the design of Supply Chain Management	7,8	Ev
CO - 4	know the different types of supply chain	2,4	Ap
CO - 5	know the importance of Supply chain management technology	2,3,4	An
CO-6	knowledge of green supply chain management	1,3	Ap
CO-7	understand the Supply Chain management in emerging markets	1,4	An
CO-8	research in supply chain management	5,6	Ev

SEMESTER –II			
Elective I B	**Green Marketing**		
Code: 19PCOE21	**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 the concept of Green market and Green products.	1,3	Un
CO-2	have a broader understating of Green Marketing and its significance.	2,4	An
CO-3	learn the factors that affect purchase decision of consumers.	3,6	Un
CO-4	learn the laws that promote Green Marketing.	1,8	Ev
CO-5	manage e waste.	1,8	Ap
CO-6	useEco friendly products.	4,6	Un
C0-7	initiateadoption of green initiatives.	5,7	Ap
CO-8	understand the green environment policies.	1,7	An

SEMESTER –III			
Core XI Advanced Corporate Accounting			
Code: 19PCOC31	**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	have basic knowledge in Corporate Accounting and make suitable career choices.	1,2,3	Ev
CO – 2	understand the accounting system of Banking companies.	6,7	Ap
CO – 3	understand the accounting system of Insurance companies.	6,7	Ap
CO – 4	understand the accounting system of Electricity companies.	6,7	Ap
CO – 5	understand the accounting system of Holding companies.	6,7	Ap
CO – 6	understand the features and methods of Accounting for charging prices or Inflation Accounting and valuation of Human Resources.	6,7,8	Ap
CO-7	familiarise and apply the Human Resource Accounting.	1,8	Ap
CO-8	apply the accounting standards in preparation of financial statements.	1,4,8	Ap

SEMESTER –III			
Core XII	**Human Resource Management**		
Code: 19PCOC32	**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 significance of Human Resource Management.	1,3	Un
CO – 2	understand the process of recruitment, selection, placement and induction.	1,2,3	Un
CO – 3	know the various training methods, executive development programme.	1,7	Ev
CO – 4	understand the various Participative management techniques.	1,7	Ev
CO-5	understand the various compensation plans, reward system and quality of work life.	2,3, 8	Ap
CO – 6	understand the safety and welfare measures.	1,4,8	Ap
CO – 7	understand the procedure for performance appraisal.	1,4,8	Ap
CO – 8	understand and apply grievance handling procedures and machinery for settlement of disputes.	1,4,8	Ap

SEMESTER –III			
Core XIII E – Commerce			
Code: 19PCOC33	**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 concepts, application and models of e-commerce.	1,2,5	Un
CO – 2	learn the importance and application of electronic media for marketing of goods and services.	1, 5	Ap
CO – 3	evaluate the types of e- payment systems and know its operational,credit and legal risks.	1,2,5	Un,Ev
CO – 4	understand the dynamics of internet banking, security mechanism involved in net banking and inherent risks	1,7	Un,Ap
CO - 5	gain knowledge on e-sourcing and e-Trading and its use for generating income	1,7	Un,Ap
CO - 6	understand the types of security threats in e-Commerce transactions	1,5,6	Un, Re
CO - 7	analyse and evaluate e-Commerce Security Solutions for online transactions	1,5,6	An,Ev
CO - 8	identify the security issues and regulatory and legal framework in e-Commerce.	2, 6	Ap

SEMESTER –III			
Core XIV International Business			
Code: 19PCOC34	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits : 4**

Course Outcome:

	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	understand the unique problems of foreign economic, social, political, cultural and legal environment.	4	Ev
CO – 3	expose regional economic and political integration.	1,4	Ev
CO – 4	understand accounting systems of various countries and foreign exchange with balance of payment.	3,7	An
CO-5	familiarise with multinational corporations in India.	1,4	Un
CO – 6	expose towards the dynamics of International Business.	1	Ap
CO – 7	understand the different business centres and blocks.	8	Un
CO - 8	expose on MNC’s at International Level.	4	Ev

SEMESTER –III			
Core XV Research Methodology			
Code: 19PCOC35	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits : 4**

Course Outcome:

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	1,2,7	Un,Ap
CO – 3	identify the type of research design for different types of research work.	2,7	An
CO – 4	gain knowledge on sampling design and apply it for research	2,7,8	Un,Ap
CO – 5	understand the use of appropriate method for collection of data.	2, 3,4	An,Ap
CO – 6	process and analyze the data with appropriate statistical tools.	2,4,7	Ev,Ap
CO – 7	evaluate the result of research analysis, make suitable interpretation and use the mechanics in writing the research report.	7,8	Ev,Ap
CO – 8	understand the mechanics in writing a good research report.	7,8	Un,Ap

SEMESTER – III			
Elective II A	**Corporate Legal Framework**		
Code : 19PCOE31	**Hrs / Week : 4**	**Hrs/Sem : 60**	**Credit : 3**

Course Outcome:

CO No.	Upon completion of this course,students will be able to	PSO addressed	Cognitive Level
CO – 1	understand the provisions of various laws.	1,3,6	Un
CO – 2	understand the role of SEBI	1,8	Un
CO - 3	be familiar with the Regulatory Environment for International Business.	4	Ap
CO - 4	understand and identify the problems of consumers and redress the grievance.	1,8	Ap
CO - 5	understand the Negotiable Instruments	1,3,8	Ap
CO - 6	know about consumer rights	1,8	Ap
CO – 7	understand about the operations of grievance redressalforum.	1,8	Un
CO – 8	be familiar with the regulations of SEBI	1,8	Un

SEMESTER – III			
Elective II B	**Tourism Management**		
Code: 19PCOE31	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits : 3**

Course Outcome:

CO No.	Upon completion of this course,students will be able to	PSO addressed	Cognitive Level
CO – 1	understand the importance of tourism.	1,3,6	Un
CO – 2	analyse the planning process of tourism.	1,8	An
CO - 3	understand staffing in tourism organization.	1,4	Un
CO-4	evaluate the leadership and communication in tourism organization.	1,8	Ev
CO-5	understand the functions of national tourist organization.	1,3,8	Un
CO - 6	evaluate the accommodation management.	1,8	Ev
CO – 7	understand the setting up of travel agency.	1,8	Un
CO – 8	know about the tour operators in India.	1,8	Un

SEMESTER-III	
SELF STUDY--STRESS MANAGEMENT	
Code: 19PCSS31	**Credits:2**

Course Outcome:

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

SEMESTER –IV			
Core XVI	**Advanced Cost Accounting**		
Code: 19PCOC41	**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 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 accounting for jobs.	4,6	Ap
CO – 3	understand the significance of contract costing and calculation of profit in contract cost.	4,6	Ap
CO – 4	analyse the significance of process costing and its application in different industries.	4,6	Ap
CO – 5	applications of Marginal costing techniques in managerial decision making.	4,6	Ap
CO – 6	understand the methods of costing used in service undertakings.	6,7	Ap
CO – 7	evaluate the inter firm comparison in managerial decision making.	6,7	Ev
CO – 8	evaluate the importance of uniform costing in managerial decision making.	6,7	Ev

SEMESTER –IV			
Core XVII	**Taxation and Tax Planning**		
Code: 19PCOC42	**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	know the concepts of Direct Taxes.	1,3	Un
CO- 2	understand the recent developments in Direct Taxation.	3,4	Un
CO- 3	compute the different heads of income.	3,6	Ap
CO- 4	understand the various assessment procedures, returns and types of assessment	1,3	Un
CO- 5	calculate the income of individuals and H.U.F.	3,6,7	Ap
CO- 6	understand and compute Total income, TDS and Advance tax	3,4,7	Ap
CO -7	compute the income of Firms and Tax on their Income.	4,6,8	Ap
CO- 8	prepare the tax returns and advise the assessee on their assessment	3,6,7	Ap

SEMESTER –IV			
Core XVIII Computerised Accounting Packages – Tally 9.0 Erp			
Code: 19PCOC43	**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 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	know the procedural Creation of cost categories, types of vouchers with ledger entry for the preparation of final accounts in Tally ERP.9 software.	1,2,4	Un
CO – 4	learn the concept, importance and application of GST	1,4,5	Ap
CO – 5	understand the Registration, Accounts and Returns under GST	4,5	Ap
CO –6	be familiar with the statutory Taxation of Tally like TDS.	1,4,5	Ap

SEMESTER –IV			
Core- XIX Computerised Accounting Packages – Tally 9.0 ERP[Practicals]			
Code: 19PCOC44	**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	imbibe growth of software for accounting entry with technical advantages and fundamental concepts	1,2,4	Un
CO – 2	prepare stock items, stock groups, units of measure creation with Godown transfer.	1,2,4	Ap
CO – 3	create cost categories, vouchers with ledger entry for the preparation of final accounts .	1,2,4	Ap
CO – 4	learn the concept, importance and application of GST	1,4,5	Ap
CO – 5	prepare GST Registration and Returns under GST	1,4,5	Ap
CO –6	be familiar with the statutory TDS Taxation in Tally like TDS.	1,4,5	Ap
CO – 7	create Pay roll info in Tally ERP	4,5	Ap
CO – 8	prepare employee creation, pay heads, attendance, in appropriate employee group	4,5	Ap

M.Sc. Microbiology

SEMESTER- I			
Core I - Fundamentals of Microbiology			
Code : 19PMIC11	**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	understand various physical and chemical means of sterilization.	1,5	Un
CO-6	know various culture media and its application	4	Kn
CO-7	analyse nutritional requirements of microbes.	5,6	Ev
CO-8	understand the techniques for isolation of pure culture of microorganisms.	1,5,6	Un

SEMESTER I			
Core – II Microbial Diversity And Classification			
Code : 19PMIC12	**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
CO -6	understand the general classification of microbes	4	Un
CO -7	explain the characters of protozoa	4	Un
CO -8	understand the characters of arthropod vectors	3	Un

SEMESTER I			
Core III- Biochemistry			
Code : 19PMIC13	**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 classification and properties of amino acids.	5	Kn
CO-6	recognize the importance of nucleic acids and its role.	6	Un
CO-7	know the dna, rna structure, function, types and importance	6	Kn
CO-8	understand the functions of enzymes, coenzymes and cofactors	5,6	Un

SEMESTER – I			
Core – IV Microbial Physiology			
Code : 19PMIC14	**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
CO -7	prioritize various aerobic and anaerobic phototrophic bacteria with examples	1,2	E v
CO - 8	know about various pigments of the photosynthetic apparatus and learn about photosynthesis in *halobacteria* bioluminescence.	2,6	K n

SEMESTER – I			
Core Practical I - Laboratory in Fundamentals of Microbiology, Microbial Diversity and Classification			
Code: 19PMICR1	**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	develop bio-safety procedures in microbiology.	2	Re
CO-2	develop basic skill in aseptic techniques	2	Un
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
CO-7	isolate and characterize bacteria by steak plate method.	2, 4 5	Un
CO-8	understand the enumeration technique for water,air and soil samples.	2, 4, 5	An

SEMESTER I			
Core Practical - II- Laboratory in Biochemistry and Microbial Physiology			
Code : 19PMICR2	**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	recall about how to separate amino acid by paper chromatography	1	R n
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
CO- 7	conclude the procedure for lactophenol cotton blue staining and turbidity method.	4,6	An
CO- 8	explain the fungal slide culture preparation and to examine dry weight of bacteria.	1,3	Ev

SEMESTER – II			
Core – V Immunology			
Code : 19PMIC21	**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	interpret the basic system of immune response.	1	Un
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	assess the detailed information about the mhc and hla.	4	Ev
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
CO - 7	improve the knowledge about various hypersensitivity reactions and transplantation immunology.	3,4	Cr
CO - 8	prioritize various applications of monoclonal antibodies and types of vaccines.	1	E v

SEMESTER-II			
Core-VI Medical Microbiology			
Code: 19PMIC22	**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
CO -7	outline the concepts of chemotherapy and its mode of action	4	Un
CO -8	explain the knowledge of mycology and parasitology	5	Un

SEMESTER – II			
Core –VII Microbial Genetics and Molecular Biology			
Code: 19PMIC23	**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
CO-7	interpret the central dogma of molecular biology	1	Un
CO-8	agree the concept of mutation	2	Ev

SEMESTER – II			
Core VIII -Marine Microbiology			
Code :19PMIC24	**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	determines the microbial indicator organisms.	1	Kn
CO-6	explain the concept of marine pollution	2,3,4	Co
CO-7	grasp the knowledge about bioactive compounds.	2,3,4	An
CO-8	know the wealth of the sea	2	Kn

SEMESTER II			
Core Practical III- Laboratory in Immunology and Medical Microbiology			
Code : 19PMICR3	**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	improve their ability to perform rpr test for syphilis.	6	Un
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	demonstrate antibiotic susceptibility test.	5	Ap
CO -7	test urine samples.	4	Cr
CO - 8	examine stool sample .	4	An

SEMESTER – II			
Core Practical -IV-Laboratory in Microbial Genetics, Molecular Biology and Marine Microbiology			
Code : 19PMICR4	**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	assess the isolation of autotrophic mutants.	3	Ev
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 salinity of marine water.	2,3,4,5	Kn, Ap
CO -7	determine the acidity, alkalinity of marine water.	1,4,5	Kn, Ap, Ev
CO- 8	acquire the knowledge to identify the marine micro organisms.	1,3,4	Kn,An,Ap

SEMESTER-III			
Core-IX- Industrial and Pharmaceutical Microbiology			
Code:19PMIC31	**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	understands in the field of pharmaceutical microbiology	1	Un
CO-6	knowledge of basics and applied microbiological aspects of industries.	1	Un
CO-7	acquire the knowledge about production of various industrial and pharmaceutical products	4,5	Un
CO-8	know the detail knowledge about antibiotics and production of hormones	2,3,4	Un,Ap

SEMESTER-III			
Core-X- Genetic Engineering			
Code -19PMIC32	**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 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	understands the concepts of blotting techniques and its applications	3	Un
CO -6	discuss the cloning techniques and the production of transgenic materials	4	Un,An
CO -7	understand the synthesis of genetically modified commercial products	4	Un
CO- 8	make use of enzymology in genetic engineering	1	Cr

SEMESTER –III			
Core- XI - Food and Dairy Microbiology			
Code : 19PMIC33	**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 the techniques in food microbiology.	1	An
CO- 2	explain the about microorganisms important in food	2,5	Un
CO -3	knowledge about the microbial contamination of food.	1,2,4	Un
CO- 4	knows about the techniques in food preservation and fermented foods	3,4,6	Re
CO -5	knowledge about beneficial and harmful aspects of microbes in dairy products	2,4,5,6	Cr
CO -6	communicate the recent techniques on good manufacturing.	2,4,5,6	Un
CO-7	grasp the quality and safety assurance in food industry and the hazard analysis and critical control point	2,3	Re, Un
CO-8	grasp microbial examinations in food	4,5	Un,Ap

SEMESTER –III			
Core – XII Research Methodology			
Code : 19PMIC34	**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	examine electrophoresis techniques	6	An
CO-5	apply research methods in biological science.	1	Ap
CO-6	estimate project writing method and to estimate data's used in projects.	1	Ev
CO-7	identify the journals to publish articles	1	AP
CO-8	design article to present on seminar and the conference	5	Cr

SEMESTER – III			
Core Practical - V – Laboratory in Industrial and Pharmaceutical Microbiology, Genetic Engineering			
Code: 19PMICR5	**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	relate the procedures and principle of pharmaceutical products test	1	Re
CO 2	conclude the procedure for isolation of hydrocarbon, plastic degrading micro organisms	4,6	An
CO 3	outline kirby-bauer disc diffusion technique, minimum inhibitory concentration.	4	Un
CO 4	recall how to perform enzyme immobilization in sodium, calcium alginate gel	2,3	Re
CO 5	examine isolation of spontaneous and induced mutants	3	An
CO 6	evaluate polymerase chain reaction	2	Ev
CO 7	assess the isolation of autotrophic mutants	3	Ev
CO 8	distinguish between transformation, conjugation and transduction	2	An

SEMESTER-III			
Core Practical VI - Laboratory in Food and Dairy Microbiology, Research Methodology			
Code: 19PMICR6	**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
CO -7	evaluate agarose gel electrophoresis of DNA	3	Ev
CO -8	evaluate P^H meter, spectrophotometer	3	Ev

SEMESTER- III	
Self Study Course (Optional) -Probiotics	
Code:19PMISS1	**Credit: +2**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	recall the basic knowledge on probiotics	3	Re
CO -2	be acquainted with characteristics of probiotics	1,2	Kn
CO-3	can analyses the aware the probiotics organisms.	2,3,4	Ev
CO-4	interpret the knowledge on the roles of probiotics.	1,2	Ap
CO-5	differentiate the probiotics and prebiotics	1,2	Co
CO-6	explain the concept of mechanisms of probiotics	2,3,4	Un, Ap
CO-7	grasp the knowledge about prebiotics.	2,3	An
CO-8	know the wealth of the probiotics and prebiotic	2	Kn

SEMESTER – IV			
Core – XIII- Environmental Microbiology			
Code :19PMIC41	**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	1	Re,
CO -2	have knowledge about the interaction between microbes and organisms at other tropic level.	1,2	Un, An
CO-3	interpret the microbiology of sewage and its treatment	2,3	Co
CO-4	explain about aero microbiology and microbial ecology	2	Un, An
CO-5	acquire basic knowledge about water purification	2	Ap
CO-6	gets knowledge about diversity in anoxic ecosystem.	2,4	Co
CO-7	understanding about biodegradation.	2	Sy
CO-8	develop the application of biodegradation and bioremediation.	5	Ap, Cr

SEMESTER – IV			
Core – XIV- Soil and Agricultural Microbiology			
Code :19PMIC42	**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
CO-7	demonstrate an understanding of bio fertilizer	2	Sy
CO-8	develop the application of bio fertilizers in agricultural	5	Ap, Cr

SEMESTER –IV			
Core XV – Applied Microbiology			
Code: 19PMIC43	**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	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
CO-7	acquire detail knowledge about bioremediation.	2,4	Ap
CO-8	acquire the detail knowledge on bioaccumulation and bioleaching.	4,5	Un,Ap

SEMESTER- IV			
Core Practical -VII – Laboratory in Environmental Microbiology, Soil and Agricultural Microbiology			
Code : 19PMICR7	**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
CO -7	demonstrate the isolation of phosphate solubilizing bacteria	5	Un
CO- 8	identify nitrogen fixing bacteria	5	Ap

SEMESTER –IV			
Core Practical VIII - Laboratory in Applied Microbiology			
Code: 19PMICR8	**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
CO-7	have knowledge on entrepreneurship skill	2,4	Ap
CO-8	acquire detailed knowledge about production techniques through the industrial visit.	4,5	Un,Ap

MHRM

SEMESTER I			
Core I	**Principles of Management**		
Code: 19PHRC11	**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 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.	1,3	An
CO-5	gain knowledge on decision making and co-ordinating.	1,3,5	Un
CO-6	apply the techniques of control.	1,3,5	Ap ,An
CO-7	analyse the stages of conflict and management of conflict.	1,3	An
CO-8	identify the need, strategy for planned change and organizational development.	3	Un ,Ap

SEMESTER I			
Core II	**Fundamentals of Human Resource Management**		
Code: 19PHRC12	**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	summarise 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	Cr
CO-5	understand and explain and analyse the induction programme.	1	An
CO-6	examine the process of performance appraisal and potential appraisal.	1	An
CO-7	understand the concept of QWL and QC.	1	Un
CO 8	evaluate Job satisfaction, morale, industrial peace and harmony.	1	Ev

SEMESTER I			
Core III	**Accounting for Managers**		
Code: 19PHRC13	**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 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.	4	Ap
CO-5	prepare fund flow statement.	4	Ap
CO-6	understand the objectives and steps in budgetary control and prepare the various types of budget.	4,6	Un , Ap
CO-7	able to use the various types of ratios for managerial decision.	4,6	An ,Cr
CO-8	apply accounting knowledge for planning and control.	1,4,6	Un ,Ap

SEMESTER I			
Core IV	**Psychology for Human Resource Management**		
Code: 19PHRC14	**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	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.	1,3	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.	1,3	Ev,Ap
CO-7	examine the functions of industrial psychologist.	3	An
CO-8	discuss the meaning, factors, theories and identify the ways of measuring personality.	3	Ap

SEMESTER I			
Core V	**Industrial Relations**		
Code: 19PHRC15	**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	understand the interaction pattern among labour, management and the State.	2 ,1	Un
CO-2	have a basic knowledge of the Indian Industrial Relations System and it's distinctive features	2 ,1	Un
CO-3	understand the various approaches to Industrial Relations.	2,3	Un
CO-4	examine the concepts, functions, structures and evaluate the problems of trade union.	2	Ev
CO-5	understand the importance, types and process of collective bargaining and discuss the negotiation process during collective bargaining.	2,3	Re , An
CO-6	analyse and apply the concept, forms ,levels of WPM and evaluate the reasons for failure of WPM.	2,3	An, Ap
CO- 7	be efficient enough to handle the grievance measures according to the changing scenario of social and industrial environment.	2,3	Un, Ap
CO -8	state the causes for indiscipline and analyse the code of discipline in Industry.	2,3	Un , Ap

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SEMESTER II			
Core VI	**Organisational Behaviour**		
Code: 19PHRC21	**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	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	3	Un
CO-4	examine the concepts and theories of Motivation 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
CO-7	evaluate the Organisational change and reasons for Organisation Change.	3	Ev
CO-8	examine the concept of Organisation Development and Effectiveness.	3	An

SEMESTER II			
Core VII	**Labour Legislation**		
Code: 19PHRC22	**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	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.	2	Un
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.	2	Un , Ap
CO-6	interpret the knowledge in laws related to social security and apply the laws according to the needs.	2 ,5	Ap
CO-7	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
CO-8	be competent with the various legal aspects of women and children.	2	Un , Ap

SEMESTER II			
Core VIII	**Human Resource Planning and Development**		
Code: 19PHRC24	**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	understand the objectives, importance and techniques of human resource planning.	1,3	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	discuss the concept of employee empowerment	1,5	Re , Un
CO-5	know the concept managing hr in virtual organisation.	1,3	Re
CO-6	recall and interpret the objectives, scope and steps in hr audit.	1,5	An
CO-7	examine the ethical issues in Organisation and the factors influencing ethical behavior at work.	1	An
CO-8	discuss the concept of international human resource management	1,3	Re, Un

SEMESTER II			
Core IX	**Recruitment and Selection**		
Code: 19PHRC24	**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	understand the skills needed for recruitment and selection.	5	Un
CO-2	describe the meaning, functions, objective, importance of recruitment and hiring process.	5	Un
CO-3	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-4	write application form, bio data and resume.	5	Cr
CO-5	determine the features, purpose, types, process, advantage and disadvantage of testing and interviewing.	5	Ev
CO-7	design different ability tests and practice interview techniques.	5	Cr , Ap
CO-8	discuss the purpose, methods of collecting reference data, contents of appointment order and medical examination and develop appointment orders.	5	Un ,Cr

SEMESTER II			
Core X	**Total Quality Management**		
Code: 17PHRC25	**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	discuss the concept of quality and total quality management.	4	Un
CO-2	gain insights on TQM approaches	4	Ev
CO-3	define and list the steps in supplier partnering.	4	Re
CO-4	gain knowledge on the tools and techniques of TQM	4,6	Re , Ap
CO-5	gain knowledge on the concept of six sigma and quality circles	4	Re , Ap
CO-6	discuss the concept of benchmarking	4	Un
CO-7	state the quality systems and ISO 9000	4	Re
CO-8	examine ISO 14000.	4	An

SEMESTER II			
Core XI Practical –I Soft Skills Development			
Code: 19PHRCR2	**Hrs/Week: 4**	**Hrs/Sem:60**	**Credit: 2**

Course Outcome

CO No.	Upon completion of this course, students will be able to	PSO 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.	5, 8	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.	5, 8	Un ,Ap
CO-7	develop better workplace etiquettes.	5, 8	Un
CO-8	obtain a sense of responsibility for the multi-disciplinary nature of event management.	5, 8	Un, Cr

SEMESTER III			
Core XII	**Research Methodology**		
Code: 19PHRC31	**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	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.	7	Un
CO-3	demonstrate the research problem and research design.	7	Ap
CO-4	gain knowledge of sampling design and scaling techniques and demonstrate the knowledge of scaling methods.	7	Un , Ev
CO-5	understand and decide the methods of data collection and process the data collected.	7	Un , An
CO-6	experiment with the collection, processing and interpretation of data.	7	Ap
CO-7	train students in learning the accepted formats for writing research report.	7	An
CO-8	analyse the findings and formulate their own reports.	7	Cr

SEMESTER III			
Core XIII	**Compensation Management**		
Code: 19PHRC32	**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	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.	2	An
CO-5	determine the determinants and types of incentives.	5	Ev
CO-6	understand the types of rewards for employees	5	Un
CO-7	understand the meaning, objectives, features and forms of employee benefits and services.	5	Un
CO -8	investigate the types of fringe benefits and other benefit programmes.	5	An

SEMESTER III			
Core XIV	**Statistics For Management**		
Code: 19PHRC33	**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	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.	6 , 7	Un , Ap
CO-6	understand the concept of Chi-square and use it as an analytical tool for making business decisions.	6 , 7	Un ,Ap
CO-7	appreciate the importance and application of non-parametric tests.	6 , 7	Un
CO-8	use correlation and regression models to analyse the relationships between variables.	6 ,7	Un, Cr

SEMESTER III			
Elective I	**Performance Management**		
Code:19PHRE31	**Hrs. / Week : 4**	**Hrs / Sem : 60**	**Credit: 3**

Course Outcome

CO No.	Upon completion of this course, students will be able to	PSO 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	5	Un
CO-5	the different methods of measuring performance	5	Un
CO-6	gain knowledge and analyse about the different performance tools.	5	Un ,An
CO-7	learn and conduct appraisal interviews and BARS	5	Un, Ap
CO-8	acquire knowledge about the performance evaluation	5	Un

SEMESTER III			
Elective I Business Ethics, Corporate Social Responsibility and Governance			
Code: 19PHRE31	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credit: 3**

Course Outcome

CO No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the nature and characteristics of Business ethics.	6	Un
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.	4,6	Ap , An
CO-7	analyse the cases in corporate governance.	4,6	Ap ,An
CO-8	identify the challenges and implementation of Corporate Social Responsibility.	6	Ap

SEMESTER- III			
Elective II	**Managerial Economics**		
Code: 19PHRE32	**Hours / Week :4**	**Hrs / Semester: 60**	**Credit :3**

Course Outcome

CO No.	Upon completion of this course, students will be able to	PSO 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.	4	Un , Ap
CO -6	gain knowledge of market structure and pricing.	4	Un , Ap
CO-7	gain insights to the macro economic factors.	4	Un
CO-8	gain knowledge on the monetary and fiscal policies.	4,7	Un

SEMESTER III			
Elective II	**Business Environment**		
Code: 19PHRE32	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credit: 3**

Course Outcome

CO No.	Upon completion of this course, students will be able to	PSO 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.	4	Un
CO-4	understand the concept of Political Environment	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
CO- 7	gain knowledge of the technological developments and the impact of informational technology.	4,6	Un , Ap
CO-8	explain the Economics of development and help in preparing appropriate strategies for organisations to face the challenges.	4	Re, Un

SEMESTER III			
Core XV	**Summer Internship**		
Code: 19PHRI31	**Hrs/Week 8**	**Hrs/Sem 105**	**Credit: 8**

Course Outcome

CO No.	Upon completion of this course, students will be able to	PSO 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 III	
Self-Study Paper Personality Development	
Code: 19PHRSS1	**Credits: 2**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the key aspects of communication in organisation.	3	Un
CO-2	gain knowledge on Interpersonal relationships.	3	Un
CO-3	examine the concepts of personality.	5	An
CO-4	understand various factors affecting personality.	3	Un
CO-5	explain various personality traits.	3	Ev
CO-6	gain knowledge on five pillars of personality development.	3	Un, Ap
CO-7	analyse the concept of mind mapping.	5,6	An
CO-8	identify the various types of personalities in an organisation.	3,6	Ev

SEMESTER IV			
Core XVI	**Strategic Management**		
Code: 19PHRC41	**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	understand the kinds of strategies and importance of strategic management .	3	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.	3,6	Ev
CO-7	describe the concept of strategy implementation.	3	Re
CO-8	understand the features of effective evaluation and control.	3,7	Un

SEMESTER IV			
Core XVII	**Human Resource Information System**		
Code: 19PHRC42	**Hrs/Week: 5**	**Hrs/Sem:75**	**Credit: 4**

Course Outcome:

CO No	**Upon completion of this course, students will be able to**	**PSO addressed**	**CL**
CO-1	describe the role of Human Resource Information Systems in business.	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	Ap
CO-5	understand the concepts and methods of HR accounting	7	Un
CO-6	evaluate the steps in system development, and describe the process of system design and implementation.	7	Un, Ev
CO-7	discuss the types of IS threats and various kinds of security technology.	7	An
CO-8	discuss the emerging trends of HRIS and outsourcing of HR	7	An

SEMESTER IV			
Elective III	**Training and Development**		
Code: 19PHRE41	**Hrs/Week: 5**	**Hrs/Sem:75**	**Credit: 3**

Course Outcome

CO No.	Upon completion of this course students will be able to	PSO 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.	5	An
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
CO-7	understand the meaning, concept, objectives, need and role of Development programme.	5	Un
CO-8	discuss the need, approaches and examine the types and stages of evaluation.	5	Un ,An

SEMESTER IV			
Elective III	**International Human Resource Management**		
Code: 19PHRE41	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credit: 3**

Course Outcome

CO No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the concept of International Human Resource Management.	1,5	Un
CO-2	gain knowledge on the Cross-border Alliances and SMEs.	4	Un
CO-3	examine the concepts of Staffing International Assignments.	1,5	An , Cr
CO-4	explain the concept of the Roles of Expatriates and Non-Expatriates.	1,5	Ap, An
CO-5	gain knowledge on International training and development.	1,5	Un
CO-6	utilize and apply the knowledge in managing human resources in offshoring countries.	1,5	Ap, An
CO-7	analyse the key issues in International Industrial Relations.	1,5	Re,An
CO-8	understand the concept of trade unions and response of trade unions to multinationals.	1,5,6	Un

SEMESTER IV			
Elective IV	**Coaching , Mentoring and Counselling**		
Code: 19PHRE42	**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 concepts of Coaching, Mentoring and Counselling.	3	Un
CO-2	understanding 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.	3	Ev
CO-7	learn about creating a physical environment for rapport building.	3	An
CO-8	identifying roadblocks	3	Ap

SEMESTER IV			
Elective IV	**Entrepreneurship**		
Code: 19PHRE42	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credit: 3**

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	gain of knowledge on the concept of entrepreneurship.	1,3	Un,Ap
CO-2	understand the role of entrepreneurship in economic development	3,4	Un,Ev
CO-3	explain the basic concepts of small-scale enterprise.	3,4	Un,Ev
CO-4	understand the steps involved to start small scale enterprise.	3,4	Un
CO-5	examine the institutional support provided to small enterprise.	3,4	Un,Ap
CO-6	gain knowledge on creativity and innovation in business.	3,4	An,Ap
CO-7	understand the concept of feasibility analysis and project report preparation.	3,7	Un,Ap
CO-8	utilize the concept of project appraisal and environmental clearance of small scale enterprise.	3,4,7	An,Ap

SEMESTER IV			
Core XVIII	**Project**		
Code: 19PHRP41	**Hrs/Week: 8**	**Hrs/Sem:120**	**Credits: 8**

Course Outcome

CO No.	Upon completion of this course, students will be able to	PSO 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