



MAR ATHANASIOUS COLLEGE (AUTONOMOUS)

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OUTCOME BASED EDUCATION

PROGRAM OUTCOME PROGRAM SPECIFIC OUTCOME & COURSE OUTCOME

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KOTHAMANGALAM**

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**PROGRAM OUTCOME
PROGRAM SPECIFIC OUTCOME
&
COURSE OUTCOME**

Programme Specific Outcome of BA English

PSO NO.	Upon completion of BA English programme , the students will be able to:	PO NO	Relevance to Local/National/Regional/Global developmental needs
PSO 1	Develop an aesthetic sensibility to appreciate literary works	1,2,4	G/N/R
PSO-2	Acquire comprehensive knowledge about various literary movements and traditions	1,2,4	L/N/R/G
PSO-3	Understand the fundamental concepts and theories of English Literature and Cultural Studies	1,2,4	G/N/R
PSO-4	Attain mastery in English language that would open up better employment avenues	3,,4,6	L/N/R/G
PSO-5	Demonstrate writing, speaking, reading and listening competence in two languages	3,4,6	L/N/R/G
PSO-6	Broaden their perspectives and value dimensions by engaging with the works of the most creative minds across the world	2,4	R/N/G
PSO-7	Gain a thorough understanding on the evolution of English language and the developments in linguistic analysis	1,2,6	N/G
PSO-8	Accrue critical aptitude towards various socio-cultural events, environmental and human rights issues, historical and political incidents	1,4,6	L/R/N/G

Course Outcome of BA English

Course Outcome No.	Upon completion of the course <i>Fine Tune Your English</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Apply theoretical notions of English language in speaking and writing	K6	PSO 5	G/N/R/L
CO 2	Effectively use English for formal communication	K2	PSO 5	G/N/R/L
CO 3	Have a good command over the language	K2	PSO 5	G/N/R/L
CO 4	Attain proficiency in the grammatical nuances	K1	PSO 5	G/N/R/L
CO 5	Explore the varied dimensions of spoken and written communication	K4	PSO 5	G/N/R/L

Course Outcome No.	Upon completion of the <i>course Pearls from the Deep</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand the generic differences in literature	K2	PSO 1	G/N
CO 2	Get a panoramic view regarding the use of creativity and imagination in literary writing	K2	PSO 1	G/N/R/L
CO 3	Acquire knowledge about the different cultures and geographical spaces	K5	PSO 8	G/N/R/L
CO 4	Critically look at the politics and ideologies of various literary works	K4	PSO 6	G/N/R/L
CO 5	Develop an aesthetic ability to enjoy and relish literature	K6	PSO 8	G/N/R/L
CO6	Inculcate a passion for creative writing.	K3	PSO 8	G/N/R/L

Course Outcome No.	Upon completion of the <i>course Methodology of Literary Studies</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand different paradigms in the field of literary theory	K2	PSO 3	G/N
CO 2	Develop a critical methodology for literary studies	K3	PSO 2	G/N
CO 3	Explain the basic precepts of various key concepts like Formalism, Feminism and Post- Colonialism	K2	PSO 3	G/N
CO 4	Evaluate how literary works express theoretical concepts	K5	PSO 6	G/N/R/L
CO 5	Describe both the limitations and further possibilities of different theoretical concepts	K1	PSO 8	G/N

Course Outcome No.	Upon completion of the <i>course Issues that Matter</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand different life writings and issues raised by renowned authors	K2	PSO 1	G/N/R/L
CO 2	Develop a critical reading of essays on crucial issues affecting the world	K1	PSO 8	G/N/R/L
CO 3	Evaluate and appreciate poetry and its different forms by various poets across the world	K5	PSO 6	G/N/R/L
CO 4	Discuss the setting, characters and plot in short stories	K2	PSO 2	G/N/R/L

CO 5	Analyse different works under specific categories of writing	K4	PSO 1	G/N/R/L
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Course Outcome No.	Upon completion of the course <i>Savouring the Classics</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Appreciate the timelessness of classical literature	K2	PSO 1	G/N/R/L
CO 2	Analyse how they mirror the sensibilities of their times and remain relevant in the contemporary times	K2	PSO 1	G/N/R/L
CO 3	Identify the features of classical writing and different literary techniques used in classics.	K5	PSO 8	G/N/R/L
CO 4	Identify the features of classical writing and different literary techniques used in classics.	K4	PSO 6	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Introducing Language and Literature</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand the language families and the evolution of English language	K2	PSO 3	G
CO 2	Evaluating language varieties and the formation of words	K5	PSO 2	G/N
CO 3	Acquire knowledge about the different genres	K5	PSO 3	G/N/R/L
CO 4	Understanding and analyzing Cinema	K4	PSO 6	G/N/R/L
CO 5	Remembering the periods of English Literature	K3	PSO 7	G/N

Course Outcome No.	Upon completion of the course <i>Literature and/as Identity</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Learn the significance of life writings and marginal narratives.	K2	PSO1	G/N/R/L
CO 2	Recognize how literature represents, discusses and problematizes identity.	K2	PSO6	G/N/R/L
CO 3	Evaluate the construction and the representation of identity and various elements that contribute to its formation	K4	PSO8	G/N/R/L
CO 4	Analyse and develop awareness about contemporary issues like poverty, unemployment, gender issues, class, caste and communal tensions, refugee and diasporic issues and environmental hazards	K4	PSO8	G/N/R/L
CO 5	Ask and answer critical questions about the	K4	PSO8	G/N/R/L

	grim realities of life			
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Course Outcome No.	Upon completion of the course <i>Harmony of Prose</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Familiar with the varied prose styles of expression.	K2	PSO 2	G/N/R/L
CO 2	Equipped with a profoundly global awareness of the prose form.	K4	PSO 2	G/N/R/L
CO 3	Conversant with the philosophies of a set of highbrow authors, which will serve as the foundation for the development of individual and social aptitudes.	K2	PSO 3	G/N/R/L
CO 4	Cultivate a thorough and significantly insightful understanding of human value systems that drive day-to-day existence.	K4	PSO 8	G/N/R/L
CO 5	Aware of eloquent expressions, brevity and aptness of voicing ideas in stylish language.	K3	PDO 1	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Symphony of Verse</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Develop a balanced and critical approach to poetry along with a sense of its historical and sociological implications	K6	PSO 1	G/N/R/L
CO 2	Get a panoramic view regarding the use of creativity and imagination in literary writings	K2	PSO 8	G/N/R/L
CO 3	Understand the representation of poetry in various periods of English literature and the styles of different authors	K2	PSO 3	G/N
CO 4	Analyse the cultural and aesthetic phenomena which influences poems	K4	PSO 6	G/N/R/L
CO 5	Develop an aesthetic ability to enjoy and relish literature	K6	PSO 1	G/N/R/L
CO 6	Inculcate a passion for creative writing.	K3	PSO 8	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Evolution of Literary Movements: The Shapers of Destiny</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Create an awareness of the ways in which history shapes the life and literature of people.	K6	PSO 1	G/N/R/L
CO 2	Evaluate the impact of Britain upon the rest of the world	K5	PSO 1	G/N/R
CO 3	Analyse the manner in which a person is moulded by the historical events	K4	PSO 8	G/N/R
CO 4	Apply the concepts of historicism	K3	PSO 8	G/N/R/L
CO 5	Understand English Literature in the light of historical events	K2	PSO 3	G/N/R
CO 6	Remember the great persons and literary works in English Literature and History.	K1	PSO 3	G/N

Course Outcome No.	Upon completion of the course <i>Illuminations</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand different life writings and issues raised by renowned authors	K2	PSO 1	G/N/R/L
CO 2	Develop a critical reading of essays on crucial issues affecting the world	K1	PSO 8	G/N/R/L
CO 3	Evaluate and appreciate poetry and its different forms by various poets across the world	K5	PSO 6	G/N/R/L
CO 4	Discuss the setting, characters and plot in short stories	K2	PSO 2	G/N/R/L
CO 5	Analyse different works under specific categories of writing	K4	PSO 1	G/N/R/L
CO 6	Discuss the setting, characters and plot in the short stories.	K2	PSO-2	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Modes of Fiction</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Comprehend the categories of British and non British fiction.	K2	PSO-6	G/N/R/L
CO 2	Create a rigorous understanding of textual politics, its significance and effects.	K6	PSO -2	G/N/R/L
CO 3	Read and reinvent meanings by delving into the minute facet within the narrative.	K3	PSO -3	G/N/R/L
CO 4	Cultivate a thorough and significantly insightful understanding of human value systems that drive day-to-day existence.	K4	PSO -1	G/N/R/L
CO 5	Understand the novel as a form of literary expression.	K2	PSO -3	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Language and Linguistics</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand the nature and function of language.	K2	PSO 3	G/N
CO 2	Develop awareness about the various organs involved in the production of speech, the typology of speech sounds and the transcription using IPA	. K2	PSO 1	G/N
CO 3	Acquire knowledge about the basic concepts of linguistics and the major areas of linguistics such as phonology, morphology, syntax and semantics.	K5	PSO 8	G/N
CO 4	Apply the use of phonemic symbols in the pronunciation and the usage of effective communication skill.	K3	PSO5	G/N
CO 5	Gain a thorough understanding on the evolution of English language and the developments in linguistic analysis	K2	PSO7	G/N

Course Outcome No.	Upon completion of the course <i>Evolution of Literary Movements: The Cross Currents of Change</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Create an awareness about various literary movements	K6	PSO 1	G/N
CO 2	Evaluate the echoes in social and literary discourses	K5	PSO 2	G/N/R/L
CO 3	Analyse the interplay of social process and literature.	K4	PSO 6	G/N/R/L
CO 4	Apply the concepts of historical and literary processes	K3	PSO 3	G/N/R/L
CO 5	Understand literature against the backdrop of history.	K2	PSO 7	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Theatre Studies</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	U Understand the form and content of various kinds of Theatre	K2	PSO 3	G/N/R
CO 2	A Acquire awareness on the issues of gender, identity, caste, tradition, morality etc dealt with by modern theatre	K5	PSO 1	G/N/R/L
CO 3	Acquire knowledge about the different cultures and geographical spaces through literature	K5	PSO 8	G/N/R/L

CO 4	U Understand the Classical and modern theatre in the West and East.	K2	PSO 6	G/N
CO 5	Develop an aesthetic ability to enjoy and relish literature	K6	PSO 7	G/N/R/L
CO 6	Acquire a sense of colonial and subversive post-colonial aspects in Indian Theatre.	K4	PSO 8	N/R

Course Outcome No.	Upon completion of the course <i>Acts on the Stage</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand the features of drama and staging	K2	PSO 1	G/N/R/L
CO 2	Assess the skill of playwright in developing characterization and setting.	K5	PSO 6	G/N/R/L
CO 3	Create an awareness of locale, characters and spatial settings in various one act plays	K6	PSO 2	G/N/R/L
CO 4	Analyse and contrast the differences between Elizabethan theatre and modern Theatre	K4	PSO 2	G/N
CO 5	Apply the various elements studied from the plays and enact specimen plays on Stage	K 3	PSO 4	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Literary Criticism and Theory</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Create a conscious understanding of the nuances of literary criticism, literary theory and Indian aesthetics.	K6	PSO -1	N/R/L
CO 2	Evaluate literature subtly by applying the varied signposts of criticism, theory and aesthetics.	K5	PSO -3	G/N/R/L
CO 3	Analyse poetic or prose pieces critically	K4	PSO -1	G/N/R/L
CO 4	Apply critical, theoretical and aesthetic sensibilities in any literary piece.	K3	PSO -2	G/N/R/L
CO 5	Understand the development of major theoretical schools from ancient times to the twentieth century	K2	PSO -3	G/N
CO 6	Remember the major concerns of Indian literary criticism	K1	PSO-7	N

Course Outcome No.	Upon completion of the course <i>Indian Writing in English</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Create a conscious understanding of the nuances of literary criticism, literary theory and Indian aesthetics.	K2	PSO1	N
CO 2	Evaluate literature subtly by applying the varied signposts of criticism, theory and aesthetics.	K5	PSO8	G/N/R/L

CO 3	Analyse poetic or prose pieces critically	K4	PSO1	G/N/R/L
CO 4	Apply critical, theoretical and aesthetic sensibilities in any literary piece.	K3	PSO1	G/N/R/L
CO 5	Understand the development of major theoretical schools from ancient times to the twentieth century	K2	PSO2	G/N
CO 6	Remember the major concerns of Indian literary criticism	K1	PSO2	N

Course Outcome No.	Upon completion of the course <i>Environmental Studies and Human Rights</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Encourage students to research, investigate how and why things happen, and make their own decisions about complex environmental issues	K3	PSO 3	G/N/R/L
CO 2	Build knowledge and skills necessary to address complex environmental issues	K6	PSO 6	G/N/R/L
CO 3	To develop the sense of awareness among the students about the environment and its various problems	K2	PSO 7	G/N/R/L
CO 4	Learn to critically evaluate literary works which are related to environment	K5	PSO 1	G/N/R/L
CO 5	Develop an aesthetic ability to enjoy and relish literature which are connected to nature	K6	PSO 8	G/N/R/L
	Educate students to develop a critical attitude for protecting the environment	K3	PSO 8	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Modern Malayalam Literature in Translation</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Create a cultural rapport with the cultural aspects of the living environment	K6	PSO1	G/N/R/L
CO 2	Evaluate the loss and gain in translation.	K5	PSO 8	G/N/R/L
CO 3	Analyse the modern trends in Malayalam Literature.	K4	PSO 8	R/L
CO 4	Apply the concepts of translation	K3	PSO 5	R/L
CO 5	Understand the various genres in Malayalam	K2	PSO 7	R/L
CO 6	Remember the great works of classic writers in Malayalam	K1	PSO 1	R/L

Course Outcome No.	Upon completion of the course <i>Postcolonial Literatures</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand the concept of postcolonialism.	K2	PSO 3	G/N
CO 2	Create an awareness of key questions,	K2	PSO 3	G/N/R/L

	theorists, authors and literary forms in postcolonial literature.			
CO 3	Evaluate how race, class, gender and identity are depicted in literary texts.	K5	PSO 8	G/N/R/L
CO 4	Analyse the impact of colonialism and decolonization.	K4	PSO 8	G/N/R
CO 5	Identify and analyse postcolonial poetry from different parts of the world.	K4	PSO 1	G/N/R

Course Outcome No.	Upon completion of the course <i>Women Writing</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand the different theories of feminism and the writers associated with	K2	PSO 3	G/N/R/L
CO 2	Realize how patriarchy is embedded in different sections of our society	K4	PSO 6	G/N/R/L
CO 3	Acquire knowledge about women writing in the different cultures and geographical spaces through literature	K5	PSO 8	G/N/R/L
CO 4	Learn to critically evaluate literary works which are related to feminist perspective	K5	PSO 1	G/N/R/L
CO 5	Develop an aesthetic ability to enjoy and relish literature	K6	PSO 8	G/N/R/L
CO 6	Broaden and value different artistic works which depict stereotypes in literature and how to subvert them	K3	PSO 8	G/N/R/L

Course Outcome No.	Upon completion of the course <i>American Literature</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand different paradigms in American Literature	K2	PSO 3	G/N/R/L
CO 2	Develop a critical reading of essays on American Literature	K1	PSO 4	G/N/R/L
CO 3	Evaluate and appreciate American poetry and its different forms	K5	PSO 8	G/N/R/L
CO 4	Discuss the setting, characters and plot in short stories	K2	PSO 2	G/N/R/L
CO 5	Analyse the historical development of American literature	K6	PSO 1	G/N/R/L

Course Outcome No.	Upon completion of the course Modern World Literature the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Analyse the traits of modernism and the 'modern'.	K2	PSO 1	G/N/R/L

CO 2	Understand the idea of 'world literature'.	K 2	PSO 1	G
CO 3	Evaluate universal responses to modern life, its sense of chaos, alienation.	K5	PSO 8	G/N/R/L
CO 4	Assess Modern reflections in different genres – short story, poetry, novel, and drama.	K4	PSO 6	G/N/R/L
CO 5	: Understand European and Non- European responses to modernism.	K2	PSO1	G/N/R/L
CO 6	Discover the narrative varieties in modern world literature.	K5	PSO2	G
CO 7	Evaluate critically the absurdity in the notions of major, and minor, and peripheral literatures.	K5	PSO4	G/N/R/L
CO 8	Identify the fusion of politics and poetics.	K4	PSO1	G/N/R/L
CO 9	Recognise the literary style of modernist writers.	K3	PSO2	G/N/R/L
CO 10	Tr Analyse the Latin American Boom in literature.	K3	PSO4	G
CO 11	E Evaluate the Asian representation in modern world literature.	K5	PSO6	G/N
CO 12	U Understand Meta-narratives.	K2	PSO8	G/N/R/L

PROGRAMME SPECIFIC OUTCOMES (PSO) – MA ENGLISH

PSO No.	Upon completion of MA ENGLISH programme, the students will be able to:	PO No.
PSO-1	Remember literary texts in the light of traditional and contemporary literary theories and criticism.	P01& P05
PSO-2	Analyse the socio- cultural, historical, political and environmental aspects of literature.	P04
PSO-3	Evaluate the evolution and scientific facets of language and general linguistic theories.	P02
PSO-4	Understand the formal and aesthetic contours of Literature and Cinema	P01& P05
PSO-5	Apply the principles of Linguistics	P03
PSO-6	Create an aptitude for academic research and writing.	P02&P05

Course Outcome of MA English

Course Outcome No.	Upon completion of the course <i>Up Until Chaucer: Early Literatures in English</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Create an understanding of the Ancient and Medieval Literatures of Anglo Saxons and appraise and assess the major works and authors	K6	PSO 4	G/N
2	Evaluate the emergence of English Literature with its purpose and identity	K5	PSO 3	G/N/R/L
3	Standardise the creative consolidation initiated by Chaucer and his peers	K4	PSO 2	G/N
4	Understand the paradigm shift that made possible the emergence of English literature	K2	PSO 1	G/N/R/L
5	Define and illuminate the texts and readings in a proactive way	K1	PSO 1	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Literatures of the English Renaissance</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	To recall the key features of the English literature of the seventeenth century.	K1	PSO 1	G/N/R/L
2	To identify the social, cultural and intellectual climate of the period.	K3	PSO 1	G/N/R/L
3	Evaluate the general outlook and temperament of the society as reflected in the literature of the time.	K5	PSO 2	G
4	Analyse the emergence of new literary genres	K4	PSO 2	G
5	To understand the philosophical streams of thought that presented the human subject as instrumental in the progress of the Enlightenment.	K2	PSO 4	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Literatures of the English Revolution/ Enlightenment</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Remember the acclaimed fiction and the nonfictional works of the period.	K1	PSO 1	G/N/R/L
2	Understand the rise of the novel, the Comedy of Manners, Restoration theatre, etc.	K2	PSO 4	G/N/R/L
3	Analyse the philosophy of the Enlightenment.	K4	PSO 2	G/N/R/L
4	Evaluate the poetry of John Milton, John Dryden, Alexander Pope, Aphra Behn, Thomas Gray, etc.	K5	PSO 3	G/N
5	Create an awareness of the late seventeenth and the eighteenth century literary scenario drawing upon the significant historical, political and social developments of the times.	K6	PSO 6	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Nineteenth Century English Literatures</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Create an awareness regarding the theoretical premises of the British Romantic Movement and Victorian literature that chronologically follows the Romantic Era	K6	PSO 2	G

2	Evaluate the historical significance of the Ode as a poetic form and examines the subjective and individualistic imagination of the Romantic poets who find expression in odes	K5	PSO 1	G/N/R/L
3	Analyse the shift to the Victorian sensibility with increased attention being paid to the decline of the Romantic sensibility, the growth of reason, the ascent of materialism etc	K4	PSO 2	G
4	Understand and evaluate the classic novels/plays of Romantic/ Victorian literature	K2 & K5	PSO 4	G/N
5	Evaluate and understand the great prose writers of Romantic/ Victorian literature	K2 & K5	PSO 4	G/N

Course Outcome No.	Upon completion of the course <i>Literary Criticism</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Create an awareness of the historical, political and aesthetic dimensions of literary criticism.	K6	PSO 6	G/N/R/L
2	Evaluate the relevance of changing concepts in theory.	K5	PSO 3	G/N
3	Analyse issues like canon formation, evolution of genres and methods of literary analysis	K4	PSO 2	G/N/R/L
4	Understand the growth of theories	K3	PSO 4	G/N
5	Remember the concepts in western classical criticism from Aristotle	K1	PSO 1	G

Course Outcome No.	Upon completion of the course <i>Modernity and Modernism</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Create an awareness regarding how to recognise and assess the features of Modernist literary texts	K6	PSO 6	G/N/R/L
2	Evaluate how specific Modernist literary works reflect on social development and concepts from the era.	K5	PSO 3	G/N/R/L
3	Analyse and interpret a range of Modernist texts	K4	PSO 2	G/N/R/L
4	Understand and identify several key works of modernist fiction and poetry.	K3	PSO 4	G/N
5	Remember the key figures in Modernist movement.	K1	PSO 1	G/N

Course Outcome No.	Upon completion of the course <i>Postmodernism and Beyond</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global

				developmental needs
1	Understand the social, cultural and historical context of postmodernism and their impact on literature	K2	PSO-2	G/N/R/L
2	Apply postmodern features and techniques like self-reflexivity and multiculturalism to works of literature	K3	PSO-1	G/N/R/L
3	Analyse the defining characteristics of postmodernism	K4	PSO-4	G/N/R/L
4	Evaluate the development of English literature since the 1960s.	K6	PSO-3	G/N/R/L
5	Discuss the manipulative power of art, the relativity of perceptions and the collapse of the absolute.	K2	PSO-6	G/N/R/L

Course Outcome No.	Upon completion of the course <i>American Literatures</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Remember the major movements and evolution of American literature	K1	PSO 1	G
2	Evaluate different genres of literature and appreciate those with the American experience	K5	PSO 3	G
3	Analyse the conflicts, struggles and movements depicted in various genres of literature.	K4	PSO 2	G/N/R/L
4	Understand the growth and developments in American literature	K2	PSO 4	G
5	Develop skills of close reading and aesthetic qualities	K3	PSO 5	G/N/R/L
Course Outcome No.	Upon completion of the course <i>English Language History and Contemporary Linguistics</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the nature and function of language	K2	PSO 4	G/N
2	Develop awareness about the various organs involved in the production of speech, the typology of speech sounds and the transcription using IPA.	K3	PSO 5	G/N
3	Acquire knowledge about the basic concepts of linguistics and the major areas of linguistics such as phonology, morphology, syntax and semantics.	K4	PSO 2	G/N
4	Prepare the student at one level with modern notions and concerns in the field of linguistics	K4	PSO5	G/N
5	Evaluate the evolution and scientific facets of language and general linguistic theories	K5	PSO3	G/N

Course Outcome No.	Upon completion of the course <i>Thinking Theory</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Initiate the students with the various signposts and moments in “literary theory”	K2	PSO 4	G/N/R/L
2	To provide theoretical framework of different movements and authors	K2	PSO 6	G/N
3	Present a discussion platform for various theoretical readings	K3	PSO 5	G/N/R/L
4	Develop a critical consciousness from the prescribed theoretical essays	K6	PSO 6	G/N/R/L
5	To expose the students with the current developments within the field	K5	PSO 3	G/N

Course Outcome No.	Upon completion of the course <i>Reading India</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Acquire awareness about the colonial context in which Indian English developed as a Language and Literature	K2	PSO 4	N/R/L
2	Evaluate the thematic and stylistics aspects between the pre-independence and post-independence periods, and the impact of historical situation.	K5	PSO 3	N
3	Understand the issues relating to the use of the coloniser’s language, the diverse ramifications of power in the Indian Subcontinent, features of Diaspora writing, the nature of the Indian reality, reflected in a non-Indian tongue, the socio-cultural economic and gender concerns addressed in these texts.	K2	PSO 4	N/R/L
4	Understand systematically the major writers and movements in Indian English Literature and their relevance in contemporary space.	K2	PSO 4	N
5	Analyze the socio-cultural, historical, political and environmental aspect of Indian English literature	K4	PSO 2	N/R/L

Course Outcome No.	Upon completion of the course <i>Postcolonial Fiction</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand systematically the major thinkers and intellectual paradigms in post- colonial studies and their relevance in contemporary space.	K2	PSO 1	G/N/R/L

2	Critically think about literary works in relation to post colonial theories	K4	PSO 2	G/N/R/L
3	Get some awareness of the historical context of literary production and reception	K1	PSO 3	G/N/R/L
4	Recognise the intersections between race and other social and cultural identities like gender, ethnicity, national origin, religion, class and sexuality.	K2	PSO 6	G/N/R/L
5	Develop interpretative skills of close reading	K3	PSO 6	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Body, Text and Performance</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Create an understanding of the interface between verbal and visual detailing.	K2	PSO 1	G/N/R/L
2	Evaluate the significance of performances in framing or altering discourses.	K5	PSO 2	G/N
3	Analyse the basic structural and thematic process that govern linguistic and visual narration	K4	PSO 3	G/N/R/L
4	. Apply cinematic concepts in a study of performance	K3	PSO 6	G/N
5	Understand the development of theatre from classical times	K2	PSO 6	G/N/R/L
6	Remember anti-Aristotelian notions like alienation effect, Indian notion of Rasa etc along with Expressionism and other similar veins of thought.	K1	PSO 1	G/N

Course Outcome No.	Upon completion of the course <i>Literature and Gender</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Describe the emergence and growth of the notion of gender as a concept central to the reading of Literature.	K1	PSO-4	G/N/R/L
2	Discuss gender as a complex concept that is influenced and shaped by history, culture and society.	K2	PSO-2	G/N/R/L
3	To cite and use important theories to analyse texts.	K4	PSO-6	G/N/R/L
4	Recognize the difference between gender and sex	K2	PSO-1	G/N/R/L
5	Evaluate the structure of patriarchal society as reflected in the literary texts	K6	PSO-2	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Ethics in/ as Literature</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Create an awareness about ethics that has shaped literature across the ages	K6	PSO 6	G/N/R/L
2	Evaluate how fiction has dealt with the issue of disabilities at different levels	K5	PSO 3	G/N/R/L
3	Analyse the issues of Otherness presented in narratives	K4	PSO 2	G/N/R/L
4	Understand the relationship between man and nature	K3	PSO 4	G/N/R/L
5	Remember major theoretical interpretations of the narrative	K1	PSO 1	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Cultural Studies</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Create an awareness regarding the theoretical premises of Cultural Studies on the basis of the readings of the pioneers- Raymond Williams, Stuart Hall and John Storey	K6	PSO 6	G/N/R/L
2	Evaluate the pervading cultural semiosis/ representations, one can discern in our societal context on the basis of the readings of Guy Debord, R Nandakumar, David Forgacs	K5	PSO 3	G/N/R/L
3	Understand the decoding of social signs/ various negotiations of socio- cultural identities	K2	PSO 4	G/N/R/L
4	Evaluate and understand the poetics and politics of sports- myth	K2 & K5	PSO 4	G/N/R/L
5	Evaluate and understand the creation of meanings in society	K2 & K5	PSO 2	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Postcolonial Poetry</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Remember the key concepts of postcolonialism	K1	PSO 1	G/N
2	Understand the use of postcolonial elements in poetry	K2	PSO 4	G/N/R/L
3	Evaluate the different literary devices used in postcolonial poetry	K5	PSO 3	G/N/R/L
4	Analyse postcolonial issues depicted in poetry by the authors from colonies across the world	K4	PSO 2	G
5	Creating a sense of aesthetic qualities for appreciating the poems from different continents	K6	PSO 6	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Modern European Fiction</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
1	Create an appreciation for the European fiction of the 19 th and 20 th centuries	K6	PSO 6	G
2	Evaluate the expression of literary movements such as realism and naturalism in various works of fiction.	K5	PSO 3	G/N/R/L
3	Analyse the philosophical and political positions represented in European fiction	K4	PSO 2	G
4	Understand the socio-political movements of the 19 th and 20 th centuries	K3	PSO 4	G/N/R/L
5	Remember the great authors and classics of Modern European Fiction.	K1	PSO 1	G/N/R/L

Course Outcome No.	Upon completion of the course <i>Modern European Drama</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
1	Remember the concepts and conventions of plays.	K1	PSO 1	G/N/R/L
2	Analyse representative plays of the Realistic, Naturalistic, Modernist, epic theatre, Theatre of the Absurd, and postmodernist theatre.	K4	PSO 2	G/N/R/L
3	Understand the key terms of both the modernist and postmodernist theatre.	K2	PSO 4	G/N
4	Evaluate representative plays of the various modernist dramatic modes.	K5	PSO 3	G/N/R/L
5	Create an awareness of the historical, cultural and aesthetic dimensions and characteristics of Modern European Drama	K6	PSO 6	G

Course Outcome No.	Upon completion of the course <i>Indian Poetics: Theories and Texts</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
1	To understand eight major schools of Indian Aesthetics	K2	PSO 1	N
2	To recall Indian poetic principles	K1	PSO 1	N
3	To analyse the dominant aesthetic sentiment and the suggestive potential of the language of the text	K4	PSO3 and PSO4	G/N/R/L
4	To evaluate the strong geopolitics behind Tamil poetics.	K5	PSO 2	R/L
5	To appraise the students to the contextual diversity of Translations	K4	PSO 2	G/N/R/L

PROGRAMME SPECIFIC OUTCOMES (PSO) BA ECONOMICS

Upon completion of B.A. Economics programme, the students will be able to:

PSO No.		PO No.	Relevance to Local/National/Regional/Global developmental needs
PSO-1	Prepare themselves for employment and further study as economists	4	L/N/R/G
PSO-2	Pursue courses that emphasize quantitative and theoretical aspects of Economics	2	L/N/R/G
PSO-3	Focus on applied and policy issues in Economics	1	L/N/R/G
PSO-4	Face the emerging economic challenges effectively with high standards of professionalism and ethics	6	L/N/R/G
PSO-5	Engage in multidisciplinary research	3	L/N/R/G
PSO-6	Review and design economic policies at regional and national levels	1	N/R

COURSE OUTCOME BA ECONOMICS

PERSPECTIVES AND METHODOLOGY OF ECONOMICS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
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1	Understand the general outlines of Social Sciences, specifically Economics and its methodologies, tools and analysis and procedures	K2	2 & 3	L/N/R/G
2	Understand different schools of Economic thought and various characteristics of social science research, methodology, concepts, tools and various issues.	K2	3 & 5	L/N/R/G

ECONOMICS OF GROWTH AND DEVELOPMENT

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
1	Remember basic concepts and issues of economic growth and development.	K1	3 & 6	L/N/R/G
2	Understand modern approaches to Economic development presented by D. Goulet and Amartya Sen	K2	4 & 6	L/ N/R/G

MICRO ECONOMIC ANALYSIS – I

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
1	Understand how market works, identify the various determinants of firms demand for factor services, monopoly and oligopoly in factor market and market equilibrium	K 2	2 & 4	L/N/R/G
2	Remember the basic micro economic concepts of consumer behaviour like demand, supply, production, firms and their decisions about optimal production, cost and revenue and the theories explaining their determination	K 1	2	L/N/R/G
3	Apply the introductory microeconomic theory to solve basic microeconomic problems, and use these techniques to think about a number of policy questions related to the operation of the real economy	K 3	4 & 6	L/N/R/G

PUBLIC FINANCE

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
1	Understand working of the public finance system and to gain knowledge about the working of the Indian public finance	K 2	3,4 & 6	L/N/R
2	Understand the impact of public policy on the allocation of resources and the distribution of income in the economy	K 2	6	L/N/R
3	Understanding of the fiscal policy and its various instruments	K 2	3	L/N/R
4	Understand theory behind different State activities through the budgetary mechanism	K 2	2	L/N/R

MICRO ECONOMIC ANALYSIS – II

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
1	Understand economic concepts and use those concepts to analyse specific questions	K2 & K 4	2 & 5	L/N/R/G
2	Understand consumer and firms' behaviour and to analyse different types of market structures and analyse the behaviour of firms in a monopoly or oligopoly, and calculates the resulting changes in producer or consumer surplus	K2 & K 4	2 & 3	L/N/R/G
3	Analyse economic policies using economic tools	K 4	6	L/N/R/G

MONEY AND CAPITAL MARKET

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
1	Understand the working of various financial market segments as well as the functioning of	K 2	3 & 4	L/N/R/G

	major regulators			
2	Understand the meaning, types and functions of money and monetary concepts	K 2	2	L/N/R/G
3	Understand the Structure and components of Money Market and Financial market institutions, regulators and instruments that give developmental and stabilizing services for the entire economy	K 2	2 & 6	L/N/R/G
4	Understand the Meaning and Composition Capital market and its major instruments.	K 2	2 & 4	L/N/R/G

STATISTICAL TOOLS FOR ECONOMIC ANALYSIS - I

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
1	Analyse economic problems using primary statistical and mathematical tools	K 4	5	L/N/R

PRINCIPLES OF MACRO ECONOMICS – 1

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
1	Understand recent theoretical developments and policy debates in Macroeconomics.	K 2	2	L/N/R/G

INDIAN ECONOMY

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs

1	Understand theoretical, empirical and policy issues relating to the society, polity and economy of India.	K 2	3 & 6	L/N/R/G
2	Understand the macro economic framework of Indian Economy	K 2	6	L/N/R

INTERNATIONAL ECONOMICS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
1	Understand the theories of international trade and examine the impact of the trade policies on the world economy	K 2& K 4	2	L/N/R/G

STATISTICAL TOOLS FOR ECONOMIC ANALYSIS-II

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
1	Apply primary statistical and mathematical tools for data analysis	K 3 & K 5	5	L/N/R

PRINCIPLES OF MACRO ECONOMICS – II

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
1	Understand the theories of consumption, investment and concepts of money, inflation and unemployment and gather knowledge about the Monetary and Fiscal Policies	K 2	2, 3 & 6	L/N/R/G
2	Understand post-Keynesian schools of Macroeconomic thoughts	K 2	2	N/R/G

INTRODUCTORY ECONOMETRICS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
1	Understand basic concepts and applications of Econometrics	K 2	2 & 5	L/N/R/G
2	Understand the inter-relationships among econometric variables	K 2	5	L/N/R/G

ENVIRONMENTAL ECONOMICS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
1	Understand the relationship between the economy and the natural environment, as well as to apply economic measures for the management and conservation of the natural environment and natural resources.	K 2	2 & 4	L/N/R/G
2	Understand conceptual and theoretical foundation of environmental economics as a special branch of economics.	K 2	2	L/N/R/G
3	Understand emerging environmental issues and policies at national and international level.	K 2	4	L/N/R/G

FOUNDATIONS OF ECONOMICS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
1	Understand basic ideas and concepts in Economics	2	2	L/N/R/G

PRINCIPLES AND PRACTICE OF BANKING

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
1	Understand the working of banks and to familiarize them with the basic principles and concepts which are often used in banking literature.	K 2	6	L/N/R/G

PRINCIPLES OF ECONOMICS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
1	Understand how to apply the basic principles and concepts of Economics to every day issues.	K 2	2	L/N/R/G

BASIC ECONOMICS STUDIES

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National / Regional / Global developmental needs
1	Understand the basic concepts of public finance, international economic issues, monetary economics, banking, national income, general issues of Indian economy and Kerala economy	K 2	2	L/N/R/G

PROGRAM SPECIFIC OUTCOMES (PSO) MA ECONOMICS

PSO No.	Upon completion of MA Economics program, the students will be able to:	PO No.	Relevance to Local / National /Regional/

			Global developmental needs
PSO-1	Recognize and describe the basic principles that lie behind the contemporary economic issues.	1 & 2	L/N/R/G
PSO-2	Critically think about the knowledge gained that may kindle a spirit of lifelong learning.	2 & 5	L/N/R/G
PSO-3	Develop writing and analytical skills to prepare articles, reports and documents in the field of their interest.	1 & 2	L/N/R/G
PSO-4	Get engaged in team work to undertake collaborative assignments in problem solving situations of socio economic importance.	2,3 & 4	L/N/R/G
PSO-5	Access information worldwide and logically incorporate them to substantiate their analysis.	1,2 & 3	
PSO-6	Analyse basic statistical data, make inferences and report.	1 & 2	
PSO-7	Improve communication skills to make presentations and to participate in deliberations individually or as a group in policy debates.	3	
PSO-8	Develop skills for original research that contribute to framing of economic policies.	1, 2 & 5	

COURSE OUTCOME MA ECONOMICS

Microeconomics –I

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Acquire the knowledge of consumer behaviour which enables the student in taking rational buying decisions and also help a firm to design suitable marketing strategies	K 1	1	L /N / R / G
2	Equip with the knowledge and skill in effective decision making under uncertain market situations, and also understands the importance of time allocation and household management	K 2	1	L /N / R / G

3	Understand the economies of scope and learning curves and help in analyzing the nature and functioning of modern multiproduct firms	K 3	2	L /N / R / G
4	Develops the skill in analyzing business phenomena in terms of transaction cost saving and develops the understanding of the economic level of information search possible under different situations and the concept of bounded rationality	K 4	6	L /N / R / G

Macroeconomics –I

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Understand three outstanding orthodoxies, viz, Classical, Keynesian, Modern Neo-classical synthesis, Neo Keynesianism and Monetarism	K 2	1	L /N / R / G
2	To develop the aptitude to relate concepts with research and policy.	K 4	5	L /N / R / G
3	Understand key concepts, methodologies, theories, and techniques in modern macroeconomic analysis	K 2	2	L /N / R / G
4	Understand alternative approaches to analysing consumption, and investment, Critically evaluate the usefulness of macroeconomic techniques.	K 2	5	L /N / R / G

Indian Economy-I

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Understand the evolution of the economy, its institutional framework, nuances in using statistical information for analysing public policy	K 2	1	L /N / R / G

2	Get familiar with the issues for research	K 2	3	L /N / R / G
3	Understand the pre-reform and post-reform development experience of the Indian Economy	K 2	1	L /N / R / G
4	Familiar Indian economic policies	K 1	1	L /N / R / G

Development Economics

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Familiarize with the conceptual routes, theoretical dynamics and practical strategies of growth and development	K 2	1	L /N / R / G
2	Understand the major themes of development which will help in the methodological probes and equip them with adequate analytical knowledge	K 2	1	L /N / R / G
3	Understand and critically evaluate alternative theories of growth	K 2	1	L /N / R / G
4	Understand the recent literature, both empirical and analytical, on theories of underdevelopment and growth in developing countries;	K 2	1	L /N / R / G
5	Evaluate critically some of the results in the literature, particularly those related to development issues	K 5	5	L /N / R / G

Mathematics for Economics

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Understand the basics of Mathematics, required for studying Economics	K2	1	L /N / R
2	Explain and evaluate critically the theoretical arguments of Economics with the help of Mathematical tools and methods.	K3	1	L /N / R
3	Create and analyze mathematical	K6	1,2,6	L /N / R

	models for observed Economic phenomena.			
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Microeconomics –II

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Make decisions in the context of market interdependence, complexity, uncertainty and informational asymmetry	K 5	1 & 5	L /N / R / G
2	Get insights into developments in the areas of general equilibrium and welfare economics	K 2	2	L /N / R / G
3	To apply microeconomic principles in the areas of industrial organization, exchange, and welfare	K 3	2 & 3	L /N / R / G
4	Understanding of advanced microeconomic theory	K 2	1	L /N / R / G

Macroeconomics –II

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Understand the strengths and weakness of the main macroeconomic tools and models used in modern macroeconomics;	K 2	2 & 8	L /N / R / G
2	To evaluate and critically compare results in alternative macroeconomic models	K 5	2 & 5	L /N / R / G
3	Understand the importance and limitations of modelling assumptions for macroeconomic policy.	K 2	5	L /N / R / G

Indian Economy-II

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs

1	To comprehend the ramification that underlines most of the observed phenomena in the Indian economic set-up	K 4	2 & 3	L /N / R / G
2	Understand the functioning aspects of the Indian economy	K 5	1 & 2	L /N / R /G

Kerala Economy

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Understand Kerala's development experiences and the current economic scenario and their routes in historical and global perspective	K 2	1	L /N / R / G
2	Analyse the current and critical issues, challenges and problems in agriculture, industrial and social sectors of Kerala economy and thereby enhance their analytical ability to understand the dynamics of a regional economy	K 4	5	L /N / R

Statistics for Economics

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Understand the necessary Statistical methods and tools required for Economic analysis.	K2	1	L /N / R
2	Apply the Statistical methodologies to Economic realm to get better insights of Economic phenomena.	K3	1	L /N / R / G
3	Explain and evaluate critically the theoretical arguments of Economics using Statistical data analysis methods.	K5	1,2,6	L /N / R

International Trade

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Understand the broad principles and theories, which govern the free flow of international trade, with empirical	K 2	1 & 8	N / R / G

	evidence.			
2	Understand the theoretical underpinnings and empirical evidence of the major trade policies followed both at national and international level	K 2	1 & 3	N / R / G
3	Gather Theoretical knowledge of international trade and policy to become trade policy-makers and key strategists on trade issues and to solve real-world problems	K 4	5	N / R / G

Econometrics—1

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Estimate a general class of parametric models or semi-parametric models and to conduct testing and inference of the given data	K 5	6	L/N / R / G
2	Understand econometric techniques that are widely used in empirical work in economics and other related disciplines	K 2	6 & 8	L/N / R / G
3	To perform the art of estimation, analysing and interpretation of the estimated econometric model	K 5	5 & 6	L/N / R / G
4	Analyse data using their understanding of the appropriate econometric methods; interpret computer output for the estimation and testing of econometric relationships and interpret and discuss results.	K 4	6 & 8	L/N / R / G

Public Economics

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Understand the established concepts and theoretical results on collective choice, optimal income taxation, and the effects of income redistribution on the provision of public goods	K 2	2	L/N / R / G
2	Pursue careers in the government sector, policy analysis, business, and journalism	K 3	3	L/N / R / G

3	Examine the recent developments in both theoretical and empirical literature in the area	K 4	5	L/N / R / G
4	To familiarize with the rationale for and role of government intervention in economic activities and how the government makes economic decisions	K 2	1	L/N / R / G

Heterodox Economics

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Analyse and study the economic principles considered outside of mainstream or orthodox schools of economic thought	K 4	5	L/N / R / G
2	Survey contemporary heterodox approaches to economic research, both from a microeconomic and a macroeconomic perspective.	K 2	8	L/N / R / G
3	Develop their own ideas regarding economic incentives and corporate behaviour	K 3	8	L/N / R / G
4	Understand the heterodox principles which will lead to a more informed understanding of mainstream economics	K 2	2	L/N / R / G

Environmental Economics

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	To stress the need to reorient the study of mainstream economics since the natural environment is the core of any economy and economic sustainability cannot be attained without environmental sustainability	K 1	2	L/N / R / G
2	To understand the economics of the relationship between economic activities and environmental impacts	K 2	1	L/N / R / G
3	To understand how market inefficiencies might arise in the presence of externalities like pollution and how market solutions can correct market failures.	K 2	2	L/N / R / G
4	Develop analytical skills that would enable the evaluation of environmental and economic policy issues	K 4	5	L/N / R / G

International Finance

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	To provide a theoretical exposition of different aspects of international finance and financial institutions in a historic cum emerging geopolitical context particularly in that of globalization	K 4	1	L/N / R / G
2	To become policy-makers and key strategists on issues related to international finance and related institutions	K 3	3	L/N / R / G
3	Acquire fundamental knowledge in international finance, financial institutions and their application in real life	K 1	1	L/N / R / G
4	Know how various financial instruments are used for hedging and speculating in the currency markets and how economic theories are applied to determine the equilibrium exchange rates and the intuition behind the theories	K 3	5	L/N / R / G

Econometrics—II

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Understand the basic modelling techniques for the analysis of cross-section, panel and time series economic data	K 2	1	L/N / R / G
2	To understand and apply basic linear models for univariate and multivariate time series and the concepts of integration and co-integration and how to test for these phenomena in time series.	K 2	6	L/N / R / G
3	To understand how to use instrumental variables to account for endogenous regressors, how to estimate binary response models, to set up, estimate and analyse panel data regression models, the basic concepts of stationary and non-stationary time series	K 2	6	L/N / R / G
4	Perform the analysis of a dissertation topic using basic econometric techniques	K 6	6 & 8	L/N / R / G
5	To get sufficient econometric training to read the	K 3	6 & 8	L/N / R / G

	applied literature in core journals which use these standard techniques			
6	To interpret the results from regression models involving panel data and instrumental variables	K 5	5,6&8	L/N / R / G

Agricultural Economics

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Have an overview of the economics of agriculture	K2	1	L/N / R / G
2	Gather adequate knowledge about the relevant concepts and principles of Agricultural Economics	K2	2	L/N / R / G
3	Develop awareness in agricultural economics to assess the problems of the farm sector and to make contributions to the prosperity of villages	K 1	3	L/N / R / G
4	Acquire analytical skills to address real situations and the concrete problems of agriculture and economic development.	K 4	5	L/N / R / G

Industrial Economics

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Gather knowledge about the economics of industry and issues related to market structure, firms' motivations and conducts, productivity, and efficiency in a cogent and analytical manner.	K 1	2	L/N / R / G
2	Familiarize with a broad range of the methods and models applied by economists in the analysis of firms and industries	K 1	3	L/N / R / G
3	Understand policy debates involved in industrial development in India and have a glimpse of the recent developments in this field and enhance their analytical skill.	K 2	1	L/N / R / G

4	Understand basic models of the behaviour of firms and industrial organization and how they can be applied to policy issues; be able to manipulate these models and be able to solve analytically problems relating to industrial economics; be familiar with the history of competition policy and be familiar with the functioning of different experimental market institutions and the key results of these experiments	K 6	8	L/N / R / G
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Labour Economics

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local / National /Regional/ Global developmental needs
1	Gain knowledge about the dynamics of labour market. This course emphasizes the power of microeconomic reasoning to answer important economic questions.	K 1	1	L/N / R / G
2	Understand the importance of issues such as employment and unemployment as well as livelihood and social security for the growing millions continues to assume significance.	K 2	3	L/N / R / G
3	Understand the theoretical as well as empirical issues relating to the labour market.	K 2	3	L/N / R / G
4	Understand issues pertaining to the labour market, wage theories, employment policies, trade unions and collective bargaining in the globalized economy which are vitally important for developing countries.	K 2	8	L/N / R / G

Programme Specific Outcome – M. Com Finance

PSO No.	Upon completion of M.Com programme, the students will be able to:	PO No.	Relevance to Local/National/Regional /Global developmental needs
PSO1	Demonstrate an in-depth theoretical knowledge of all major theories and recent developments in the areas of financial management, human resource management, organizational behaviour, international business, portfolio management and derivatives	1,2	G/N/R/L
PSO2	Analyse complex organizational issues and generate realistic solutions based on their understanding of the theories.	1,3,4	G/N/R/L
PSO3	Apply statistical and analytical tools necessary for the analysis of a wide range of quantitative problems in management and finance	1,2,3	G/N/R/L
PSO4	Develop critical thinking and evaluate national and international developments /debates in commerce, management and business world	2,3,5	G/N/R/L
PSO5	Display proficiency in the tax laws of the country and become consultants for computation and assessment of income tax.	1,2,5	N/R/L
PSO6	Synthesize knowledge across disciplines and communicate their ideas effectively through seminars, peer to peer teaching,	3,4,5	G/N/R/L

	group discussions, interactions with industry and through their project reports		
PSO7	Recognize and understand the ethical responsibilities of individuals and organizations in society	2,3,4	G/N/R/L
PSO8	Engage confidently in self directed study and research in the areas of their interest	1,2,5	G/N/R/L

FIRST SEMESTER COURSES

Course Code	CM010101
Title of the Course	SPECIALISED ACCOUNTING
Semester	One
Type	Core
Credits	4
Hours	5 per week and Total 90

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	Providing an in depth understanding about theoretical and practical aspects of major Accounting Standards to apply the same in different practical situations.	K2,K3	PSO1	N/R/L
2	Ascertain the value of goodwill and value of companies based on the value of shares and compare the real value of shares and with the market prices and identify the mispricing.	K3	PSO1	N/R/L
3	In depth understanding determination of purchase consideration in the event of amalgamation and to prepare post amalgamation financial statements	K3	PSO2	N/R/L

4	Develop a clear understanding about different types of NBFCs, their provisioning norms and to understand the concept of NAV of mutual funds through its computation.	K5	PSO2	N/R/L
5	Acquaint with the theoretical aspects of emerging areas in accounting	K2	PSO1	G/N/R/L

Course Code	CM010102
Title of the Course	ORGANISATIONAL BEHAVIOUR
Semester	One
Type	Core
Credits	3
Hours	5 per week and Total 90

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	Basic understanding about the concepts of organisationbehaviour.		PSO1	G/N/R/L
2	A very good understanding about individual behaviour, personality and motivation.		PSO1	G/N/R/L
3	Imparting deep understanding about group behaviour and leadership related to organisationalbehaviour.		PSO1	G/N/R/L
4	Add the knowledge base of the leaner regarding change management and deal with stress.		PSO1	G/N/R/L
5	Impart knowledge about the role of organisational culture and conflict on organizationalbehavior.		PSO1	G/N/R/L

Course Code	CM010103
Title of the Course	MARKETING MANAGEMENT.
Semester	One
Type	Core
Credits	4
Hours	5 per week and Total 90

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	The learner should have a basic understanding about concepts like customer centricity, CRM, value chain and customer delight.		PSO 1,4	G/N/R/L
2	The learner should get a clear understanding about the market segmentation process and its applications in marketing strategies.		PSO 1,4	G/N/R/L
3	Develop an idea about consumer behaviour and its impact.		PSO 1,4	G/N/R/L
4	Good understanding about product line, product mix, brand equity, brand identity, brand personality and brand image.		PSO 1,4	G/N/R/L
5	Develop sound ideas regarding services marketing and service quality.		PSO 1,4	G/N/R/L

Course Code	CM010104
Title of the Course	MANAGEMENT OPTIMISATION TECHNIQUES
Semester	One
Type	Core
Credits	4
Hours	5 per week and Total 90

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	Develop theoretical understanding about various business optimisation models.		PSO5	G/N/R/L
2	Ability to develop Linear Programming Models for business problems and Solve the same.		PSO5	G/N/R/L
3	Application of Linear Programming in the areas of transportation and assignment.		PSO5	G/N/R/L
4	Develop decision making skills under uncertainty, risk and replacement of assets.		PSO5	G/N/R/L
5	Understand and apply network analysis techniques for project implementation.		PSO5	G/N/R/L

Course Code	CM010105
Title of the Course	METHODOLOGY FOR SOCIAL SCIENCE RESEARCH
Semester	One
Type	Core
Credits	4
Hours	5 per week and Total 90

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	Develop a thorough understanding about the basic concepts of social science research.	K2	PSO3, 6	G/N/R/L
2	After completing this module, the learner should be able to formulate a research design.	K2,K5	PSO3, 6	G/N/R/L

3	After studying the theoretical aspects of Sampling d design, the learner should be able to draw a sampling design.	K2	PSO3, 6	G/N/R/L
4	Detailed knowledge about the instrument development, its validation and different forms of scaling.	K5	PSO3, 6	G/N/R/L
5	Understand the technique of research reporting.	K2	PSO3, 6,8	G/N/R/L

SEMESTER 2

Course Code	CM010201
Title of the Course	ADVANCED CORPORATE ACCOUNTING
Semester	Two
Type	Core
Credits	4
Hours	5 per week and Total 90

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	The learner should be able to prepare consolidate financial statements of group companies.	K3	PSO2	N/R/L
2	Preparation of the financial statements of public utility companies and deal with the disposal of surplus.	K3	PSO2	N/R/L
3	Develop and awareness on the procedure Of bankruptcy under the recent Bankruptcy Procedure Code.	K1,K2	PSO2	N/R/L
4	Familiarising the learner with the accounting procedures of liquidation of companies and preparation of various statements required as per the Companies Act.	K5	PSO2	N/R/L
5	Basic understanding about the preparation of accounts of some special lines of businesses like shipping, hospitals and hotels.	K2,K3	PSO2	N/R/L

Course Code	CM010202
Title of the Course	HUMAN RESOURCE MANAGEMENT
Semester	Two
Type	Core
Credits	3
Hours	5 per week and Total 90

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/ National/Regional /Global developmental needs
1	Acquaintance with basic concepts of HRM and performance appraisal.	K1,K2	PSO1	G/N/R/L
2	Understanding about human development, stress management and work life management.	K2	PSO1	G/N/R/L
3	High level knowledge about various aspects of training.	K2	PSO1	G/N/R/L
4	Understanding about various aspects of industrial relations so as to evaluate the real cases of industrial relations.	K5	PSO1	G/N/R/L
5	Understanding about HR outsourcing HR accounting and HR audit.	K2	PSO1	G/N/R/L

Course Code	CM010203
Title of the Course	INTERNATIONAL BUSINESS AND FINANCE
Semester	Two
Type	Core
Credits	4
Hours	5 per week and Total 90

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/ National/ Regional /Global developmental needs
1	Familiarisation with globalisation, internationalisation of business and the international business environment.	K2	PSO 1, 4	G/N/R
2	Understanding about theories of international trade, trade barriers and trade blocks.	K2	PSO 1, 4	G/N
3	Imparting idea about various economic institutions related to international trade.	K1,K2	PSO 1, 4	G/N
4	Achieve high level knowledge about various aspects of international monetary system.	K2,K5	PSO 1, 4	G/N
5	Develop an understanding about the international investment environment.	K2	PSO 1, 4	G/N

Course Code	CM010204
Title of the Course	QUANTITATIVE TECHNIQUES
Semester	Two
Type	Core
Credits	4
Hours	5 per weekend Total 90

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/ National/Regional /Global developmental needs
1	This course intends to give understanding about the applications of quantitative techniques.	K2	PSO3, 5	G/N/R/L
2	Identify the appropriate parametric test for testing the hypothesis	K3	PSO3, 5	G/N/R/L
3	Equipping students with the skills to apply the principles of SQC	K2,K3	PSO3, 5	G/N/R/L

Course Code	CM010205
Title of the Course	STRATEGIC MANAGEMENT
Semester	Two
Type	Core
Credits	4
Hours	5 per week and Total 90

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/ National/Regional/Global development al needs
1	Strong understanding about the theoretical foundations of strategic management.	K2	PSO1	G/N/R/L
2	Clear understanding about various models of environmental and internal analysis.	K2	PSO1	G/N/R
3	Development of an idea about the strategy formulation process at the corporate level.	K2	PSO1	G/N/R
4	Familiarization with various tools strategic planning and evaluation.	K5	PSO1	G/N/R
5	Understanding about the modes implementation and control of strategies.	K2	PSO1	G/N/R

THIRD SEMESTER

Course Code	CM010301
Title of the Course	STRATEGIC FINANCIAL MANAGEMENT
Semester	Three
Type	Core
Credits	5
Hours	6 per week and Total 108

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/ National/Regional/Global development al needs
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1	Learn the theoretical foundations of financial management and financial management decisions.	K1,K2	PSO4	G/N/R
2	Evaluate the feasibility of different options Regarding discount, credit Period, storage cost etc related to current assets and current liabilities and estimate working capital requirements.	K3,K4,K5	PSO4	G/N/R
3	Evaluate long term proposals and evaluate the risk associated with long term investment.	K3,K4,K5	PSO4	G/N/R
4	Evaluate the decisions regarding leasing of capital assets.	K3,K4,K5	PSO4	G/N/R
5	Evaluate and Compare the performance of business entities.	K3,K4,K5	PSO4	G/N/R

Course Code	CM010302
Title of the Course	INCOME TAX - LAW AND PRACTICE
Semester	Three
Type	Core
Credits	5
Hours	7 per week and Total 126

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	Acquire knowledge regarding the basic concepts of Income Tax.	K1	PSO4, 6	N/R
2	Able to compute the income from salary and house property.	K2,K3	PSO4, 6	N/R
3	Determine taxable profit of a business or profession.	K2,K3	PSO4, 6	N/R
4	Able to compute capital gain and income from other sources.	K2,K3	PSO4, 6	N/R
5	Able to calculate Gross Total Income of an individual.	K2,K3	PSO4, 6	N/R

6	Learner shall be able to determine eligible deductions and compute Taxable Income and tax liability of an individual.	K2,K3	PSO4, 6	N/R
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Course Code	CM010303
Title of the Course	SECURITY ANALYSIS AND PORTFOLIOMANAGEMENT
Semester	One
Type	Core- Elective
Credits	4
Hours	6 per week and Total 108

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	Able to understand the concepts of investments, different types of investments, views of investment and process of investment and apply the theoretical knowledge in investment information for selecting the securities.	K2,K3	PSO4, 6	G/N/R
2	Understanding the types of risk in security market And Applying various tools for the valuation of bonds as well as economic indicators to predict the market.	K2,K3	PSO4, 6	G/N/R
3	Understand the tools of technical analysis, analyse the patterns and trends in the market by using various tools and enable to take investment decisions after understanding market efficiency level also.	K2,K3,K5	PSO4, 6	G/N/R
4	Applying Modern portfolio theories and construct optimum portfolios.	K2,K3	PSO4, 6	G/N/R
5	Revising constructed portfolios as per risk and return association by using different strategies.	K5	PSO4, 6	G/N/R

ELECTIVE COURSES (One per group for the 3 semester)

Group 1- Finance and Taxation Stream

Course Code	CM800301
Title of the Course	INDIRECT TAX LAWS
Semester	
Type	
Credits	4
Hours	6 p

Three
Core-Elective

er week and Total 108

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	Understand the basic concepts of the Goods and Services Tax	K2	PSO4, 6	N/R
2	Develop a clear idea about the levy and collection of tax and tax credit	K2	PSO4, 6	N/R
3	Develop the knowledge about the provisions regarding registration, preparations of books of accounts and filing of returns under the Act	K2,K3	PSO4, 6	N/R
4	Understand about the powers authorities regarding inspection, search and seizure	K2	PSO4, 6	N/R
5	Basic understanding about the Customs Law in India.	K2	PSO4, 6	N/R

Group 2- Marketing and International Business

Course Code	CM810301
Title of the Course	LOGISTICS AND SUPPLY CHAIN MANAGEMENT
Semester	Three
Type	Core- Elective
Credits	4
Hours	6 per week and Total 108 hours

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	To have an understanding on the concept of logistics, the elements involved, logistics management and principles	K2	PSO1, 6	G/N/R

2	Learner should be able to have an idea regarding various demand forecasting techniques	K3	PSO1, 6	G/N/R
3	After learning the module, there shall be an understanding on transportation process and major documents involved in air and ocean logistics management	K1,K2	PSO1, 6	G/N/R
4	To get a clear idea on supply chain management, its process and evaluate the strategies involved	K2,K3	PSO1, 6	G/N/R
5	To have an idea regarding warehousing, its importance and analyse the role of computers in modern day warehousing	K2	PSO1, 6	G/N/R
6.	To have an overview on various trends and developments taking place in the field of logistics and supply chain management.	K2	PSO1, 6	G/N/R

FOURTH SEMESTER

Course Code	CM010401
Title of the Course	ADVANCED COST AND MANAGEMENT ACCOUNTING
Semester	Three
Type	Core
Credits	4
Hours	6 per week and Total 108

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/ National/Regional /Global development al needs
1	Apply activity based absorption methods instead of conventional absorption method.	K3	PSO1, 2	N/R/L
2	Apply the marginal costing principles in decision making situations of businesses.	K3	PSO1, 2	N/R/L
3	Dealing with practical cases of pricing decisions in different situations	K5	PSO1, 2	N/R/L
4	Understand the concepts of standard costing, and the process of cost control through it.	K2,K3	PSO1, 2	N/R/L

5	Deal with the practical issues related to transfer pricing	K3	PSO1, 2	N/R/L
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Course Code	CM010402
Title of the Course	INCOME TAX — ASSESSMENT & PROCEDURES
Semester	Four
Type	Core
Credits	4
Hours	7 per week and Total 126

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/ National/Regional /Global developmental needs
1	Compute the total income and tax liability of firms and Association of Persons	K2,K3	PSO4, 6	N/R/L
2	Carry out assessment of companies and determine their tax liability	K2,K3	PSO4, 6	N/R/L
3	Make the assessment of co operative societies and trusts.	K2,K3	PSO4, 6	N/R/L
4	Understanding about the assessment procedures, TDS and advance payment of tax and application in various situations	K2,K3	PSO4, 6	N/R/L
5	Learn tax planning concepts and apply the Same	K2,K3	PSO4, 6	N/R/L

ELECTIVE COURSES (Two courses in the semester) Group 1-

Finance and Taxation Stream

Course Code	CM800401
Title of the Course	DERIVATIVES AND RISK MANAGEMENT
Semester	Four
Type	Core-Elective
Credits	4
Hours	6 per week and Total 108

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	Knowledge about the derivative market in India, its evolution, types, players, risks involved and basic quantitative foundations	K1,K3	PSO4, 6	N/R
2	Analyze the implications of Risk in the perception of individuals and Institutions and measurement of risks	K3,K4	PSO4, 6	G/N/R
3	Understand and explain the concept of forward market and its function,	K2	PSO4, 6	G/N/R
4	Analyse the operation and pricing of various types of futures	K4,K6	PSO4, 6	G/N/R
5	Understand the concepts and methodology of option trading and apply the models of pricing the option contracts	K2,K3,K6	PSO4, 6	G/N/R
6	Develop an idea of exchanges through swaps	K2,K3	PSO4, 6	G/N/R

Course Code	CM800402
Title of the Course	PERSONAL INVESTMENT AND BEHAVIOURAL FINANCE
Semester	Four
Type	Core
Credits	4
Hours	6 per week and Total 108

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	Understand the meaning and significance of Financial literacy, Financial Discipline & Financial Competency, the role of family and parents in financial socialisation	K2,K5	PSO4, 6	G/N/R/L

2	Understand and Evaluate the Significance of savings on financial destiny and its relationship with Consumerism and to understand the different elements/steps in Personal Financial Planning to attain Financial Well Being and Evaluate the different retail investment avenues.	K2,K5	PSO4, 6	G/N/R/L
3	Know the meaning of Behavioural Finance, its evolution and related theories	K1,K2	PSO4, 6	G/N/R/L
4	To understand different Heuristics, Biases and other Irrational Investment Behaviour	K2,K5	PSO4, 6	G/N/R/L
5	Understand the relationship between biases and to adopt techniques to lower the impact of biases	K2,K3	PSO4, 6	G/N/R/L

Group 2- Marketing and International Business

Course Code	CM810401
Title of the Course	RETAIL AND RURAL MARKETING
Semester	Four
Type	Core-Elective
Credits	4
Hours	6 per week and Total 108 hours

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	Understanding on the concept and structure of retail marketing and its status in India	K2	PSO1, 4	N/R/L
2	Idea regarding the various formats Prevailing in retail sector and the setting up and functioning of retail stores	K2	PSO1, 4	N/R/L
3	Understand the marketing mix available for retail marketing and the various aspects of HRM applicable for retailing	K2,K3	PSO1, 4	G/N/R/L
4	Develop an idea on emerging trends of retailing in India	K2	PSO1, 4	N/R/L

5	understanding regarding rural markets and marketing, its structure in India and the process and importance of agricultural marketing	K2	PSO1, 4	N/R/L
6	Understand the elements of marketing mix applicable in rural marketing ,the role of FMCG in rural markets and also the emerging trends in rural markets in India.	K2	PSO1, 4	N/R/L

Course Code	CM810402
Title of the Course	INTERNATIONAL MARKETING
Semester	Four
Type	Core-Elective
Credits	4
Hours	6 per week and Total 108

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/ National/Regional /Global developmental needs
1	Understanding on international marketing and environment.	K2	PSO1, 4	G/N
2	To understand the various aspects in connection with product planning and development in international scenario.	K2	PSO 1, 4	G/N
3	Get an idea regarding Segmentation, targeting, positioning in global market and international pricing strategies	K2,K3	PSO1, 4	G/N
4	Acquaintance with international logistics, mode of entry and promotional measures	K2	PSO1, 4	G/N
5	Develop an understanding regarding research in international marketing and terms of payments as well as incoterms	K2	PSO1, 4	G/N
6.	Get an overview on risk in international market Aspects of international marketing and globe - marketing.	Understand	PSO1, 4	G/N

Course Code	CM010403
Title of the Course	PROJECT REPORT
Semester	Four
Type	Core- Project
Credits	4
Hours	NA

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/ National/Regional /Global developmental needs
1	Quality Research Output and Presentation	K3,K4,K5	PSO3, 4 and PO3,5,6	N/R/L

Core Course- Comprehensive Viva

Course Code	CM010404
Title of the Course	COMPREHENSIVE VIVA
Semester	Four
Type	Core- Viva
Credits	2
Hours	NA

Course Outcome No	Expected Course Outcome	Cognitive Level	Programme Specific Outcome Linkage	Relevance to Local/ National/Regional /Global developmental needs
1	The learner should have the capacity to communicate his/her understanding in various subjects studied.	K1,K4,K5	PSO1 to 6 and PO5	N/R/L

PROGRAMME OUTCOME OF MA HISTORY

Programme Specific Outcome (PSO)

PSO No.	Upon completion of MA History Programme, the students will be able to:	PO No.	Relevance to Local/ National/ Regional/ Global developmental needs
PSO-1	Promote an understanding of the evolutionary processes of human societies.	1,2,4,5	G/N/R
PSO-2	Describe the socio-cultural and economic transformation of Indian subcontinent.	1,2	N/R/L
PSO-3	Develop an informed familiarity with multiple cultures.	1,2,4	N/G/L
PSO-4	Analyse ethical issues that historians face as interpreters of the past.	2	N/G
PSO-5	Acquire historiographical literacy that enables the students to engage in debates.	1,2,3	G/N/R
PSO-6	Apply historical methods to critically evaluate the recorded past and review its interpretations.	2,3	G/N/R/L
PSO-7	Develop research skills, methodological expertise and ability to effectively use libraries, archives and databases for lifelong learning.	3,5	G/N/R/L
PSO-8	Design research project and formally present research findings in a persuasive, coherent and professional manner.	3,5	G/N/R/L

COURSE OUTCOME OF MA HISTORY

PG20HY101: APPROACHES TO HISTORY

Course Outcome	Expected Course Outcomes Upon completion of Approaches to History, the students will be able to:	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global

					developmental needs
CO 1	Trace the historical consciousness in pre- modern India	R	F	PSO 1	N/R
CO 3	Identify the epistemological and methodological distinctiveness of history as a discipline.	AN	C	PSO 5	G/N/R
CO 4	Analyse the significance of the influence of other disciplines in the development of historical method.	AN	C	PSO 6	G/N/R/L
CO 5	Evaluate scholarly writing in history critically and to undertake informed source-criticism.	E	P	PSO 4,7	G/N/R
CO 6	Understand whether or not they possess the motivation and interest to pursue research in history.	U	MC	PSO 7	N/R
CO	Course outcome				
PSO	Programme Specific outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An- Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

PG20HY102: TRANSITION FROM PRE-STATE TO STATE SOCIETIES IN INDIAN HISTORY

Course Outcome	Expected Course Outcomes	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Identify the major historiographical debates on the nature of state and social formation of early India	An	C	PSO 5	N/R
CO 2	Evaluate the transformations in the material culture of early India	E	F	PSO 1, 2	N/R
CO 3	Understand structural changes of early societies in India.	U	F	PSO 1, 2	N/L
CO 4	Analyse the cultural and political transformation of ancient India.	An	C	PSO 1, 2	G/N/R
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

PG20HY103: SOCIAL FORMATIONS IN KERALA TILL THE END OF THE PERUMAL RULE

Course Outcome	Expected Course Outcomes	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developme
	Upon completion of Social Formations in Kerala Till the End of The Perumal Rule, the students will be able to:				

					ntal needs
CO 1	Understand how the geographical and environmental features influenced the history of Kerala	U	F	PSO 1, 3	R/L
CO 2	Evaluate the material culture of early Kerala.	E	F	PSO 1,3	R/L/G
CO 3	Identify the Cultural and social transformations of clans and chiefdoms of early Kerala.	An	C		R/L
CO 4	Analyse the developments of Social formations based on agrarian settlements.	An	F	PSO 1,2,3	R/L
CO 5	Understand the emergence of the brahminical-centered temple based agrarian society in the medieval terrain of Kerala	U	C	PSO 1,2,3	R/L
CO 6	Differentiate the agricultural methods adopted by the people in different ages and zones.	An	F	PSO 1,2,3	R/L
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

PG20HY104: STATE AND SOCIETY IN INDIA C. A.D. 1000 -1800

Course Outcome	Expected Course Outcomes	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Upon completion of State and Society in India C. A.D. 1000 - 1800, the students will be able to: Locate the historiographical debates regarding state formation	R	C	PSO 6, 2	N/R

	in Medieval India				
CO 2	Understand the administrative frameworks of various empires in medieval India.	U	F	PSO 1, 2, 3	N/R
CO 3	Evaluate the nature of power relations in medieval Indian state.	E	C	PSO 2, 3	N/R
CO 4	Interrelate the structure, composition and pattern of Indian state and society in medieval period	U	C	PSO 2, 3	N/R
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

PG20HY105: MAKING OF THE MODERN WEST

Course Outcome	Expected Course Outcomes	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Enumerate the major social revolutions of modern Western Europe.	U	F	PSO 1, 3	G/N
CO 2	Evaluate the paradigm shift from medieval world to modern world especially in the context of emergence	E	F, C	PSO 1, 3	G/N/R

	of renaissance and reformation.				
CO 3	Asses the legacy of French revolution in the Modern World.	An	F	PSO 1,3, 6	
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

PG20HY206: HISTORY OF SOCIAL INSTITUTION AND STRUCTURES OF EARLY INDIA

Course Outcome	Expected Course Outcomes	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/ National / Regional/ Global developmental needs
CO 1	Identify the origin, formations and changes of social-religious institutions in ancient Indian society.	An, R	F	PSO 2, 3,6	N/R/L
CO 2	Analyse the roots and early phases of complex Indian social stratifications.	An	F, C	PSO 2,3, 6	N/R
CO 3	Evaluate the features that lead to the rise of new heterodox sects that challenged the old order.	E	F, C	PSO 2,3,6	G/N/R/L
CO 4	Understand Sangam literature as a source	U, An	F	PSO 2, 3, 6	N/R/L

	of ancient Tamilakam				
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

PG20HY207: SOCIAL FORMATIONS OF KERALA FROM C. A.D.1200 TO 1800

Course Outcome	Expected Course Outcomes	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Know about the consolidation of the Swaroopams after the end of Perumal rule	R, An	F	PSO 2, 3	R/L
CO 2	Create an in-depth understanding of agrarian settlements in Kerala.	U	F	PSO 2, 3	R/L
CO 3	Analyse the proliferation of temple institutions.	An	F, C	PSO 2, 3	R/L
CO 4	Locate the early phases of commercialization, monetization and trade in Kerala.	R, U	F	PSO 2, 3	R/L
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

Level		
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PG20HY208: REVENUE ADMINISTRATION IN INDIA FROM C. A.D. 1000 TO 1800

Course Outcome	Expected Course Outcomes	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Understand various aspects of revenue administration in India from c. A.D 1000 to 1800.	U	F	PSO 1, 2, 3,	N/R/L
CO 2	Evaluate procedure of economic endeavours and policies of concerned rulers of various medieval dynasties in India.	E	F, C	PSO 1, 2, 3, 6	N/R
CO 3	Analyse the nature of resources and modes of their management in medieval India.	An	F, C	PSO 1, 2, 3, 6	N/R/L
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

PG20HY209: PERSPECTIVES OF WOMEN'S HISTORY AND THE HISTORY OF GENDER IN INDIA

Course	Expected Course Outcomes	Cognitive	Knowledge	Mapping	Relevance
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Outcome	Upon completion of Perspectives of Women's History and the History of Gender in India, the students will be able to:	Level	Level	to Program Specific Outcome	to Local/National/Regional/Global developmental needs
CO 1	Understand major concepts and theories regarding Gender and Women's studies	U	C	PSO 3, 5, 6,	G/N/R
CO 2	Recognize the intersections between gender and other social and cultural identities, including, but not limited to, race, ethnicity, national origin, religion, class and sexuality.	An, E	C, F	PSO 3, 5, 6	G/N/R
CO 3	Analyse and explain the ways in which societal institutions and power structures impact the material realities of women's lives.	An	F, C	PSO 3, 5, 6, 4	N/R
CO 4	Evaluate and interpret information regarding Gender, from a variety of sources including print and electronic media, film, video, and other information technologies.	E, Ap	C, F, P	PSO 5, 6, 7	G/N/R
CO5	Articulate connections between global, regional, and local issues, and their relationship to women's experiences and to human rights, with an awareness of the importance of context.	An, E	C, F	PSO 1, 2, 3, 4	G/N/R/L
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				

Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive	
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PG20HY210: MAKING OF THE INDIAN NATION: HISTORICAL ANTECEDENTS

Course Outcome	Expected Course Outcomes Upon completion of Making of the Indian Nation: Historical Antecedents, the students will be able to:	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Recognize the significance of colonial historical writing on India and the idea of nationalism.	U, R	F, C	PSO 5	G/N/R
CO 2	Understand socio religious movements, English education as part of colonialism with special emphasis given to culture, modernity and public sphere.	U, An	F, C	PSO 1,2	G/N/R
CO 3	Evaluate the working of nationalism through economic critique of colonialism and the drain theory.	E	F, C	PSO 1, 2,	G/N
CO 4	Trace various stages and the techniques used in the Indian National Movement.	R, An	F, C	PSO 1, 2	G/N/R/L
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				

Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive	
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PG20HY311: HISTORY AND SOCIAL THEORY

Course Outcome	Expected Course Outcomes	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand the role of social theory in building historical knowledge	U, An	C	PSO 5, 6, 4	G/N/R
CO 2	Compare and contrast foundational theoretical orientations.	An	C	PSO 5, 6	G/N
CO 3	Impart multi-dimensional view of human society and thought.	E	C	PSO 1, 5	G/N/R
CO 4	Apply theoretical frameworks to interpret social realities.	Ap, C	P, C	PSO 6, 7	G/N/R
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

PG20HY312: HISTORY OF REVOLTS AND PROTEST MOVEMENTS IN COLONIAL KERALA

Course Outcome	Expected Course Outcomes	Cognitive Level	Knowledge Level	Mapping to Programme	Relevance to Local/ National/ Regional/
	Upon completion of History of Revolts and Protest Movements in Colonial Kerala, the students will be				

	able to:			Specific Outcome	Global developmental needs
CO 1	Analyse the idea of colonial modernity and evangelical activities in Colonial Kerala.	An, U	C, F	PSO 1, 2, 3	G/N/R/L
CO 2	Understand the land revenue policy in Kerala during Colonial period.	U	F	PSO 1, 2, 3	N/R/L
CO 3	Analyse major anti-colonial resistance movements.	An	F	PSO 1, 2, 3	G/N/R
CO 4	Evaluate the nature of Anti-caste movements and renaissance discourse of colonial Kerala.	U, An, E	F, C	PSO 1, 2, 3	N/R/L
CO 5	Evaluate the Structure of political formation of the state of Kerala.	U, An, E	F	PSO 1, 2, 3	N/R
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

PG20HY313: AGRICULTURE, CRAFTS PRODUCTION AND EXCHANGE IN INDIA FROM C. A.D. 1000 TO 1800

Course Outcome	Expected Course Outcomes	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
	Upon completion of Agriculture, Crafts Production and Exchange in India From C. A.D. 1000 to 1800, the students will be able to:				

CO 1	Analyse the economic conditions in medieval India.	An	F, C	PSO 1, 2	N/R
CO 2	Evaluate monetary system which comprises the value of currency, coinage and other types of means of payment in medieval India.	E	F	PSO 1, 2,	N/R
CO 3	Understand the interrelated aspects of agriculture and craft production in Medieval India	U	F	PSO 1, 2	N/R/L
CO 4	Trace the growth of market and Urbanism in medieval India.	R, An	F, C	PSO 1, 2	N/R
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

PG20HY314: APPROACHES TO THE PRACTICE OF HISTORY

Course Outcome	Expected Course Outcomes Upon completion of Approaches to the Practice of History, the students will be able to:	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify and critically evaluate different sources of historical research.	An, E	C, P	PSO 5, 6, 7, 8	G/N/R
CO 2	Understand the text and context of research	U	C	PSO 5, 6, 7, 8	G/N/R/L
CO 3	Analyse and interpret the oral sources of	U, An	C, P	PSO 5, 6,	N/R/L

	History			7, 8	
CO 4	Enable the student to familiarize the different aspects of expositions and concluding operations.	U	C, P	PSO 5, 6, 7, 8	N/R
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

PG20HY315: KNOWLEDGE SYSTEMS IN PRE-MODERN INDIA

Course Outcome	Expected Course Outcomes Upon completion of Knowledge Systems in Pre-Modern India, the students will be able to:	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Understand about the knowledge patterns derived from the Pre-historic archaeological sources including pottery, crafts etc.	U, R	F	PSO 1, 2, 3	N/R/L
CO 2	Analyse the knowledge patterns that are described in the ancient literary sources such as the Vedas and Sasthras etc.	An	F	PSO 1, 2, 3	N/R
CO 3	Trace the Development of astronomy, mathematics, medicine, art and architecture in Pre-modern India.	R, U	F	PSO 1, 2, 3	G/N/R
CO 4	To understand the exchange of patterns of knowledge between India and West Asia	U, R	F, C	PSO 1, 2, 3	G/N/R

CO	Course outcome	
PSO	Programme Specific Outcome	
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create	
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive	

PG20HY416: LANDMARKS IN ENVIRONMENTAL HISTORY OF INDIA

Course Outcome	Expected Course Outcomes	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global development al needs
CO 1	Identify the historiographical trends in environmentalism in the world.	U, An	C	PSO 1, 3, 5	G/N
CO 2	Analyse human adaptation and environmental concern since pre-historical period in India.	An	C, F	PSO 1, 2, 5	N/R/L
CO 3	Evaluate the impact of colonial powers on Indian environment and related debates.	E	C, F	PSO 1, 2, 4, 5	G/N/R
CO 4	Assess environment destruction due to developmental policies in post-colonial India.	An, E	F	PSO 1, 2, 4, 5	N/R
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

PG20HY 417: CONTEMPORARY INDIA: SOCIETY AND ECONOMY

Course Outcome	Expected Course Outcomes Upon completion of Contemporary India: Society and Economy, the students will be able to:	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Evaluate the socio-economic profile of India at the time of independence.	E	F	PSO 1, 2,	N/R/L
CO 2	Remember the early strategies of India's Economic development.	R	F, C	PSO 1, 2	N/R
CO 3	Analyse the economic crisis of 1960s and its aftermaths.	An	F	PSO 1, 2	N/R/L
CO 4	Evaluate the economic reforms of 1990s.	E	F	PSO 1, 2	
CO 5	Understand about peoples/peasants/ Naxalite struggles of post-independent India.	U	F	PSO 1, 2, 3	N/R
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

PG20HY418: THE MAKING OF A COLONY

Course Outcome	Expected Course Outcomes Upon completion of The Making of a Colony, the students will be able to:	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/
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					Global developmental needs
CO 1	Understand about European expansion and colonization from 15th Century.	U	F	PSO 1, 3	N/R
CO 2	Understand and evaluate how the colonizer and the colonized jointly facilitated colonialism.	U, E	F, C	PSO 1, 3	G/N
CO 3	Perceive the nature, impact and implications of colonialism in fomenting transformations on a global scale.	U, An	F, C,	PSO 1, 3	G/N/R
CO 4	Analyse the nature of British colonialism and its legacy for the operation of political, social and cultural frameworks of Indian Society.	An	F, C	PSO 1, 2, 3	N/R/L
CO 5	Trace historiographical debates and conceptual problems central to the study of colonial rule and cultures of power in South Asian history.	U, An	C	PSO 1, 2, 3, 5	G/N
CO 6	Understand and analyse the various theories about the colonized peoples	U, An	C	PSO 1, 2, 3, 4, 5	G/N
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Applied; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

PG20HY419: HISTORY OF HUMAN RIGHTS MOVEMENTS IN INDIA

Course Outcome	Expected Course Outcomes	Cognitive Level	Knowledge Level	Mapping to Program	Relevance to Local/
	Upon completion of History of Human Rights Movements in India, the students				

	will be able to:			me Specific Outcome	National / Regional / Global develop mental needs
CO 1	Understand the origin of the concept of human rights and enquire its theoretical basis.	U	C	PSO 1, 3, 4	G/N
CO 2	Evaluate the historical landmarks of legal provisions regarding human rights in the world including India.	E	F	PSO 1, 2, 3, 4	G/N
CO 3	Know the development of the notion of human rights in India since ancient period	R, An	F	PSO 1, 2, 3, 4	N/R
CO 4	Analyse and reflect on the nature of major human rights movements in contemporary India	An	F, Mc	PSO 1, 2, 3, 4, 5, 6	N/R
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

PG20HY420: HISTORY OF MEDICINE AND HEALTH SYSTEMS IN MODERN INDIA

Course Outcome	Expected Course Outcomes Upon completion of History of Medicine and Health Systems in Modern India, the students will be able to:	Cognitive Level	Knowledge Level	Mapping to Program Specific Outcome	Relevance to Local/ National/ Regional/ Global developm
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					ental needs
CO 1	Understand how medical knowledge and health systems have been evolved in India over the years.	U	C	PSO 1, 3, 4	N/R
CO 2	Evaluate the hegemonic assumptions of colonial knowledge systems produced various forms of authority and power structures.	E	F	PSO 1, 2, 3, 4	G/N
CO 3	Trace the Modernity in medicine	U, An	C	PSO 1,2,3,4,5	N/R
CO 4	Analyse the colonial Knowledge produced notions of body, deceases, alternate medicines and health systems in India.	An,	C	PSO 1,2	G/N/R
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

THE RISE OF MODERN CHINA

Course Outcome	Expected Course Outcomes	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 2	Upon completion of The Rise of Modern China, the students will be able to: Analyse scholarly perspectives on China's modern history and society.	An	F, C	PSO 1, 3, 5	N/R
CO 3	Locate the revolutionary movements in	R, An	F	PSO 1,3, 5	N/R

	modern china and analyse the new cultural movements in the background of revolutions				
CO 4	Evaluate the birth of people's republic of china.	E	F	PSO 1,3, 5	N/R
CO 5	Examine the rise of China as a World Power	An	F	PSO 1, 3, 5	G/N
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

ECONOMIC HISTORY OF MODERN INDIA

Course Outcome	Expected Course Outcomes Upon completion of Economic History of Modern India, the students will be able to:	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand the conceptual frameworks used to explain the central elements of historical development of the Indian economy	U	C	PSO 1, 5	N/R
CO 2	Identify and analyse different fields like factory production, plantation industry, transportation and communication during the period of colonialism, which are critical benchmarks in the development of Indian economy	U, An	F	PSO 1, 2, 3	N/R/L

CO 3	Explore the growth of capitalism in India.	An	C, F	PSO 1, 2	N/R
CO 4	Evaluate India's economic history as a continuous process, and to place the development of agriculture, industry and currency in a political and historical context.	E	C, F	PSO 1, 2	N/R
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

SOCIAL HISTORY OF ART AND ARCHITECTURE IN INDIA: SELECT REGIONS AND PERIODS

Course Outcome	Expected Course Outcomes	Cognitive Level	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand how Art and Architecture represents Social History	U	F, Mc	PSO 1, 3, 5, 6,7	G/N/R
CO 2	Identify visual vocabulary appropriate for careers in the visual arts, architecture, visual studies, and the media.	U, An	P	PSO 1, 3, 5, 6, 7	G/N/R
CO 3	Remember and understand major monuments, artists, methods and theories, and be able to assess the qualities of works of art and architecture in Indian historical and cultural setting.	R, U	F	PSO 1, 3, 5,6,7,	N/R/L

CO 4	Understand the theoretical and methodological approaches among the students to generate critical ways of looking at art and architecture as material sources of social history.	U	C	PSO 1, 3, 5, 6, PSO 7, 8	N/R
CO	Course outcome				
PSO	Programme Specific Outcome				
Cognitive Level	Remember; U-Understanding; Ap-Appl; An-Analyze; E-Evaluate; C-Create				
Knowledge Level	F- Factual; C- Conceptual; P- Procedural; MC; Metacognitive				

Programme outcomes of B.Sc Statistics

Course outcomes of B.Sc Statistics

SEMESTER I- CORE COURSE I UG21ST1CR01- ELEMENTARY STATISTICS

PSO No.	Upon completion of B.Sc Statistics programme, the students will be able to	PO No.	Relevance to Local/National/ Regional/ Global developmental needs
PSO1	Formulate and analyse statistical problems, precisely define the key terms, and draw conclusions based on statistical analysis.	PO1, PO2, PO4	L/N/R/G
PSO2	Use statistical techniques to solve well defined problems and present their theoretical background, both in oral and written format to various audiences.	PO1, PO2, PO3, PO4	L/N/R/G
PSO3	Read, understand and construct correct mathematical and statistical proofs and use the library and electronic data-bases to locate information on statistical problems.	PO1, PO2, PO8	L/N/R/G
PSO4	Explain the importance of Statistics and its techniques to solve real life problems and understand the limitations of such techniques and the validity of the results.	PO4, PO5	L/N/R/G
PSO5	Formulate new statistical problems and use software packages and / or computer programming to solve them.	PO2, PO4, PO8	L/N/R/G
PSO6	Develop skills via group projects, assignments, seminar presentations and viva voce sessions.	PO6, PO7	L/N/R/G
PSO7	Continue to acquire statistical knowledge and skills appropriate to professional activities and demonstrate highest standards of ethical issues in Statistics.	PO7, PO8	L/N/R/G

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/ Regional/ Global developmental needs
1	CO 1: Identify Statistics as a scientific discipline, dealing with the collection, classification, analysis and interpretation of numerical data.	K2	PSO4	L/N/R/G
2	CO 2: Understand the basic concepts of Statistical	K2	PSO3	L/N/R/G

	methodologies for data collection.			
3	CO3: Compare and use various data collection methods in primary data collection.	K3	PSO1, PSO2	L/N/R/G
4	CO 4: Identify various sources of secondary data.	K3	PSO2, PSO3	L/N/R/G
5	CO 5: Use descriptive measures and graphs to represent and compare numerical data.	K4	PSO1, PSO2	L/N/R/G
6	CO 6: Construct frequency distribution and related tables from a given dataset.	K5	PSO2	L/N/R/G
7	CO 7: Prepare well-structured questionnaires.	K6	PSO1, PSO2, PSO6	L/N/R/G
8	CO8: Design systematic small scale surveys for data collection.	K6	PSO1, PSO2, PSO7	L/N/R/G

SECOND SEMESTER COURSES
SEMESTER II- CORE COURSE II
UG21ST2CR01-PROBABILITY THEORY& APPLIED STATISTICS

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	CO 1: Identify probability theory as the backbone of Statistical Science.	K2	PSO4	L/N/R/G
2	CO2: Understand the fundamentals of probability theory, index numbers and time series analysis.	K2	PSO1, PSO4	L/N/R/G
3	CO3: Recognize the applications of statistical methodologies from the study of index numbers and time series analysis.	K3	PSO2, PSO4	L/N/R/G
4	CO4: Compare the classical and Bayesian approaches in Statistics.	K2	PSO4	L/N/R/G
5	CO 5: Implement the concept of index numbers in many real-life problems for comparison purposes.	K3, K4	PSO1, PSO2	L/N/R/G
6	CO6: Judge the merits of statements consisting of different index numbers from the governmental and non-governmental agencies.	K4, K5	PSO2, PSO7	L/N/R/G

7	CO7: Classify and study the various components of a time series data and its applications.	K3, K4	PSO1, PSO2	L/N/R/G
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THIRD SEMESTER COURSES
SEMESTER III-CORE COURSE III
UG21ST3CR01-THEORY OF RANDOM VARIABLES

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	CO 1: Describe the concept of random variables and its properties.	K2	PSO1, PSO4	L/N/R/G
2	CO 2 : Apply the concept of mathematical expectation, its properties and various statistical measures in terms of expectation of random variables.	K3	PSO2, PSO3	L/N/R/G
3	CO 3: Explain the different generating functions and their applications.	K3	PSO3, PSO4	L/N/R/G
4	CO 4 : Understand the significance of correlation and regression in statistical analysis	K2	PSO1, PSO3	L/N/R/G
5	CO 5: Analyse bivariate data using correlation and regression techniques.	K4	PSO1, PSO2, PSO7	L/N/R/G
6	CO 6: Fitting of curves using the principle of least squares.	K6	PSO1, PSO2	L/N/R/G

FOURTH SEMESTER COURSES
SEMESTER IV-CORE COURSE IV
UG21ST4CR01-PROBABILITY DISTRIBUTIONS

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	CO 1: Describe various probability distributions - discrete and continuous, their properties and applications	K1	PSO4, PSO2	L/N/R/G
2	CO 2 : Explain various discrete distributions such as Binomial, Poisson, Geometric etc., their properties and their applications.	K2	PSO4, PSO3	L/N/R/G
3	CO 3 : Understand various continuous distributions such as Exponential, Gamma, Beta,	K2	PSO3	L/N/R/G

	Normal etc., their properties and their applications.			
4	CO 4 : Model data using distribution fitting techniques	K5	PSO1, PSO2	L/N/R/G
5	CO 5: Describe normal distribution, its properties and solve problems using normal tables.	K3	PSO4	L/N/R/G
6	CO 6: Understand the theory of Law of large numbers, Central limit theorem and its applications.	K3	PSO4, PSO3	L/N/R/G

FIFTH SEMESTER COURSES

SEMESTER V- CORE COURSE V

UG21ST5CR01-THEORY OF ESTIMATION

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	CO1: Describe the basic concepts of sampling distributions and application in real life situation .	K2	PSO3	L/N/R/G
2	CO2: Identify the role of sampling distributions such as t , F ,Chi-square and their inter relationships .	K2	PSO4	L/N/R/G
3	CO 3: Understand the uses of standard error in Statistical Inference.	K2	PSO2, PSO4	L/N/R/G
4	CO4: Apply the various sampling distributions in finding solution to real life situations.	K4	PSO1, PSO2, PSO4	L/N/R/G
5	CO5: Understand the concept of point estimation, characteristics of a good estimator and their properties.	K2	PSO4	L/N/R/G
6	CO6: Apply the different methods of estimation in finding point estimators of parameters of different populations.	K4	PSO1, PSO2	L/N/R/G
7	CO7: Evaluate confidence interval of parameters of various populations	K4	PSO1, PSO2	L/N/R/G

SEMESTER V-CORE COURSE VI

UG21ST5CR02-MATHEMATICS FOR STATISTICS-I

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	CO 1: Identify the role and use of mathematical analysis in theoretical Statistics.	K2	PSO4	L/N/R/G
2	CO 2: Improve their mathematical ability for the upcoming semesters.	K2	PSO3, PSO7	L/N/R/G
3	CO 3: Understand the important aspects of set theory, sequences and series and differential calculus.	K2	PSO3, PSO7	L/N/R/G
4	CO 4: Classify sequences and series based on their nature of convergence.	K4	PSO3	L/N/R/G
5	CO 5: Implement the results in calculus for checking the continuity and differentiability of statistical functions.	K3	PSO1	L/N/R/G
6	CO 6: Use the results on the convergence of sequences and series to determine various statistical properties of random variables.	K4	PSO2, PSO3	L/N/R/G

**SEMESTER V- CORE COURSE VII
UG21ST5CR03- SAMPLING TECHNIQUES**

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	CO 1 : Describe various probability sampling techniques	K2	PSO4	L/N/R/G
2	CO 2: Understand census and sampling methods for conducting a field survey.	K2	PSO4	L/N/R/G
3	CO 3: Acquire basic knowledge on various probability sampling techniques such as Simple random Sampling , Stratified random sampling , Systematic sampling and Cluster sampling .	K2	PSO3, PSO4	L/N/R/G
4	CO 4: Choose a representative sample and calculate the descriptive measures using SRS, Stratified, Cluster and Systematic Sampling.	K3	PSO1, PSO2	L/N/R/G
5	CO 5: Calculate required	K3	PSO1, PSO2	L/N/R/G

	minimum sample size of each strata using different allocation procedures in stratified random sampling.			
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SEMESTER V- CORE COURSE VIII

UG21ST5CR04-ENVIRONMENTAL STUDIES AND VITAL STATISTICS

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	CO 1: Understand the various measures of mortality and fertility.	K2	PSO4	L/N/R/G
2	CO 2: Explain the components of population growth	K2	PSO2, PSO4	L/N/R/G
3	CO 3: Construct abridged life table using various methods.	K6	PSO1, PSO2	L/N/R/G
4	CO 4: List the uses of life tables and demography.	K2	PSO3	L/N/R/G
5	CO 5: Distinguish between direct and indirect standardization techniques in mortality.	K4	PSO2, PSO3	L/N/R/G
6	CO 6: Understand the natural environment as a system and how human activities affects that system	K2	PSO7	L/N/R/G
7	CO 7: Acquire specific skills necessary to achieve understanding of solutions to environmental problems	K3	PSO7	L/N/R/G
8	CO 8: Define different concepts of human rights.	K2	PSO7	L/N/R/G

SEMESTER V- OPEN COURSE

UG21ST5OC-APPLIED STATISTICS

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	CO 1: Describe the concept of Index numbers and time series analysis.	K2	PSO4	L/N/R/G
2	CO 2: Understand the role of index numbers in diversified fields and construction of different types of index numbers	K3	PSO4, PSO2	L/N/R/G
3	CO 3: Verify various tests for	K3	PSO3	L/N/R/G

	consistency of index numbers.			
4	CO 4: Apply the processes base shifting, splicing and deflating in real data.	K3	PSO3, PSO2	L/N/R/G
5	CO 5: Explain the basic concepts of time series and its applications in various fields.	K2	PSO4, PSO2	L/N/R/G
6	CO 6: Analyze time series data by measuring trend using graphical, semi average, moving average and least square methods.	K4	PSO1, PSO2	L/N/R/G
7	CO 7: Understand the various measures of mortality and fertility.	K2	PSO4	L/N/R/G

SIXTH SEMESTER COURSES

SEMESTER VI- CORE COURSE IX

UG21ST6CR01-TESTING OF STATISTICAL HYPOTHESES

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	CO1: Describe the basic concepts of testing of hypothesis, theory and application of various tests of significance in statistical data analysis	K2	PSO4	L/N/R/G
2	CO2: Explain the concept of testing of hypothesis and different types of parametric tests used in statistical data analysis.	K2	PSO4	L/N/R/G
3	CO3: Test the significance of various statistical measures such as mean, variance, correlation coefficient etc.	K3	PSO1, PSO2	L/N/R/G
4	CO4: Compare statistical measures like mean and variance of different datasets using testing of hypothesis	K4	PSO1, PSO2	L/N/R/G
5	CO5: Understand some basic non-parametric tests used in data analysis	K2	PSO4	L/N/R/G
6	CO6: Apply the different non-parametric tests in interpreting results in data analysis	K3	PSO1, PSO2	L/N/R/G
7	CO7: Analyze quantitative data, interpret the result and give conclusion to the real life situations	K4	PSO1, PSO2	L/N/R/G

SEMESTER VI- CORE COURSE X
UG21ST6CR02-MATHEMATICS FOR STATISTICS-II

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/ Regional/ Global developmental needs
1	CO 1: Acquire basic knowledge in estimating the missing data through various interpolation methods.	K2	PSO4	L/N/R/G
2	CO 2: Understand basics of numerical analysis and Reimann Integration.	K2	PSO3, PSO7	L/N/R/G
3	CO 3: Explain the fundamental concepts of complex analysis and their role in other applied statistical and mathematical contexts.	K2	PSO3, PSO7	L/N/R/G
4	CO 4: Understand the concept of Riemann integral as a limit of sums.	K2	PSO3, PSO7	L/N/R/G
5	CO 5: Find the area under the curve using Fundamental Theorem of Integral Calculus.	K4	PSO1, PSO2	L/N/R/G
6	CO 6: Find the average value of function using the Mean Value Theorem.	K4	PSO1, PSO2	L/N/R/G

SEMESTER VI-CORE COURSE-XI
UG21ST6CR03-DESIGN AND ANALYSIS OF EXPERIMENTS

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/ Regional/ Global developmental needs
1	CO1: Understand the estimability of parametric function.	K2	PSO4	L/N/R/G
2	CO2: Understand the principles of design of experiments.	K2	PSO4, PSO3	L/N/R/G
3	CO 3: Acquire knowledge about Analysis of variance and its application in agricultural experiments, industry, education, Psychology, business, etc.	K3	PSO3, PSO4	L/N/R/G

4	CO 4: Explain some of the simple but highly useful types of experimental designs such as CRD, RBD, LSD, etc.	K4	PSO1, PSO2	L/N/R/G
5	CO 5: Understand the basics of factorial experiments and its applications.	K3	PSO1, PSO2	L/N/R/G
6	CO 6: Apply the design and analysis in field experiments.	K6	PSO1, PSO2, PSO7	L/N/R/G

Semester VI-Core Course XII

UG21ST6CR04-STATISTICAL COMPUTING USING R SOFTWARE

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	CO 1: Identify the role of statistical softwares and packages in statistical data analysis.	K2	PSO5	L/N/R/G
2	CO 2: Understand the features and syntax of R programming.	K2	PSO5	L/N/R/G
3	CO 3: Use R programming for getting descriptive measures of datasets.	K3	PSO5, PSO2	L/N/R/G
4	CO 4: Implement R in creating graphical representations of data.	K4	PSO5, PSO2	L/N/R/G
5	CO 5: Create statistical models for studying the relationship between variables, using R.	K4	PSO5, PSO2	L/N/R/G
6	CO 6: Construct artificial data using random number generators for simulating real life phenomena.	K6	PSO5, PSO2	L/N/R/G
7	CO 7: Use the estimation procedures for suggesting an estimate of an unknown parameter.	K4	PSO5, PSO2	L/N/R/G
8	CO 8: Formulate statistical hypothesis for research problems and check the validity of the hypothesis from sample data using statistical hypothesis testing procedures in R.	K6	PSO5, PSO7	L/N/R/G

SEMESTER VI- CORE COURSE XIII- ELECTIVE I

UG21ST6CB-OPERATIONS RESEARCH

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global
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				developmental needs
1	CO1: Describe the origin of Operations Research as a discipline and various models and different solution methods.	K2	PSO4	L/N/R/G
2	CO2: Understand the role of Linear Programming Problem in finding solution to complex real-life situations.	K2	PSO3	L/N/R/G
3	CO3: Formulate real-life decision-making problems as linear programming problems	K4	PSO1	L/N/R/G
4	CO4: Solve linear programming problems using graphical and simplex method	K4	PSO1, PSO2	L/N/R/G
5	CO5: Solve transportation problems using MODI method and stepping stone methods	K4	PSO1, PSO2	L/N/R/G
6	CO6: Understand thoroughly the application of assignment problems and solve them.	K3	PSO4	L/N/R/G
7	CO7: Explain how to draw a network diagram of a project and calculate project completion time using CPM and PERT.	K4	PSO1, PSO2	L/N/R/G

**COMPLEMENTARY COURSES
TO
B. Sc. MATHEMATICS PROGRAMME**

SEMESTER-I

UG21ST1CM01 - DESCRIPTIVE STATISTICS

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	CO 1: Understand Statistics as a discipline and identify its applications in diversified fields.	K2	PSO4	L/N/R/G
2	CO 2: Acquire basic knowledge on sampling and different types of sampling techniques.	K2	PSO4	L/N/R/G
3	CO 3 : Outline the graphic and diagrammatic presentation of frequency distribution.	K2	PSO4	L/N/R/G
4	CO 4 : Apply the different statistical measures of Central tendency , Dispersion, Skewness and Kurtosis in data analysis	K3	PSO2	L/N/R/G
5	CO 5: Understand index	K3	PSO1, PSO2	L/N/R/G

	numbers and its applications and to construct different types of index numbers.			
6	CO 6: Estimate trend in a time series data using different methods like semi average and moving average.	K4	PSO1, PSO2	L/N/R/G

SEMESTER -II

UG21ST2CM01 - PROBABILITY THEORY

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	CO 1: Understand the concepts of random experiment, probability, different probability definitions and Bayes' theorem.	K2	PSO4	L/N/R/G
2	CO2 : Explain univariate random variables and its properties.	K2	PSO3	L/N/R/G
3	CO 3: Describe Bivariate random variables and their properties	K2	PSO4, PSO3	L/N/R/G
4	CO 4 : Gain knowledge on Correlation , Rank correlation and its application.	K3	PSO3, PSO4	L/N/R/G
5	CO 5 : Calculate the simple linear regression equation for a set of data.	K4	PSO1, PSO2	L/N/R/G
6	CO 6 : Fit polynomial equations of degree one and two to suitable data sets.	K6	PSO1, PSO2, PSO7	L/N/R/G

SEMESTER-III

UG21ST3CM01- PROBABILITY DISTRIBUTIONS

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	CO 1: Understand the concept of mathematical expectation.	K2	PSO4	L/N/R/G
2	CO 2: Identify and compare the commonly used probability distributions and their properties.	K2	PSO3	L/N/R/G
3	CO3: Create a probabilistic model for a phenomenon dataset	K6	PSO1, PSO2	L/N/R/G

	available at hand, using the distribution fitting techniques.			
4	CO 4: Recognize the importance and usefulness of sampling distributions.	K2	PSO4	L/N/R/G
5	CO 5: Construct various statistics following the popular sampling distributions.	K3	PSO3	L/N/R/G
6	CO6: Use statistical tables to compute probabilities.	K3	PSO3, PSO4	L/N/R/G

SEMESTER -IV

UG21ST4CM01- STATISTICAL INFERENCE

Sl. no	Expected Course Outcomes	Knowledge Level	Programme Specific Outcome Linkage	Relevance to Local/National/Regional/Global developmental needs
1	CO 1: Identify the role of statistical inferential procedures in data analysis.	K2	PSO4	L/N/R/G
2	CO2: Distinguish between deductive and inductive inferential procedures.	K2	PSO3	L/N/R/G
3	CO3: Examine the desirable properties in the case of a proposed estimator.	K2	PSO3	L/N/R/G
4	CO4: Compare the properties of point and interval estimates and determine the suitable among them, for a given situation.	K3	PSO2	L/N/R/G
5	CO5: Use the estimation procedures for suggesting an estimate of an unknown parameter.	K3	PSO1, PSO2	L/N/R/G
6	CO 6: Recognize the concept of testing of hypothesis and its role in many real life problems.	K3	PSO4	L/N/R/G
7	CO7: Formulate statistical hypothesis for real life problems and check the validity of the hypothesis from sample data using statistical hypothesis testing.	K6	PSO1, PSO2, PSO7	L/N/R/G

Outcome based syllabus

M.Sc. BOTANY PROGRAMME

EFFECTIVE FROM THE ACADEMIC YEAR 2020-2021

POSTGRADUATE PROGRAMME OUTCOME

PO No.	Upon completion of postgraduate programme, the students will be able to:
PO-1	Create, apply and disseminate knowledge leading to innovation
PO-2	Think critically, explore possibilities and exploit opportunities positively
PO-3	Work in teams, facilitating effective interaction in work places.
PO-4	Lead a sustainable life
PO-5	Embrace lifelong learning

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO No.	Upon completion of M.Sc. Botany Programme, the students will be able to:	PO No.	Relevance to Local/National/Regional/Global developmental needs
PSO-1	Interpret diversity, origin and evolution of plants on earth, identify different plant groups and conserve biodiversity.	1,3,4	G/N/R/L
PSO-2	Appraise methodologies, techniques and recent advances in Botany and its allied branches.	2,5	G/N/R/L
PSO-3	Analyze and evaluate experimental data using biological and statistical tools and document the findings.	1,2	G/N/R/L
PSO-4	Explain concepts and skills with multidisciplinary dimensions and get motivated for knowledge creation.	3,5	G/N/R/L
PSO-5	Acquire knowledge for problem solving, research and to pursue life-long learning.	1,4,5	G/N/R/L
PSO-6	Summarize and disseminate scientific ideas and research findings.	1,2,5	G/N/R/L
PSO-7	Create environmental consciousness among fellow citizens and work towards sustainable development of the nation and world at large.	3,4	G/N/R/L

COURSE OUTCOMES
Semester I
PG19BO101: MICROBIOLOGY AND PHYCOLOGY

CO No.	EXPECTED COURSE OUTCOME Upon completion of this course, the students will be able to	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global developmental needs
1	Interpret the scope of Microbiology	K2	2	G/N/R/L
2	Explain the external morphology, internal structure and reproduction of different types of microbes and algae	K5	1	N/R/L
3	Appraise the modern trends and criteria in Algal classification	K2	2	G/N/R/L
4	Distinguish, isolate and preserve algae and microbes.	K3	1,2	G/N/R/L
5	Utilize knowledge on fossil algae as a connecting link to present day algal diversity and variation in algal ecology	K2,K3	3,6	G/N/R/L
6	Explain bacterial genetics, viral oncogenesis and pathogenesis of viral infection	K2	5	G/N/R/L
7	Interpret the economic and ecological significance of microbes and algae	K5	7	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20BO102: MYCOLOGY AND CROP PATHOLOGY

CO No.	EXPECTED COURSE OUTCOME Upon completion of this course, the students will be able to	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global developmental needs
1	Explain the general characters, significance and classification of different fungal groups with examples.	K2	1,2	N/R/L
2	Identify and analyze mycelial structure, types of fruiting body and reproduction in different fungal groups.	K3, K4	1	N/R/L
3	Examine the fungal interactions in nature and predict the adaptive strategies.	K4, K6	3,4	G/N/R/L
4	Analyze the pathogenesis of various microbes and defense mechanisms in plants	K4	2,3	G/N/R/L
5	Identify the major diseases in plants and decide control measures	K3, K5	1,7	N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20BO103: BRYOLOGY AND PTERIDOLOGY

CO No.	EXPECTED COURSE OUTCOME Upon completion of this course, the students will be able to	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global developmental needs
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1	Explain the different groups of Bryophytes and Pteridophytes, their general characters and classification with examples.	K2	1	N/R/L
2	Compare structural organization of gametophytes and sporophytes of Bryophytes in an evolutionary perspective.	K4	2,3	N/R/L
3	Analyze the characters of gametophytes and sporophytes of Pteridophytes in an evolutionary perspective.	K4	2,3	G/N/R/L
4	Value the economic and ecological significance of Bryophytes and Pteridophytes.	K5	1,7	N/R/L
5	Formulate strategies for the identification and conservation of Bryophytes and Pteridophytes.	K6	5,7	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20BO104: GYMNOSPERMS AND EVOLUTION

CO No.	EXPECTED COURSE OUTCOME Upon completion of this course, the students will be able to	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global developmental needs
1	Explain the general characters, distribution and classification of Gymnosperms	K2	1	N/R/L
2	Interpret the vegetative, internal and reproductive structures of Gymnosperms.	K2	3	N/R/L
3	Summarize the concepts, process and evidences of evolution.	K2	6	G/N/R/L
4	Analyze various theories explaining evolution	K4	1	G/N/R/L
5	Appraise the ecological and economic significance of Gymnosperms	K5	6,7	N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

SEMESTER II

PG20BO205: ENVIRONMENTAL BIOLOGY AND DEVELOPMENTAL BIOLOGY

CO No.	Expected Course Outcomes Upon completion of this course, the students will be able to	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global developmental needs
1	Explain the different concepts of Ecology	K2	4	N/R/L
2	Identify the different types of ecosystems, components and their interrelationships	K4	1	N/R/L
3	Analyze the causes of environmental problems and propose measures to reduce it	K4, K6	5	G/N/R/L
4	Create awareness about biodiversity, its significance, consequence of	K6	7	G/N/R/L

	biodiversity loss and need to conserve it.			
5	Identify the use of remote sensing in data acquisition about phytogeography.	K2, K3	3,4	G/N/R/L
6	Analyze the basic concepts of development, organogenesis and morphogenesis in plants	K4	3,4	G/N/R/L
7	Explain various environmental laws in India	K2	6,7	N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20BO206: CELL AND MOLECULAR BIOLOGY

CO No.	Expected Course Outcomes Upon completion of this course, the students will be able to	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global developmental needs
1	Infer the structure and function of the cell, its organelles, cytoskeleton, cell cycle and cell death.	K2	2	G/N/R/L
2	Identify the components of cell signaling and its applications.	K3	3,4	G/N/R/L
3	Interpret the structure and function of nucleic acids and chromosomes.	K5	3,5	G/N/R/L
4	Explain about DNA replication, repair, recombination and significance.	K2, K4	4,5	G/N/R/L
5	Distinguish and compare the processes and mechanisms involved in Transcription and Translation.	K4, K5	3,6	G/N/R/L
6	Analyze and assess the regulation of gene expression in Viral, Prokaryotic and Eukaryotic systems	K4, K5	3,6	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20BO207: PLANT ANATOMY AND PRINCIPLES OF ANGIOSPERM SYSTEMATICS

CO No.	Expected Course Outcomes Upon completion of this course, the students will be able to	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global developmental needs
1	Explain the scope & significance of anatomy and analyze its interdisciplinary relevance	K2,K4	2,4	G/N/R/L
2	Compare the structure and ontogeny of different plant parts	K5	3,6	N/R/L
3	Explain the morphological and anatomical adaptations of different ecological groups.	K2	1,4	R/L
3	Explain the concepts, scope, significance and data sources of taxonomy	K2	4	G/N/R/L
4	Identify and compare morphological	K5	1,6	N/R/L

	and structural characters of flowers and fruits			
5	Outline the history of nomenclature and classification of plants and analyze recent trends in plant systematics.	K4	1,2	G/N/R/L
6	Apply anatomical techniques in systematics and research.	K3	5,6	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20BO208: GENETICS AND BIOCHEMISTRY

CO No.	Expected Course Outcomes Upon completion of this course, the students will be able to	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global developmental needs
1	Recall the history of genetics	K1	1	R/L
2	Analyze the concepts involved in population genetics	K4	3,4	G/N/R/L
3	Interpret the genetic basis of linkage and cancer	K2	3,4	G/N/R/L
4	Classify and compare the structure of biomolecules	K2, K4	3	G/N/R/L
5	Analyze the structure of enzymes and mechanism of action	K4	2,3	G/N/R/L
6	Explain the biosynthesis and function of secondary metabolites and apply in systematics and research	K3, K4	5	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

SEMESTER III

PG19BO309: RESEARCH METHODOLOGY, BIOPHYSICAL INSTRUMENTATION, BIostatISTICS AND MICROTCHNIQUE

CO No.	EXPECTED COURSE OUTCOME Upon completion of this course, the students will be able to	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global developmental needs
1	Interpret basic concepts of research, its methodologies and significance	K2	4,5	G/N/R/L
2	Formulate a research proposal in a scientific and systematic manner.	K6	5,6	G/N/R/L
2	Develop the skills necessary to carry out research, analyse statistically, interpret results and document findings.	K6	2,3	G/N/R/L
3	Explain the principles and applications	K2, K3	2,3	G/N/R/L

	of instruments in the field of biology.			
4	Develop temporary and permanent microscopic slides.	K6	2,5	N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20BO310: PLANT PHYSIOLOGY AND PLANT BREEDING
(Theory 54 + 18 hrs; Practical 36 + 9 hrs; Credits: 4)

CO No.	Expected Course Outcomes Upon completion of this course, the students will be able to	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global developmental needs
1	Perceive the phenomena of absorption and transport of water and minerals	K2, K4	2,4	G/N/R/L
2	Analyze the mechanism of photosynthesis.	K4	3	G/N/R/L
3	Explain the significance of respiration in sustaining life	K2	4,5	G/N/R/L
4	Interpret the role of growth regulators, phytochromes and their applications	K2 K3	2,3	G/N/R/L
6	Compare different breeding techniques, its applications and limitations.	K4 K3	2,4	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20BO311: BIOTECHNOLOGY

CO No.	Expected Course Outcome Upon completion of this course, the students will be able to	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global developmental needs
1	Explain the industrial application of micro organisms	K2	2	G/N/R/L
2	Assess the different methods and processes involved in plant tissue culture and its role in biodiversity conservation.	K4	1,2	G/N/R/L
3	Explain the basic principles, tools and techniques involved in genetic engineering	K2	2,4	G/N/R/L
4	Appraise the role of bioinformatics in genomics and proteomics	K5	4,5	G/N/R/L
5	Infer basic processes involved in immune system	K2	2	G/N/R/L
6	Analyze the societal issues in biotechnology and genetic engineering	K4	7	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20BO312: TAXONOMY OF ANGIOSPERMS

CO No.	Expected Course Outcomes Upon completion of this course, the students will be able to	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global developmental needs
1	Summarize and analyze classification of angiosperms	K2, K4	1	N/R/L
2	Select and utilize the tools of taxonomy	K3	2	G/N/R/L
3	Identify and classify flowering plants to respective families on the basis of diagnostic characters	K4 K3	1,3	G/N/R/L
4	Construct keys and identify plants up to species level with the help of floras	K3 K6	1,5	G/N/R/L
5	Evaluate the contributions of ethno botany and traditional botanical knowledge to the advancement of plant taxonomy.	K5 K3	5,7	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

SEMESTER IV
PROGRAMME ELECTIVE - BIOTECHNOLOGY

PG20BO413: TISSUE CULTURE AND MICROBIAL BIOTECHNOLOGY

CO No.	Expected Course Outcome Upon completion of this course, the students will be able to	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global developmental needs
1	Explain regeneration methods in tissue culture.	K2	2,5	G/N/R/L
2	Interpret the somaclonal and ploidy variations.	K2	2	G/N/R/L
3	Explain the production of secondary metabolites from various cultures.	K2	2	G/N/R/L
4	Analyze various techniques of germplasm conservation and its significance.	K4	2,4	G/N/R/L
5	Evaluate the use of microbes in industry and medicine	K5	5,6	G/N/R/L
6	Explain tissue culture techniques.	K2	4	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PROGRAMME ELECTIVE - BIOTECHNOLOGY
PG20BO414: GENETIC ENGINEERING

CO No.	Expected Course Outcome Upon completion of this course, the students will be able to	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global
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				developmental needs
1	Analyze various tools and techniques in Gene cloning	K4	3	G/N/R/L
2	Interpret various plant transformation techniques	K2	2,4	G/N/R/L
3	Make use of DNA isolation techniques and electrophoresis for its separation.	K3	2,3	G/N/R/L
3	Perceive the application of recombinant DNA technology in day to day life	K5	5,7	G/N/R/L
4	Analyze modern approaches in Immunology	K4	3,6	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20BO415: GENOMICS, PROTEOMICS AND BIOINFORMATICS

CO No.	Expected Course Outcome Upon completion of this course, the students will be able to	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global developmental needs
1	Explain the methods and principles of gene sequencing and genome mapping	K2	3,4	G/N/R/L
2	Interpret Genomics and Proteomics	K2	5	G/N/R/L
3	Apply bioinformatics tools for visualization of biomolecules and retrieval of data	K3	3,5	G/N/R/L
4	Construct phylogenetic trees using PHYLIP	K6	5,6	G/N/R/L
5	Analyze ethical, legal and social impact of modern Biotechnology	K4	7	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

OUTCOME BASED EDUCATION

**PROGRAM OUTCOME
PROGRAM SPECIFIC OUTCOME
&
COURSE OUTCOME**

For the undergraduate Programme
**BACHELOR OF SCIENCE
in PHYSICS**

Department of Physics
Mar Athanasius College (Autonomous)
Kothamangalam

OUTCOME BASED EDUCATION IN PHYSICS

Department: Department of Physics

Programme: Undergraduate

Specific Programme: Bachelor of Science (B.Sc.) degree in Physics

PROGRAMME OUTCOMES (PO):

At the end of the programme, the graduate will be able to

No.	Outcome
PO1	Apply and innovate
PO2	Achieve a desire for higher learning
PO3	Work as a team with enhanced communication and coordination skills
PO4	Attain skills for employment and entrepreneurship
PO5	Acquire awareness on socio-cultural and environmental issues
PO6	Develop a sense of ethics, self-discipline and sustainability

CODES

Knowledge level	CODES	Relevance to Local/National/Regional/Global developmental needs	CODES
Remembering	K1	Local	L
Understanding	K2	National	N
Applying	K3	Regional	R
Analyzing	K4	Global	G
Evaluating	K5		
Creating	K6		

PROGRAMME SPECIFIC OUTCOMES (PSO):

At the end of the B.Sc. Physics programme the student will be able to:

No.	Upon completion of B.Sc Physics programme , the students will be able to:	PO-PSO Mapping	Relevance to Local/National/Regional/Global developmental needs
PSO 1	Learn physics through lectures, laboratory sessions, Tutorials and interaction with eminent academicians.	1, 2, 4	G/N/R/L
PSO 2	Kindle the urge for higher studies, entrepreneurship and lifelong learning.	2, 4	G/L
PSO 3	Enhance communication, coordination and leadership skills.	3, 4	G/N/R/L
PSO 4	Achieve holistic development by nurturing employability, sense of ethics, job dignity, discipline, time management, emotional intelligence and self awareness	3, 4, 6	G/N/R
PSO 5	Enhance national and international competency.	1, 2, 3	G/N
PSO 6	Develop social and environmental responsibility.	5, 6	G/N/R/L
PSO 7	Demonstrate writing, speaking, reading and listening competence in two languages	3, 4	G/N/R/L

PSO 8	Acquire fundamental concepts of Mathematics and Chemistry as a tool for learning Physics.	1, 4	G/N/R/L
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COURSE OUTCOMES

Title of Paper	Methodology and Perspectives of Physics
Course Code	PH1CRT01
Semester	I
Credits	2
Contact Hours	36
Course Type	Core

COURSE OUTCOMES (CO)

On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/ National/ Regional/ Global developmental needs
C O 1	Acquire adequate knowledge in number systems and binary arithmetic.	K3, K4	1,2, 4	G/N
C O 2	Perform vector operations relevant to learning Physics.	K3	1,2, 4	G/N
C O 3	Outline coordinate systems to problems upcoming in other courses.	K4, K5	1, 2, 4	G/N
C O 4	Revise the historical development of physics and its possibilities. Hence understand the values of lifelong learning.	K1, K2	1,3	G/N
C O 5	Develop a historical perspective of universal laws and international developments in Physics.	K1, K2	2,5	G/N
C O 6	Discuss science, scientific temper, and scientific methods.	K2	3,4,5,6	G/N/R/L
C O 7	Understand units, common laboratory instruments and evaluate errors in measurements.	K2, K3, K4, K5	1, 2, 4	G/N/R/L

Title of Paper	Mechanics & Properties of Matter
Course Code	PH2CRT02
Semester	II
Credits	2

Contact Hours	36			
Course Type	Core			
COURSE OUTCOMES (CO)				
On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Revise the basics of oscillators, properties of matter, definition and evaluation Elastic moduli.	K1, K2, K3, K4, K5	1,3,5	G/N
C O 2	Analyse fluid motion and compute surface tension and viscosity of fluids	K1, K2, K3, K4, K5	1,3,5	G/N
C O 3	Analyse the working of oscillating systems and simple harmonic motion	K1, K2, K3, K4, K5	1,3,5	G/N

Title of Paper	Optics, Laser and Fiber Optics			
Course Code	PH3CRT03			
Semester	III			
Credits	3			
Contact Hours	54			
Course Type	Core			
COURSE OUTCOMES (CO)				
On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	To impart necessary foundation in Optics, which will enable the students for an intense study of these things at a later stage	K1	1, 2	G/N/R/L
C O 2	Learning the basic ideas of interference, diffraction and polarization	K1	1, 2	G/N/R/L
C O 3	Understand the concepts of fiber optics and laser.	K2	1, 2	N/R
C O	Recognize the application of optical fibers and laser in various real problems.	K3	1, 2, 3	G/N/R/L

4				
C O 5	Recall the principles and basic equations and apply them to unseen problems.	K1	1, 2	R/L
C O 6	Formulate the equations of unique cases in the diverse categories of Optics.	K6	1, 2, 4, 5	G/N/R/L

Title of Paper	Semiconductor Physics
Course Code	PH4CRT04
Semester	IV
Credits	3
Contact Hours	54
Course Type	Core

COURSE OUTCOMES (CO)

On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Revise basic concepts of semiconductors and apply the knowledge to the working of semiconductor devices.	K1	1, 2	R/L
C O 2	To impart ideas regarding bipolar junction transistors, transistor configurations and biasing	K2	1, 2	N/R
C O 3	Recognize the basic principles of feedback and their types and realize their application in the construction of amplifiers and oscillators.	K1	1, 2, 6	G/N/R/L
C O 4	Perform comparative learning of FET and BJT	K3,K4	1, 6	G/N/R/L
C O 5	Understand the applicability of operational amplifiers and perform basic designs of inverting, non inverting, summing and buffer amplifiers	K2	1, 6	G/N/R/L
C O 6	Study modulation and demodulation in the field of communication.	K4	1	G/N/R/L

Title of Paper	Electricity and Electrodynamics
Course Code	PH5CRT05
Semester	V
Credits	3
Contact Hours	54

Course Type		Core		
COURSE OUTCOMES (CO)				
After successful completion of the course student will be able to		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Define the various fields in electrostatics, magnetostatics and electrodynamics, and to understand how they are related	K1,K2	1, 2, 4	G/N/R/L
C O 2	Understands electric and magnetic fields in matter	K1,K2	1, 2, 4	G/N/R/L
C O 3	Apply basic laws in electrostatics and magnetostatics to find field due to different media	K2,K3	2, 4	G/N/R/L
C O 4	Apply the theory to develop problem solving skills.	K3,K4,K5	1, 2	G/N/R/L
C O 5	Will understand the significance of Maxwell's equations and be able to explain the conservation of charge and energy.	K2,K3	1, 2	G/N/R/L
C O 6	Study the voltage-current relation of all alternating current circuits and some of their applications.	K2,K3,K4	1, 4, 5	G/N
C O 7	Solve complex problems involving linear electrical networks with network theorems	K4,K5	1, 5	G/N

Title of Paper	Classical and Quantum Mechanics			
Course Code	PH5CRT06			
Semester	V			
Credits	3			
Contact Hours	54			
Course Type	Core			
COURSE OUTCOMES (CO)				
After successful completion of the course student will be able to		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developme

				ntal needs
CO 1	Recognize the basic terms in Quantum Mechanics and Classical Mechanics.	K1, K2	1,2, 3	N/R/L
CO 2	Understand and define the laws involved in Classical and Quantum Mechanics	K2	1	N/R/L
CO 3	Gain deeper understanding of constraints, Lagrangian and Hamiltonian formalisms and their fundamental concepts.	K2	1,2,5	G/N/R/L
CO 4	Explain the ideas of degrees of freedom and identify them for a given mechanical system.	K2	1	N/L
CO 5	Provide elementary ideas on Classical Mechanics and will be able to write equations for real time problems using Classical Mechanics.	K3	1	N/R/L
CO 6	Apply the basic principles in Quantum Mechanics to construct and solve one particle equation	K3	1	G/N/R/L
CO 7	To acquire ability to design and particle equation in the free and bound states as well as to analyze and interpret these results.	K4,K5,K6	1	G/N/R/L

Title of Paper	Digital Electronics and Programming
Course Code	PH5CRT07
Semester	V
Credits	3
Contact Hours	54
Course Type	Core

COURSE OUTCOMES (CO)

After successful completion of the course student will be able to		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Understand basics of the programming language	K2	1	G/N
C O 2	Analyze, design and implement combinational logic circuits.	K4, K5	2	L/N/R/G
C O 3	Compare object oriented programming and procedural oriented programming Languages	K4	1	G/N
C O	Analyze a given problem and develop an algorithm to solve the problem	K4, K6	1,2	G/N

4				
CO5	Develop a digital logic and apply it to solve real life problems.	K3, K4, K6	1, 2	L/N/R/G
CO6	Develop the skill for the use of C++ language constructs in the right way and write C++ program for simple real life applications	K5, K6	1, 2	G/N

Title of Paper	Environmental Physics and Human Rights
Course Code	PH5CRT08
Semester	V
Credits	4
Contact Hours	72
Course Type	Core

COURSE OUTCOMES (CO)

After successful completion of the course student will be able to		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
CO1	Acquire knowledge about the environment and issues concerning environment	K2	5	L/N/R/G
CO2	Understand the causes of environmental pollution and methods to reduce it	K2	5,7	L/N/R/G
CO3	Understand the renewable and non-renewable sources of energy	K2	1	L/N/R/G
CO4	Develop skill in various waste management techniques.	K2, K4, K5	3, 6	L/N/R/G
CO5	Understand the rights available to human beings and the various Acts which enforce Human Rights	K2	7, 8	L/N/R/G
CO6	Familiarize with the Constitutional Provisions for assuring Human Rights in India.	K2, K5	5, 7	L/N/R/G
CO7	Recognize if there is any violation of Human Rights and invoke the remedies	K4, K5	6	L/N/R/G

Title of Paper	OUR UNIVERSE
Course Code	PH5OPT01
Semester	V
Credits	3

Contact Hours	72			
Course Type	Open Course			
COURSE OUTCOMES (CO)				
On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Understand the theories of the origin and evolution of our universe.	K1,K2	1, 3	L/N/G/R
C O 2	Locate and identify celestial systems using naked eye and through a ground based telescope.	K1,K2,K3	1, 2	L/N/G/R
C O 3	Summarise the stellar evolution process and nucleosynthesis in stars and supernovae.	K2/K3/K4	1,2	L/N/G/R
C O 4	Acquire a global perspective on the state of the universe and how material shaped up around us	K3,K4,K5, K6	2, 5	L/N/G/R
C O 5	Generate interest for subjects other than core discipline	K1,K2,K3, K4, K5, K6	2	L/N/G/R

Title of Paper	Thermal and Statistical Physics			
Course Code	PH6CRT09			
Semester	VI			
Credits	3			
Contact Hours	54			
Course Type	Core			
COURSE OUTCOMES (CO)				
After successful completion of the course student will be able to		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Identify and describe the concepts and laws in thermodynamics, in particular: entropy, temperature, Free energies and thermodynamic functions.	K1,K2	1	G/N/R/L
C O 2	Apply the concepts and principles of thermodynamics to heat engines	K3,K2,K4	2	G/N/R/L
C	Apply the concepts and laws of	K3,K2,K4	1,2	G/N/R/L

O3	thermodynamics to solve problems in thermodynamic systems such as gases, heat engines and refrigerators			
CO4	Understand the statistical physics methods, such as microstate and macrostate, ensemble formulation, partition function and equipartition theorem	K2,K3,K4	1	G/N/R/L
CO5	Apply the theory to develop problem solving skills.	K3,K4	1,2	G/N/R/L

Title of Paper	Relativity and Spectroscopy
Course Code	PH6CRT10
Semester	VI
Credits	3
Contact Hours	72
Course Type	Core

COURSE OUTCOMES (CO)

	After successful completion of the course student will be able to	Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
CO1	Demonstrate an understanding of the basic principles of the special theory of relativity	K2	1,2	N/G
CO2	Perform basic calculations in relativistic kinematics and dynamics.	K2, K3	1,2,4	N/G
CO3	Describe theories explaining the structure of atoms and the origin of the observed spectra	K2, K4	1,2,4	N/G
CO4	Identify atomic effect such as Zeeman effect and Stark effect and different types of atomic spectra.	K2, K4	1,2,4	N/G
CO5	Explain the observed dependence of atomic spectral lines on externally applied electric and magnetic fields.	K4, K5	1,2,3,4	N/G
CO6	Acquire the knowledge on different atom models and will be able to differentiate different atomic systems, different coupling schemes and their interactions with magnetic and electric fields	K2, K4	1,2,4	N/G
CO7	Develop a basic understanding of physics of atoms and molecules: definitions, units, laws and rules	K2, K4	1,2,3	N/G
CO	Gain an ability of basic problems analysing	K2, K4, K5	1,2,3,4	N/G

O 8	and solving in physics of atoms and molecules			
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Title of Paper	Nuclear, Particle Physics and Astrophysics
Course Code	PH6CRT11
Semester	VI
Credits	3
Contact Hours	54
Course Type	Core

COURSE OUTCOMES (CO)

After successful completion of the course student will be able to		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Acquire knowledge of the fundamental physics of nuclear physics	K1	1, 2, 4, 5	N/R/L
C O 2	Understand the concepts and potential applications of nuclear physics	K2	1, 2, 4, 5	N/R/L
C O 3	Apply quantum physics to nuclear systems	K3	1, 2, 4, 5	G/N/R/L
C O 4	Understand the existence of elementary particles.	K2	1, 2, 4, 5	G/N/R/L
C O 5	Analyse the production and decay reaction for fundamental particles	K4	1, 2, 4, 5	G/N/R/L
C O 6	Expand and evaluate the theoretical predictions for nuclear reactions.	K4, K5	1, 2, 4, 5	G/N/R/L
C O 7	Understand the fundamental concepts regarding the birth and evolution of our universe	K2	1, 2	G/N/R/L
C O 8	Recognize the effect of the size of a star in determining its evolution	K1	1	G/N/R/L

Title of Paper	Solid State Physics
Course Code	PH6CRT12
Semester	VI
Credits	3
Contact Hours	54
Course Type	Core

COURSE OUTCOMES (CO)

After successful completion of the course student will be able to		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Be able to differentiate between different Lattice types and explain the concepts of reciprocal lattice and crystal diffraction	K1,K2,K3	1,2	G/N
C O 2	Be able to explain the concept of energy bands and effect of the same on electrical properties	K1,K2,K3	1,2	G/N
C O 3	Explain various types of magnetic phenomenon, physics behind them, their properties and applications.	K1,K2,K3	1,2	G/N
C O 4	Explain superconductivity, its properties, important parameters related to possible applications	K1,K2,K3, K5	1,2	G/N
C O 5	Understand the semiconducting properties of materials	K1,K2,K3, K5	1	G/N
C O 6	Understand Hall Effect and principles of LED, Photodiodes	K1,K2,K3	2	G/N
C O 7	Acquire knowledge in dielectric properties of materials.	K1,K2,K3	1	G/N
C O 8	Understand polarizability and susceptibility	K1,K2,K3	1	G/N

Title of Paper	Materials Science
Course Code	PH6CBT02
Semester	VI
Credits	3
Contact Hours	54
Course Type	Choice Based Course

COURSE OUTCOMES (CO)

After successful completion of the course student will be able to		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global

				developmental needs
C O 1	Gain a deep understanding on material structures, material properties and its interaction with light	K1, K2, K3	1, 2	L/N/G
C O 2	Evaluate the design and structures of display devices, photovoltaic cells and solar cells	K1, K2, K3, K6	1, 4	L/N/G
C O 3	Improve technical knowledge on analytical instruments used in research	K1, K2, K4	5,6	L/N/G
C O 4	Equip themselves for higher studies and develop an aptitude for research	K1, K2, K4	1, 2, 4	L/N/R/G

Title of Paper	Core Practical I - Mechanics and Properties of Matter
Course Code	PH2CRP01
Semester	I & II
Credits	2
Contact Hours	36
Course Type	Core - Laboratory Course

COURSE OUTCOMES (CO)

After successful completion of the course student will be able to		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Study the elastic behaviour and working of torsional pendulum	K2, K3, K4	3, 4, 5	G/N/R/L
C O 2	Study of bending behaviour of beams and analyse the expression for young's modulus	K2, K3, K4	3, 4, 5	G/N/R/L
C O 3	Understand the surface tension and viscosity of fluid, Perform experiments and interpret the results of observation, including making an assessment of experimental uncertainties and errors	K2, K3, K4	3, 4, 5	G/N/R/L
C O 4	Analyse the relationship between various types of experiments	K2, K3, K4	3, 4, 5	G/N/R/L
C O 5	Perform the procedure as per standard values 6. Understand the applications	K2, K3, K4	3, 4, 5	G/N/R/L

Title of Paper	Core Practical II-Optics and Semiconductor Physics
Course Code	PH4CRP02

Semester	III & IV
Credits	2
Contact Hours	36
Course Type	Core - Laboratory Course

COURSE OUTCOMES (CO)

After successful completion of the course student will be able to		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Execute a general physics experiment	K2,K3,K4, K5	3, 4, 5	G/N/L/R
C O 2	Apply basic data collection, plotting and data analysis.	K2,K3,K4, K5	3, 4, 5	G/N/L/R
C O 3	Apply theoretical knowledge for analysing errors in experimentally measured data.	K2,K3,K4, K5	3, 4, 5	G/N/L/R

Title of Paper	Core Practical III-Electricity, Magnetism and Laser Core Practical IV-Digital Electronics, Core Practical V-Thermal Physics, Spectroscopy and C++ programming, Core Practical VI- Acoustics, photonics and Advanced Semiconductor Physics
Course Code	PH6CRP03, PH6CRP04, PH6CRP05, PH6CRP06
Semester	V & VI

Credits	8			
Contact Hours	144			
Course Type	Core - Laboratory Course			
COURSE OUTCOMES (CO)				
After successful completion of the course student will be able to		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Study the emf, resistance, behaviour of the materials	K1, K2	1, 3, 4, 5	G/N/R/L
C O 2	Realise the working of prism and grating and determine the resolving power and dispersive power	K2, K3	1, 3, 4, 5	G/N/R/L
C O 3	Analyse the specific heat capacity, refractive index, as per the standard procedure	K4	1, 3, 4, 5	G/N/R/L
C O 4	Understand the standard values of the results	K2	1, 3, 4, 5	G/N/R/L
C O 5	Apply the concepts and principles of thermodynamics to find out the thermal conductivity of various materials	K3	1, 3, 4, 5	G/N/R/L
C O 6	Understands the basic concepts of computational methods in solving problems in physics	K2, K3	1, 3, 4, 5	G/N/R/L
C O 7	Acquire knowledge to apply and develop numerical methods and apply to physical problems	K4, K5	1, 3, 4, 5	G/N/R/L

Title of Paper	Properties of Matter & Thermodynamics			
Course Code	MPH2CMCT01			
Semester	I			
Credits	2			
Contact Hours	36			
Course Type	Complementary Physics for Chemistry			
COURSE OUTCOMES (CO)				
After successful completion of the course student will be able to		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developme

				ntal needs
C O 1	Understand the elastic characteristics of materials	K2	1	G/N/R/L
C O 2	Apply the theory to practical uses in bending of materials	K3,K4	2,4	G/N/R/L
C O 3	Understand the theory and applications of properties of fluids such as surface tension and viscosity	K2,K3	1,2	G/N/R/L
C O 4	Equip themselves for higher studies and develop an aptitude for research Apply the theory to develop problem solving skills.	K2,K3,K4	3, 4	G/N/R/L
C O 5	Identify and describe the concepts and laws in thermodynamics, in particular: entropy, temperature, Free energies and thermodynamic functions.	K2,K1	1, 2	G/N/R/L
C O 6	Apply the concepts and principles of thermodynamics to heat engines.	K3,K2	4	G/N/R/L
C O 7	Apply the concepts and laws of thermodynamics to solve problems in thermodynamic systems such as gases, heat engines and refrigerators etc.	K3,K4,K5	4	G/N/R/L

Title of Paper	Properties of Matter & Error Analysis
Course Code	MPH2CMMT01
Semester	I
Credits	3
Contact Hours	72
Course Type	Complementary Physics for Mathematics

COURSE OUTCOMES (CO)

		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
After successful completion of the course student will be able to				
C O 1	Understand the elastic characteristics of materials	K2	1	G/N/R/L
C O 2	Apply the theory to practical uses in bending of materials	K3,K4	2, 4	G/N/R/L
C O 3	Understand the theory and applications of properties of fluids such as surface tension and viscosity	K1, K2, K3, K4	1, 2	L/N/R

C O 4	Apply the theory to develop problem solving skills	K1, K2, K3, K4, K5	1, 4	L/N/R
C O 5	Analyse data and accounting for errors.	K2	1, 2	L/N/R

Title of Paper	Mechanics and Superconductivity
Course Code	MPH2CMCT02
Semester	II
Credits	2
Contact Hours	36
Course Type	Complementary Physics for Chemistry

COURSE OUTCOMES (CO)

		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
After successful completion of the course student will be able to				
C O 1	Understand the theory of different types of motion such as linear motion, rotational motion and oscillations	K2,K1	1	G/N/R/L
C O 2	Apply the theory to practical uses of mechanics.	K3,K4	1, 2, 8	G/N/R/L
C O 3	Understand the theory of waves.	K2,K1	1	G/N/R/L
C O 4	Apply the theory to develop problem solving skills.	K3,K4	1, 2	G/N/R/L
C O 5	Invoke curiosity by introducing the theory of superconductivity and its applications	K3,K4,K5	1, 2	G/N/R/L

Title of Paper	Mechanics and Astrophysics
Course Code	MPH2CMMT02
Semester	II
Credits	3
Contact Hours	72
Course Type	Complementary Physics for Mathematics

COURSE OUTCOMES (CO)

		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
After successful completion of the course student will be able to				

				Regional/ Global developmental needs
C O 1	Understand the theory of different types of motion such as linear motion, rotational motion and oscillations	K2,K1	1, 2	G/N/R/L
C O 2	Apply the theory to practical uses of mechanics	K3,K4	2	G/N/R/L
C O 3	Understand the theory of waves	K2,K1	1, 2	G/N/R/L
C O 4	Apply the theory to develop problem solving skills	K3,K4	2	G/N/R/L
C O 5	Invoke curiosity to the field of origin and evolution of universe	K3,K4,K5	1, 5	G/N/R/L

Title of Paper	Modern Physics & Electronics
Course Code	PH3CMT01
Semester	III
Credits	4
Contact Hours	90
Course Type	Complementary Physics for Mathematics

COURSE OUTCOMES (CO)

After successful completion of the course student will be able to (This course is a prelude to advanced theoretical studies in Physics.)		Knowledge level	PSO-CO Mapping	Relevance to Local/National/ Regional/ Global developmental needs
C O 1	Explore the interior of the nucleus and interaction between nucleons.	K4	1	G/N/R/L
C O 2	Attain The knowledge of basic principles and applications of Electronics	K1, K4	1	G/N/R/L
C O 3	Develop the ability to identify almost all electronic components and their working principles	K3, K4, K5	1, 2	G/N/R/L
C O 4	Provide theoretical and practical knowledge about electronics	K4, K5	1, 2	N/R
C O 5	Furnish the necessary background for applications of electronics in mathematical computation	K4, K5, K6	1	G/N/R/L

C O 6	Familiarise with logic circuits and their applications which enables them to design logic circuits of their own	K6	1	G/N/R/L
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Title of Paper	Modern Physics & Magnetism
Course Code	PH3CMT02
Semester	III
Credits	3
Contact Hours	54
Course Type	Complementary Physics for Chemistry

COURSE OUTCOMES (CO)

		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
After successful completion of the course student will be able to				
C O 1	Acquire knowledge of the fundamental physics underpinning atomic and nuclear physics, understand the concepts and potential applications	K1	1	G/N/R/L
C O 2	Understand the general considerations of Quantum physics	K2	1	G/N/R/L
C O 3	Understand the radioactive decay processes and the potential applications	K2	1	G/N/R/L
C O 4	Understand the semiconductor devices like diodes and transistors	K2	1	G/N/R/L
C O 5	Apply the characteristics of diodes and transistors in designing rectifiers and amplifiers	K3	1, 2	G/N/R/L
C O 6	Understand the types of magnetic materials and causes of Earth's magnetism	K1	1	R/L

Title of Paper	Optics & Solid State Physics
Course Code	PH4CMT02
Semester	IV
Credits	3
Contact Hours	54
Course Type	Complementary Physics for Chemistry

COURSE OUTCOMES (CO)

		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
After successful completion of the course student will be able to				

				onal/ Regional/ Global developme ntal needs
C O 1	To have developed the idea of interference, diffraction and polarization and to solve problems related to the phenomena	K1, K3	1	N/R/L
C O 2	Understand about different laser systems and its applications	K2	1	N/R/L
C O 3	Understand the basic concepts of optical fibres	K1	1	N/R/L
C O 4	Acquire knowledge about dielectrics, polarization and susceptibility and Gauss' law in dielectrics.	K1	1	N/R/L
C O 5	Recognise crystal structures, crystal lattice and types of lattices.	K1, K2	1, 2	G/N/R/L
C O 6	Understand x-ray crystallography and Bragg's law	K1, K2	1	N/R/L

Title of Paper	Optics & Electricity
Course Code	PH4CMT01
Semester	IV
Credits	4
Contact Hours	90
Course Type	Complementary Physics for Mathematics

COURSE OUTCOMES (CO)

		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
After successful completion of the course student will be able to				
C O 1	To have developed the idea of interference, diffraction and polarization and to solve problems related to the phenomena	K1, K3	1	N/R/L
C O 2	Understand about different laser systems and its applications	K1	1	N/R/L
C O 3	Understand the basic concepts of optical fibres	K1	1	N/R/L
C O O	Understand the growth and decay of current through different circuits	K1, K2	1	N/R/L

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Title of Paper	Complementary Physics Practical
Course Code	PH2CMP02
Semester	I & II
Credits	2
Contact Hours	36
Course Type	Complementary - Laboratory Course

COURSE OUTCOMES (CO)

After successful completion of the course student will be able to		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Explore the fundamental concepts of physics	K1, K2, K3, K4	1, 2	G/N/R/L
C O 2	Acquire knowledge on elementary ideas and importance of material properties, heat, sound, optics, electricity and magnetism.	K1, K2, K3	1, 2	G/N/R/L
C O 3	Apply the characteristics of electronic devices in practicals	K2, K3, K4	4, 6	G/N/R/L
C O 4	Carry out the practical by applying these concepts	K1, K2, K3, K4	4, 6	G/N/R/L
C O 5	Perform experiments and interpret the results of observation, including making an assessment of experimental uncertainties and errors	K1, K2, K3	2	G/N/R/L
C O 6	Get depth knowledge of physics in day today life	K2, K3, K4	1	G/N/R/L

Title of Paper	Complementary Physics Practical
Course Code	PH4CMP02
Semester	III & IV
Credits	2
Contact Hours	36
Course Type	Complementary - Laboratory Course

COURSE OUTCOMES (CO)

After successful completion of the course student will be able to		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/

				Global developmental needs
C O 1	To gain practical knowledge by applying the experimental methods to correlate with the physics theory.	K1, K2, K3, K4	1, 3, 4	G/N/R/L
C O 2	To study the elastic and magnetic properties of materials and to learn the usage of electrical and optical systems for various measurements	K1, K2, K3	1	N/R/L
C O 3	Apply the analytical techniques and graphical analysis to the experimental data and interpret the results.	K2, K3, K4	1, 3	G/N/R/L

OUTCOME BASED EDUCATION

PROGRAM OUTCOME PROGRAM SPECIFIC OUTCOME & COURSE OUTCOME

For the postgraduate Programme
**MASTER OF SCIENCE
in PHYSICS**

Department of Physics
Mar Athanasius College (Autonomous)
Kothamangalam

Department: Department of Physics

Programme: Postgraduate

Specific Programme: Master of Science (M.Sc.) degree in Physics

PROGRAMME OUTCOME (PO):

At the end of the programme, the graduate will be able to

No.	Outcome
PO1	Sensible understanding about various precepts of the discipline, in synchronic and diachronic manner
PO2	Critical thinking about what they learn, that prompts them to research about its technical and philosophical nuances
PO3	Inter-personal skills enabling them to work in teams, facilitating effective interaction in their respective work places
PO4	Environmental and social consciousness, leading to a sustainable living
PO5	An urge for life-long learning towards professional advancement and kindle the spirit of entrepreneurship
PO6	A holistic view regarding life and a self disciplined learning ability for becoming a valuable person to the institution as well as the society.

CODES

Knowledge level	CODES	Relevance to Local/National/Regional/Global developmental needs	CODES
Remembering	K1	Local	L
Understanding	K2	National	N
Applying	K3	Regional	R
Analyzing	K4	Global	G
Evaluating	K5		
Creating	K6		

PROGRAMME SPECIFIC OUTCOME (PSO):

At the end of the M.Sc. Physics programme the student will be able to:

No.	Outcome	PO-PSO Mapping	Relevance to Local/National/
			al/

			Regional/Global developmental needs
PS O1	Master analytic and critical thinking skills through acquired knowledge in major branches of physics.	1, 2	G/N/R/L
PS O2	Perform basic, applied and collaborative research.	2	G/N/R/L
PS O3	Enhance pedagogical and scientific writing skills through modern methods	3, 6	G/N/R/L
PS O4	Enhance National and International competency	1, 2	G/N/R/L
PS O5	Kindle entrepreneurial skills and life long learning	3, 5	G/N/R/L
PS O6	Become socially and environmentally responsible citizens.	4, 6	G/N/R/L

COURSE OUTCOME

Title of Paper	Mathematical methods in Physics – I
Course Code	PG20PH101
Semester	I
Credits	3
Contact Hours	54
Course Type	Core Theory

COURSE OUTCOMES (CO)

On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Practice relevant mathematical methods used in physics	K3, K4, K5	1, 4	G/N/R/L
C O 2	Have a good understanding of the concepts and methods of vector and tensor analysis, linear algebra, coordinate transformations and Matrix	K1, K2, K3	1, 4	G/N/R/L
C O 3	Demonstrate skills in using linear algebra, vector and tensor analysis, coordinate transformations and Matrix in solving physics problems.	K2, K3, K4, K5	1, 4	G/N/R/L

Title of Paper	Classical Mechanics
Course Code	PG20PH101
Semester	I
Credits	4

Contact Hours	72			
Course Type	Core - Theory			
COURSE OUTCOMES (CO)				
On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Describe the evolution of Classical Mechanics as a discipline of science.	K1	5	G/N/R/L
C O 2	Understand the basic concepts of Lagrangian and Hamiltonian formulation	K2	1	G/N/R/L
C O 3	Apply the concepts of lagrangian and hamiltoinan formulations to various problems in Physics.	K3	2	G/N/R/L
C O 4	Understand the physics of small oscillations and concepts of canonical transformations and Poisson brackets.	K2	1	N/R/L
C O 5	Understand the basic ideas of central forces and rigid body dynamic.	K2	1, 2	N/R/L
C O 6	Understand Hamilton-Jacobi method and the concept of action-angle variables	K2	1	G/N/R/L
C O 7	Have a brief idea about the Lagrangian formulation of relativistic mechanics	K3	1	G/N/R/L
C O 8	Apply the concepts in some common problems of mechanics.	K3, K4	2, 4	G/N/R/L

Title of Paper	Electrodynamics			
Course Code	PG20PH103			
Semester	I			
Credits	4			
Contact Hours	72			
Course Type	Core Theory			
COURSE OUTCOMES (CO)				
On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global

				developmental needs
C O 1	Analyse radiation phenomena from different charge and current distributions.	K1, K2, K3, K4, K5	1, 4	L/N/G/R
C O 2	Acquire analytical skills for basic and applied research in electrodynamic and data transmission systems.	K1, K2, K3	2	L/N/G/R
C O 3	Apply Maxwell's equations for problem solving in the static, steady state and time varying situations.	K1, K2, K3, K4, K5	1	L/N/G/R
C O 4	Compute field configurations inside rectangular waveguides and evaluate designs	K1, K2, K4	1, 5	L/N/G/R

Title of Paper	Electronics
Course Code	PG20PH104
Semester	I
Credits	4
Contact Hours	72
Course Type	Core Theory

COURSE OUTCOMES (CO)

On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O1	Understand the fundamentals, characteristics and working of semiconductor devices	K2	1	G/N/R/L
C O2	Analyze op-amp and its different configurations with their physical Operation	K4	1	G/N/R/L
C O3	Design and analyze different applications of op-amps	K4, K5	1, 2	G/N/R/L
C O4	Evaluate frequency response to understand behavior of op-amps and electronics circuits using op-amps	K5	1, 2	G/N/R/L
C O5	Demonstrate the ability to design practical circuits that perform the desired operations	K4, K5, K6	2	G/N/R/L
C O6	Review of different modulation and demodulation techniques used in analog communication	K1, K2	1	G/N/R/L
C O7	Analyze transmitter and receiver circuits	K4	1	G/N/R/L
C O8	Compare and contrast advantages, disadvantages and limitations of analog communication systems	K4, K2	1, 2	G/N/R/L

C O9	Analyze important types of integrated circuits.	K4	1, 2	G/N/R/L
C O1 0	Select the appropriate integrated circuit modules to build a given application	K3, K5	4, 5	G/N/R/L

Title of Paper	General Physics Practical
Course Code	PG20PH2P1
Semester	I
Credits	4
Contact Hours	180
Course Type	Laboratory Course

COURSE OUTCOMES (CO)

		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
After successful completion of the course student will be able to				
C O 1	Design, execute and collect data in an experiment. Master analytic and critical thinking skills through acquired knowledge in major branches of physics.	K3, K4, K6	1,2	G/N/R/L
C O 2	Conduct experiments as a team and through inter personal collaboration	K3, K4, K5	2	G/N/R/L
C O 3	Present experimental data as tables and graph and analyse data	K4, K5	2, 3, 5	G/N/R/L
C O 4	Evaluate errors in the experiment and present it in a sensible way	K4, K5	2	G/N/R/L
C O 5	Be honest in data collection and analysis	K2, K3	6	G/N/R/L
C O 6	Become socially and environmentally responsible citizens.	K2, K3	6	G/N/R/L

Title of Paper	Mathematical methods in Physics – II
Course Code	PG20PH205
Semester	II
Credits	4
Contact Hours	72
Course Type	Core Theory

COURSE OUTCOMES (CO)

On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Practice the method of contour integration to evaluate definite integrals of varying complexity	K2, K3, K4	1, 2	G/N/R/L
C O 2	Apply the method of Green's function to solve linear differential equations with inhomogeneous term	K2, K3, K4	1, 2, 3	G/N/R/L
C O 3	Solve partial differential equations using different methods.	K2, K3, K4, K5	3, 5	G/N/R/L
C O 4	Get introduced to Special functions like Gamma function, Beta function, Delta function, Dirac delta function, Bessel functions and their recurrence relations	K1, K2, K3	1	G/N/R/L
C O 5	Learn different ways of solving second order differential equations and familiarized with singular points and Frobenius method	K1, K2, K3	1, 2	G/N/R/L
C O 6	Learn the fundamentals and applications of Fourier series, Fourier and Laplace transforms, their inverse transforms	K2, K3, K4	1, 2	G/N/R/L

Title of Paper	Quantum Mechanics - I
Course Code	PG20PH206
Semester	II
Credits	3
Contact Hours	54
Course Type	Core - Theory

COURSE OUTCOMES (CO)

On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Develop in students an idea of the basic structure of Quantum Mechanics.	K1, K2	1, 5	G/N/R/L
C O 2	Understand the basic idea of Dirac Formalism	K1, K2	1, 2	G/N/R/L
C	Understand the use of operators and the	K2, K3	1, 2	G/N/R/L

O 3	concept of eigen values and eigen functions			
C O 4	To get an idea of how quantum systems evolve in time	K2, K3, K4	1, 2	G/N/R/L
C O 5	Understand the quantum theory of angular momentum	K2, K3, K4	1, 2	G/N/R/L
C O 6	Enable the student to solve the hydrogen atom problem which is fundamental to more complicated problems.	K2, K3, K4, K5	1, 2, 6	G/N/R/L

Title of Paper	Statistical Mechanics
Course Code	PG20PH207
Semester	II
Credits	4
Contact Hours	72
Course Type	Core Theory

COURSE OUTCOMES (CO)

		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
On finishing the course, the student shall,				
C O 1	Analyse statistical systems in thermal equilibrium.	K4	1	G/N/R/L
C O 2	Apply quantum and classical methods for ideal statistical systems	K3	1, 3	G/N/R/L
C O 3	Explain statistical physics and thermodynamics as a logical consequences of the postulates of statistical mechanics	K1, K2	1, 4	G/N/R/L
C O 4	Perform quantitative calculations and formulate models of realistic systems	K3,K4,K5	1, 3	G/N/R/L
C O 5	Analyse different systems such as ideal gas, Fermi gas, Bose gas and evaluate phase transitions	K4, K3	1, 4	G/N/R/L

Title of Paper	Condensed Matter Physics
Course Code	PG20PH208
Semester	II
Credits	4
Contact Hours	72
Course Type	Core Theory

COURSE OUTCOMES (CO)

On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Have the knowledge and skills to explain the significance and value of condensed matter physics, both scientifically and in the wider community	K1, K2, K3, K4, K5	1, 4	G/N
C O 2	Be able to differentiate between different Lattice types and explain the concepts of reciprocal lattice and crystal diffraction	K1, K2, K3, K4, K5	1, 3, 4	G/N
C O 3	Be able to predict electrical and thermal properties of solids and explain their origin	K1, K2, K3, K4, K5	1, 2, 4	G/N
C O 4	Be able to explain the concept of energy bands and effect of the same on electrical properties	K1, K2, K3, K4, K5	1, 4	G/N
C O 5	Explain various types of magnetic phenomenon, physics behind them, their properties and applications.	K1, K2, K3, K4, K5	1, 3, 4	G/N

Title of Paper	Electronics Practical
Course Code	PG20PH2P2
Semester	II
Credits	4
Contact Hours	180
Course Type	Laboratory Course

COURSE OUTCOMES (CO)

After successful completion of the course student will be able to		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Understand and evaluate the op-amp parameters	K1, K2,	1, 2, 3	G/N/R/L
C O 2	Understand the various applications of linear IC's like 741 and 555 timer	K1, K2, K5	1, 2, 3, 4	G/N/R/L
C O 3	Understand the need and requirements to obtain frequency response of an op-amp to design high frequency circuits	K2, K3, K5	1, 2, 3	G/N/R/L

C O 4	Define significance of Op Amps and their importance	K1, K2, K3	1, 2, 3	G/N/R/L
C O 5	Design and construct circuits using Analog IC's	K2, K3, K4	1, 2, 3, 4	G/N/R/L
C O 6	Apply the concepts in real time applications	K2, K3, K4, K5	1, 2, 3, 4	G/N/R/L
C O 7	Construct electronic circuits using op-amps to generate sine, square and triangular wave forms	K2, K3, K4, K5, K6	1, 2, 3, 4	G/N/R/L
C O 8	Verify the filter circuits using op-amps and design the circuits for different applications	K2, K3, K4, K5, K6	1, 2, 3, 4	G/N/R/L
C O 9	Design the VCO circuit using op-amp as well as BJTs and analyse its frequency response	K2, K3, K4, K5, K6	1, 2, 3, 4	G/N/R/L
C1 0	Design various amplifiers using op-amp and observe their frequency responses	K2, K3, K4, K5, K6	1, 2, 3	G/N/R/L
C1 1	Analyze the concepts of oscillators and observe their characteristics	K2, K3, K4, K5, K6	1, 2, 3	G/N/R/L
C1 2	Design simple circuits using IC 555 and analyse their performance	K2, K3, K4, K5, K6	1, 2, 3	G/N/R/L

Title of Paper	Quantum Mechanics – II
Course Code	PG20PH309
Semester	III
Credits	4
Contact Hours	72
Course Type	Core Theory

COURSE OUTCOMES (CO)

		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Understand the different stationary state approximation methods	K2	1	G/N/R/L
C O 2	Apply the approximation methods to various quantum systems	K3	2	G/N/R/L
C O 3	Understand the basic of time dependent perturbation theory	K2	1	G/N/R/L
C	Apply the time dependent perturbation	K3, K4	2	G/N/R/L

O 4	theory to classical theory of atom-radiation interaction			
C O 5	Understand the theory of identical particles	K2	1	G/N/R/L
C O 6	Apply the theory of identical particles to Helium	K3, K4	2, 3	G/N/R/L
C O 7	Understand the idea of Born approximation and the method of partial waves	K2, K3, K4	1	G/N/R/L
C O 8	Understand the basic concepts of relativistic quantum mechanics	K2, K3, K4	1	G/N/R/L

Title of Paper	Computational Physics
Course Code	PG20PH310
Semester	III
Credits	4
Contact Hours	72
Course Type	Core - Theory

COURSE OUTCOMES (CO)

On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	A wide knowledge of numerical methods in computational Physics that can be used to solve many problems which does not have an analytic solution	K1, K2, K3, K4, K5	1, 2	G/N
C O 2	Solve different numerical problems	K1, K2, K3, K4, K5	1, 4	G/N

Title of Paper	Elective – 1-Digital Signal Processing
Course Code	PG20PH311
Semester	III
Credits	3
Contact Hours	54
Course Type	Core Theory

COURSE OUTCOMES (CO)

On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/

				Global developmental needs
C O 1	Understand about various types of signals and systems, classify them, analyze them, and perform various operations on them	K2	1, 2	G/N/R/L
C O 2	Understand the use of transforms in analysis of signals and system in continuous and discrete time domain	K1, K2, K3, K5	5	G/N/R/L
C O 3	Evaluate the time and frequency response of Continuous and Discrete time systems which are useful to understand the behaviour of electronic signal without any distortion	K1, K2, K4, K3	1, 3	G/N/R/L
C O 4	Compute various transform analysis of Linear Time Invariant System	K1, K2, K3	5	G/N/R/L
C O 5	Apply engineering problem solving strategies to Digital Signal Processing	K1, K2	4, 5	G/N/R/L
C O 6	Design and test signal processing algorithms for various applications	K1, K2	1, 2	G/N/R/L
C O 7	Design digital filters	K1, K2, K3, K4	2	G/N/R/L

Title of Paper	Atomic and Molecular Physics
Course Code	PG20PH311
Semester	III
Credits	4
Contact Hours	90
Course Type	Core - Theory

COURSE OUTCOMES (CO)

		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
On finishing the course, the student shall,				
C O1	Achieve advanced knowledge about the interactions of electromagnetic radiation and matter and their applications in spectroscopy	K1, K2, K3	1, 2, 3, 4	G/N/R/L
C O2	Describe the atomic spectra of one and two valance electron atoms	K2, K3	1, 2, 3, 4	G/N/R/L
C O3	Explain the change in behavior of atoms in external applied electric and magnetic field	K2, K3	1, 2, 3, 4	G/N/R/L
C	Apply formalisms based on molecular	K2, K3, K5	1, 2, 3, 4	G/N/R/L

O4	symmetry to predict spectroscopic properties			
C O5	Explain rotational, vibrational, electronic and Raman spectra of molecules	K1,K2,K4	1, 2, 3	G/N/R/L
C O6	Describe electron spin and nuclear magnetic resonance spectroscopy and their applications	K1,K2,K3	1, 2, 3, 4	G/N/R/L
C O7	Master both experimental and theoretical working methods in atomic and molecular physics for making correct evaluations and judgments	K2,K3,K4	1, 2, 3, 4	G/N/R/L
C O8	Apply the techniques of microwave and infrared spectroscopy to elucidate the structure of molecules	K3, K4,K5	1, 2, 3, 4	G/N/R/L
C O9	Apply the principle of Raman spectroscopy and its applications in different fields of science & Technology	K3,K4,K5	1, 2, 3, 4	G/N/R/L
C O10	Become familiar with different resonance spectroscopic techniques and its applications	K2,K3,K4	1, 2, 3	G/N/R/L

Title of Paper	Computational Physics Practical
Course Code	PGPH4P1
Semester	III
Credits	5
Contact Hours	180
Course Type	Laboratory Course

COURSE OUTCOMES (CO)

	After successful completion of the course student will be able to	Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O1	Understands the basic concepts of computational methods in solving problems in physics	K2	1	G/N/R/L
C O2	Acquire knowledge to apply and develop numerical methods	K2, K3	1, 3	G/N/R/L
C O3	Apply practical experiences on physical problems	K3,K4	5	G/N/R/L
C O4	Apply different methods to solve various scientific problems	K3,K4	1, 5	G/N/R/L

C O 5	Identify modern programming methods and describe the extent and limitations of computational methods in physics	K4,K5	1, 2	G/N/R/L
C O 6	Formulate and computationally solve a selection of problems in physics	K4,K5,K6	3	G/N/R/L
C O 7	Acquire knowledge about the role computer models and simulations play at studies of physical systems.	K2, K3,K4	3, 5	G/N/R/L

Title of Paper	Nuclear and Particle Physics
Course Code	PG20PH413
Semester	IV
Credits	5
Contact Hours	90
Course Type	Core Theory

COURSE OUTCOMES (CO)

On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	To get an idea about the fundamentals of nuclear physics	K1	1	G/N/R/L
C O 2	Understand the basic properties of nucleus and the nuclear forces.	K2	1	G/N/R/L
C O 3	Major models of nucleus and the theory behind the nuclear decay	K2, K3	1, 2	G/N/R/L
C O 4	Understand the physics of nuclear reactions	K2	1	G/N/R/L
C O 5	Understand the interaction between the elementary particles and the conservation laws in nuclear physics	K2, K3	1	G/N/R/L
C O 6	Understand some idea about the nuclear astrophysics	K2	1	G/N/R/L
C O 7	Apply the ideas of nuclear physics in some practical situations	K3, K4	1, 2	G/N/R/L

Title of Paper	Elective – 2-Microelectronics and Semiconductor Devices
Course Code	PG20PH414
Semester	IV

Credits	3			
Contact Hours	72			
Course Type	Core Theory			
COURSE OUTCOMES (CO)				
On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Understand the architecture and instruction set of basic microprocessors	K2, K1	1	G/N/R/L
C O 2	Analyse and solve simple programs using 8086 microprocessor machine language	K4,K5, K3	2	G/N/R/L
C O 3	Analyse the fundamentals of semiconductor devices and their processing steps	K4, K5	1	G/N/R/L
C O 4	Apply the knowledge of semiconductor fabrication process used in industry in the area of semiconductor devices	K3, K2,K4	1, 5	G/N/R/L

Title of Paper	Elective – 3-Communication Systems			
Course Code	PG20PH415			
Semester	IV			
Credits	3			
Contact Hours	90			
Course Type	Core Theory			
COURSE OUTCOMES (CO)				
On finishing the course, the student shall,		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Have a basic understanding of two of the most important telecommunication systems - mobile and satellite communication systems.	K1, K2	1	G/N
C O 2	Describe the development and functioning of mobile and satellite communication systems	K1, K2	1	G/N
Ci	Understand the basic concepts of different	K1, K2	1, 4, 5	G/N

O 3	communication systems			
C O 4	Use different modulation and demodulation techniques used in analog and digital communication	K2, K3	1, 2	G/N/
C O 5	Identify and compare different communication systems	K2, K4	1	G/N
C O 6	Analyse mobile communication, satellite communication, fibre optic communication and radar systems	K4	3, 4	G/N

Title of Paper	Advanced Practical in Electronics
Course Code	PG20PH4P2
Semester	IV
Credits	4
Contact Hours	180
Course Type	Laboratory Course

COURSE OUTCOMES (CO)

		Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
After successful completion of the course student will be able to				
CO1	Design, construct and evaluate electronic circuits	K1-K6	1, 2, 3	G/N/R/L
CO2	Apply theoretical concepts in to practice	K1-K6	1, 2, 3	G/N/R/L
CO3	Train on scientific methodology in experimental problems	K1-K6	1, 2, 3	G/N/R/L
CO4	Familiarise with sophisticated instruments, data collection and analysis	K1-K6	1, 2, 3	G/N/R/L

Title of Paper	Project
Course Code	PG20PH4P
Semester	IV
Credits	5
Contact Hours	0
Course Type	-

COURSE OUTCOMES (CO)

	Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developme
On finishing the course, the student shall,			

				ntal needs
C O 1	Investigate deep into a research problem	K1-K6		G/N/R/L
C O 2	Develop scientific report writing skills	K1-K6		G/N/R/L
C O 3	Present an experimental or theoretical result before an evaluating body	K1-K6		G/N/R/L
C O 4	Apply research methodology	K1-K6		G/N/R/L

Title of Paper	Comprehensive viva voce
Course Code	PG20PH4V
Semester	IV
Credits	2
Contact Hours	0
Course Type	-

COURSE OUTCOMES (CO)

On finishing the course, the student shall,	Knowledge level	PSO-CO Mapping	Relevance to Local/National/Regional/Global developmental needs
C O 1	Apply communication skills	K3, K2	G/N/R/L
C O 2	Develop presentation skills	K2,K3,K4	G/N/R/L
C O 3	Demonstrate their general awareness about physics	K1,K2,K3, K4	G/N/R/L

POSTGRADUATE PROGRAMME OUTCOME

PO No.	Upon completion of postgraduate programme, the students will be able to:
PO-1	Create, apply and disseminate knowledge leading to innovation
PO-2	Think critically, explore possibilities and exploit opportunities positively

PO-3	Work in teams, facilitating effective interaction in work places.
PO-4	Lead a sustainable life
PO-5	Embrace lifelong learning

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to program specific outcome	Relevance to Local/National/Regional/Global developmental needs
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M.A.
SOCIOLOGY
PROGRAMME
PROGRAMME

SPECIFIC OUTCOMES (PSO)

PSO No.	Upon completion of the M.A Sociology programme, the students will be able to:	PO No.
PSO-1	Acquire sociological knowledge with sociological imagination, about society and social issues.	1,4,5
PSO-2	Master methodological understanding and gain proficiency in undertaking social research.	2,1
PSO-3	Develop comprehensive understanding of sociological theories that enable critical thinking.	1,2
PSO-4	Enhance analytical skills in studying social issues and life situations.	2,4,5
PSO-5	Perceive aspiration for higher education	2,1,4
PSO-6	Foster creativity, innovation, critical thinking with effective communication to provide competency in teaching and social service.	2,4,5
PSO-7	Imbibe the skills and ability to understand the distinctiveness of social diversities in the life-long learning process.	3,2,4,5

SEMESTER I

PG20SO101- CLASSICAL SOCIOLOGICAL TRADITION

CO 1	Understand the emergence of Sociology as a discipline	U	F,C	1	N/G		
CO 2	Develop a critical evaluation of the early Sociological perspectives and enable to know its scope and applications	E	MC	1,2,3,7	N/R		
Course Outcomes	Upon the completion of the course the student will be able to					Knowledge Level	Mapping to programs specific outcome
CO 3	Understands the different theoretical approaches to study society and various methodologies.	U	C,P	Cognitive level 1,2,3,6	L/N/R		Relevance to Local/National/Regional/Global developmental needs
CO 1	Familiarize the work of classical Sociologists and their contributions to the development of Sociology as an academic discipline.	U	C	U,1,2,6	C	N/G,1,3,6	G/N
CO 2	Develop oral and written communication skills in disseminating sociological knowledge based on the works of classical thinkers	C,AP,MC	MC	E,1,4,7	C,P	1,2,3,6 N/G	G/N/L
Cognitive Level	3- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C-Create			A,E,C	P	2,4,6,7	G/L/N
Knowledge Level	Develop a discursive approach guide them for proper analysis and evaluation essential for a sensitive social being.			E	MC	1,4,5,7	L/N
CO 4				MC	C	1	G/N
CO 5	Help to generate interest in the discipline through the understanding of the intellectual contributions of theoreticians.			MC	C	1	G/N
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create						
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive						

PG20SO102 MODERN THEORETICAL PERSPECTIVE -I

PG20SO103- SOCIOLOGY OF INDIAN SOCIETY

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to program	Relevance to Local/Natio
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				s specific outcome	nal/Regional/Global developmental needs
CO 1	Understand the diversities and unity in Indian Society	U	F	1,5,6	L/N/R
CO 2	Understand historical outlook of Vedic to post independence period of India	U	F,C	1,2,6	N/R
CO 3	Analyse ability to verify distinct theoretical perspectives on Indian Society	A	C,F	1,2,3,4	N
CO 4	Familiarize social structure of Indian society	AN	F	1	N/R
CO 5	Discuss the issues that confront contemporary India.	AP	F	3,5,6	N/R/L
CO 6	Develop a critical perspective in understanding social structure	U	MC	1,3,7	N/R/L
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to programs specific outcome	Relevance Local/National/Global developmental needs
CO 1	Recognize social movements as an instrument of social transformation.	U	F	1,2,3,5,6	L/N/R
CO 2	Identify different theoretical explanation on social movements.	U	C	1,3	N/R

CO 3	Analyze the activists or leaders who have sought social change to society.	AN	F	1,4,6,7	N
CO 4	Categorize different movements based on the issues related with it.	AN	MC	1,3,5,6	N/R
Cognitive Level	R- Remember, U –Understanding, AP-Apply AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

PG20SO104 SOCIAL MOVEMENT

PG20SO105-SOCIOLOGY OF RURAL SOCIETY

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to programs specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Understand the origin and development of Rural Sociology.	U	C	1	N/L
CO 2	Familiarize the theories related to village studies.	U	F	1,2	N/R/L
CO 3	Develop an understanding among them about the fundamental social reality.	U	C,F	1,6,7	N
CO 4	Analyze the programmes and policies by the Government for the upliftment of the villages.	E	F,C	1,3,4,6,7	N /R
CO 5	Discuss the emerging issues on rural development.	AP	F	1,5,6,7	N
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

Level	
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SEMESTER II
PG20SO206 MODERN THEORETICAL PERSPECTIVE II

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to programs specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Understand the schools of thought in Sociology	U	C	1,3	N
CO 2	Analyze the current debates in sociology.	E	F,C	1,3,6,7	N/R
CO 3	Cognize social, intellectual contexts, conceptual frameworks, methods, and contributions of social analysis help the students to formulate a strong theoretical base with critical thinking.	E	C,P	1,2,3,5,6,7	N/R
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

PG20SO207- SOCIOLOGY OF MEDIA

Course Outcome	Upon the completion of the course the student	Cognitive level	Knowledge	Mapping to programs	Relevance to Local/National/Reg
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	will be able to		Level	specific outcome	onal/Global developmental needs
CO 1	Understands the influence of media on individuals and society from a sociological perspective	U	P	1,3	L/N/R/G
CO 2	Cognize knowledge on theoretical approaches to media and popular culture	U	P	1,2,3,6	N/R
CO 3	Understand some of the complexities of relationship between media, text and audiences	U	P	1,3,	N/G
CO 4	Aware of the existing media laws in India	U	P	1,3,6	N/R
CO 5	Knowledge about the working of media centers with the help of a field work	U	P	1,7	N/R/L
CO 6	Evaluate contemporary media and it's impact	E	MC,P	5,4,7	N/R/L
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to programs specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Familiarize students with the nature, process and theories of personality development.	U	F,C	1,3	N/R/G
CO 2	Acquire counselling techniques.	AP	P	1,2,4,6	L/N/R/G
CO 3	Understand the psychosocial problems of different age groups and remedial measures.	U	P,MC	1,4,7	N/L/G/R
CO 4	Create various types of intervention and strategies.	C,AP	P	1,5,6,7	N/G/R
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C-Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

PG20SO209- SOCIOLOGY OF URBAN SOCIETY

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to programs specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Explain the process of urbanization in a Sociological context	U	MC	1	N/R/G

CO 2	Analyze issues, implications and challenges of urbanization in India	E	MC	2,3,5,7	N/G/R/L
CO 3	Understand the structure and composition of Urban society	U	F	1	N/G/R/L
CO 4	Evaluate the changing dimensions of urban scenario	E	MC,F	3,4	N/R/L
CO 5	Develop a critical perspective about urban society	E	MC	1,2,3,6,7	N/R/G
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C-Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

PG20SO210- STATISTICS FOR SOCIOLOGY

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to programs specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Familiarize with the statistical methods in social sciences.	U	P	1,2	N
CO 2	Summaries numeric data by computing descriptive statistics.	AP	P,R	2,3,4	N/G

CO 3	Identify appropriate technique for a given set of variables and research questions.	E	P	2,3	G/N
CO 4	Collect reliable data, analyze the data appropriately and draw reasonable conclusions in conducting social research.	U,E	MC	2,5,6,7	N/G
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

SEMESTER III
PG20SO311 -MODERN THEORETICAL PERSPECTIVES-III

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to programs specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Comprehensive understanding of the contemporary debates in sociological theory.	U	C	1,2,3,4,	N/G
CO 2	Ability to synthesize multiple theorizing processes on changing society.	AP	MC	1,2,3,4,	N/L
CO 3	Apply critical thinking skills in analyzing sociological data and	E	MC	3,5,6,7	G/L

	theory				
CO 4	Apply critical thinking skills in analyzing sociological data and theory	A	MC	2	N/G/L
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

PG20SO312- SOCIAL RESEARCH MEHODS AND ITS APPLICATION

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to programs specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Understand how to find out a research problem	U	C	1,2,6	N/G/R/L
CO 2	Familiarize the basic steps in social research	U	P	1,2	N/G/R/L
CO 3	knowledge to assess the relation between theory and research	E		3	N/G/R/L
CO 4	Differentiate quantitative and qualitative data and its data collection methods	U	MC	1,2	N/G/R/L
CO 5	Understand research methods and techniques followed in quantitative and qualitative research	U	C,P	1,2	N/G/R/L
CO 6	Practical knowledge with skills in Statistical Package for Social Science Software.	AP	E,P	2,1	N/G/R/L
CO 7	Conduct and manage social surveys with commitment and enhance themselves for	C,AP	P,MC	1,4,5,6,7	N/G/R/L

	further learning experience.				
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

PG20SO313- ENVIRONMENT AND SOCIETY

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to programs specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Analyze the mutual relationships between environment and society	A	C	1,4,6	R/L
CO 2	Understand core concept and methods from environment and sociology and their application Environmental problem solving.	U,AP	C	1,5,6,7	N/G/R/L
CO 3	Assess emerging trends in Environmental Sociology	E	F	1	N/G/R/L
CO 4	Understand various global issues that creates threat to the environment	U	F	1,4	N/G
CO 5	Aware on different environmental protection measures in India	U	F	1	N
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

PG20SO314- SOCIOLOGY OF GLOBALISATION

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to programs specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Understand the historical emergence and dimensions of Globalization.	U	F,C	1,6	N/G/
CO 2	Analyze the principal mechanisms of international economic connections of Globalization.	A	F	1,3,6	G
CO 3	Evaluate the influence of transnational players on the daily life of commons.	E	MC	1,2,3,5,6	N/R/L
CO 4	Create a space to enter their skill in the global market	C	MC	1,4,7	G
CO 5	Debate with the scope and limitations of Globalization.	AN	MC	1,	N/G/R/L
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C-Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

PG20SO315- SOCIAL CHANGE AND DEVELOPMENT

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to program specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Remember concepts and different dimensions of social change & development.	R	C	1	N/G/R
CO 2	Familiarize theories used in sociological analysis of social change & development.	U	C	2,6	N//R/L
CO 3	Critically evaluate global perspectives on modernization and dependency	E	MC	2,3,6	G
CO 4	Analyze the concerns and challenges of developmental changes occurring India	A	MC	3,4,5,6,7	N/R/L
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C-Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

SEMESTER IV
PG20SO416 -CULTURAL ANTHROPOLOGY

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to programs specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Acquaint with anthropological perspectives and ways of thinking.	U	F	1,2	N/G/R/L
CO 2	Distinctive approach to intercultural awareness and understanding.	U	P	1,6,7,	N/G/R/L
CO 3	Compare the tribal societies	E	E	1,3,4	R/L
CO 4	Acquaint interest in Anthropological studies	AP	P	2,5,6	G/N
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C-Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

PG20SO417- GENDER AND SOCIETY

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to program's specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Understanding gender as a social construct.	U	F	1	N/G/R/L
CO 2	Familiarize with theoretical perspectives on gender.	U	C	1,2,3,5	N/G
CO 3	Understand the legislations related with women.	U	F	1	N/G/R/L
CO 4	Analyze the important indicators of women's development.	A	F	1,4,6	N/G/R/L
CO 5	Identify and evaluate the gender specific crimes.	E	MC	1,4,6	N/G/R/L
CO 6	Criticize the status of women in India and special reference to Kerala	E	MC	1,3,4,5	R
CO7	Create an awareness on gender equality from their own home	C	MC	5,6,7	R/L
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

PG20SO418- INDUSTRIAL SOCIOLOGY

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to programs specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Analyze the mutual relationships between Industry and society	A	C	1,4,6	N//R/L
CO 2	Understand core concept industry and sociology and their application Industrial problem solving.	U,AP	C	1,5,6,7	R/L
CO 3	Assess emerging trends in Industrial Sociology	E	F	1	N/G/R/L
CO 4	Understand various global issues of industries that creates threat to the environment	U	F	1,4	N/G
CO 5	Aware on different legal enactments in industry in India	U	F	1	N
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

PG20S0419- POPULATION AND SOCIETY

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to programs specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Understand central concepts and processes of Demography.	U	F	1	N/G/R/L
CO 2	Compare the population statistics of distinct periods and relate it with international standards.	E	F	2,3	G/N
CO 3	Evaluate and relate the population with the contemporary issues.	E	F,P	3	N/G/R/L

CO 4	Create awareness about fertility, controlling measures along with the impact of migration	C	MC	4,5,6,7	N/G/R/L
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

PG20SO419-SOCIOLOGY OF KERALA SOCIETY

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to programs specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Familiarize with the holistic perspective on the history, structure and development of Kerala from a sociological perspective	U	F	1,3,6,7	N/G/R/L
CO 2	Understand the history and socio-cultural dimensions of Kerala society in sociological context	U	C	1,2	R/L
CO 3	Analyze the changing social structure in Kerala	A	F	1,4	R/L
CO 4	Examine the new developments experiences in Kerala	A	F	1,4,7	R/L
CO 5	Discuss the different dimensions in Kerala culture	AP	F	6	R/L
CO 6	Debate the contemporary concerns	A	MC	3,4,5,6,7	N/G/R/L

	like globalization, power of consumerism etc.				
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

PG20SO421- SOCIOLOGY OF AGEING

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to programs specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Develop a broad overview of needs care and protection of elderly in the family and society	U	F	1,6,7	N/G/R/L
CO 2	Understand different problems of elderly in various dimension	R	C	5	N/G/R/L
CO 3	Evaluate unequal distribution of health services and health inequalities among aged	E	MC	2,34	N/R/L
CO 4	Analyze the programs and strategic measures for older persons.	AN,E,C	MC,P	7	N
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

PG20SO422- SOCIAL WORK WELFARE

Course Outcome	Upon the completion of the course the student will be able to	Cognitive level	Knowledge Level	Mapping to programs specific outcome	Relevance to Local/National/Regional/Global developmental needs
CO 1	Familiarize the students with an understanding of the concept, definition, objectives and functions and methods of social work	U	C	1,3	N/G/R/L
CO 2	Current trends of social work practice in India	U	F	1,2	N/G/R/L
CO 3	Understanding about the different fields of social work and role of social worker in the society.	U	F	1,5	N/G/R/L
CO 4	Design himself an active committed social worker	AP	MC	4,5,6,7	N/G/R/L
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C-Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

PG20SO422- SOCIOLOGY OF HEALTH

Course	Upon the completion of	Cognitive	Knowledge	Mapping to	Relevance
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Outcome	the course the student will be able to	e level	e Level	programs specific outcome	to Local/ National/ Regional/ Global developmental needs
CO 1	Develop with a broad overview of sociology of health.	U	F	1,7	N/G/R/L
CO 2	Understand different theoretical perspective of health	U	C	1	N/G/R/L
CO 3	Evaluate unequal distribution of health services and health inequalities.	E	MC	1,3	N/G/R/L
CO 4	Analyze unequal distribution of health services and health inequalities.	AN	MC	4	N/G/R/L
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

SOCIOLOGY PROGRAMME

PROGRAMME OUTCOME OF BA SOCIOLOGY

PSO NO	Upon completion of BA Sociology programme, the students will be able to:	PO NO	Relevance to Local/ National/ Regional/ Global developmental needs
PSO-1	Learn sociological knowledge and skills that will enable critical thinking and sociological imagination.	1, 4, 5	L/G/R/N
PSO-2	Identify& comprehend the major sociological theories	1,5,7	G/N
PSO-3	Understand the sociological perspectives in studying the relationship between social structure, social identities, and social inequalities.	1,6,8	L/G/R/N
PSO-4	Gain proficiency in research methods and its applications.	1,7,8	L/G/R/N

PSO-5	Acquire the ability in disseminating the sociological knowledge.	3,4,6	L/R/G/N
PSO-6	Imbibe the distinctiveness of social diversities in the life-long learning process.	1,6,8	L/R/N/G

COURSE OUTCOME OF BA SOCIOLOGY

METHODOLOGY AND PERSPECTIVES OF SOCIAL SCIENCE

Course Outcome	Upon the completion of the course, METHODOLOGY AND PERSPECTIVES OF SOCIAL SCIENCE, the student will be able to	Cognitive level	Knowledge Level	Mapping to program specific outcome PSO No	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify the main concerns of social science disciplines	U	F,C	1	G/N
CO 2	Understand the importance of interdisciplinary approach of social sciences	U	MC	1,2,3,7	L/R/N/G
CO 3	Familiarize the methods and theories of social science related to contemporary issues	A	C,P	1,2,3,6	G/N/R
CO 4	Relevance of social sciences to understand and solve contemporary social problems at local, regional, national and global levels	U,AN	P	1,2,6	L/R/N/G
CO 5	Understand the elements which constitute the social structure in Indian society	C, AP	MC	1,4	L/R/N
Cognitive	R- Remember, U –Understanding, AP-Apply AN-Analyze, E-				

Level	Evaluative, C- Create	
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive	

ESSENCE OF SOCIOLOGY

Course Outcome	Upon the completion of the course, ESSENCE OF SOCIOLOGY, the student will be able to	Cognitive level	Knowledge Level	Mapping to PSO No	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Imbibe new Social experiences and improve observational skills	U	C	1,3,6	L/R
CO 2	Familiarize students with the basic issues of interest to sociologists	U	C	2,3	L/R/N/G
CO 3	Acquire the capacity to perceive contemporary social reality by infusing sociological insights	A,E,C	MC,P	2,4,6	G/N/L
CO 4	Facilitates and promote the skill and ability to surpass the conventional bases of knowledge and its application	E	MC	1,4,5,	L/R
CO 5	Enables the student to understand how social moulding of individual is operated	A	C	1	L/R
Cognitive Level	R- Remember, U –Understanding, AP-Apply, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

CLASSICAL SOCIOLOGICAL THEORIES

Course Outcome	Upon the completion of the course, CLASSICAL SOCIOLOGICAL THEORIES, the student will be able to	Cognitive level	Knowledge Level	Mapping to PSO No	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand the origins of social theory in 19th century Europe	U	F	1,5,6	N/G
CO 2	Understand the different theoretical approaches to the study of society and various methodologies found suitable to it	U	F,C	1,2,6	R/N/G
CO 3	Develop a critical evaluation of the early Sociological perspectives and thus enable the learners to know its scope and application	A	C,F	1,2,3	L/R/N/G
CO 4	Compare and contrast major classical social theories	AN	F	1	N/G
CO 5	Communicate this analysis both orally and in writing	AP	F	3,5,6	L/R
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

Course Outcome	Upon the completion of the course, PRINCIPLES OF SOCIAL RESEARCH, the student will be able to	Cognitive level	Knowledge Level	Mapping to PSO No	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand the basic concepts and terms related to research methodology	U	F	1,5,6	N/G
CO 2	Develop and understanding about research process in social sciences	U	F,C	1,2,6	L/R/N/G

CO 3	Acquire a research oriented mind in students by problematizing social reality	A	C,F	1,2,3,4	L/R/N/G
CO 4	Demonstrate the techniques and tools of data collection and impart practical training for the same	AN	P	1	L/R/G/N
CO 5	Apply Scientific method used for the analysis and interpretation of data	AP	p	3,5,6	L/R/N/G
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

Course Outcome	Upon the completion of the course, MODERN SOCIAL THEORIES, the student will be able to	Cognitive level	Knowledge Level	Mapping to PSO No	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Familiarizing the distinction between modern and conventional domains of Sociological theory	U	F	1,5,6	G/N
CO 2	Developing an understanding on structural functional and conflict perspectives in sociological theory	U	F,C	1,2,6	R/N/G
CO 3	Familiarizing the need of approaches, paradigms and perspectives in understanding the societal functioning	AP	C,F	1,2,3,4	N/G
CO 4	Differentiate between ethnomethodology and phenomenological perspectives	AN	F	1	R/N/G
CO 5	Make learners capable of developing a critical mind to respond to the requirements of society	AP	MC	3,5,6	L/R/N/G

Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E- Evaluative, C- Create	
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive	

SOCIAL STRATIFICATION

Course Outcome	Upon the completion of the course, SOCIAL STRATIFICATION, the student will be able to	Cognitive level	Knowledge Level	Mapping to PSO No	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Examine caste, class and gender as systems of social stratification.	U	F	1,5,6	L/R/N/G
CO 2	Take an intersectional approach to understanding social stratification in Indian society.	U	F,C	1,4,6	L/R/N
CO 3	Evaluate different theoretical perspectives on social stratification.	A	C,F	1,2,,4	L/R/N/G
CO 4	Analyze the relevance of social stratification in contemporary society.	AN	F	1	L/R/N/G
CO 5	Recognize social stratification that make inequalities apparent.	AP	F	3,5,6	L/R/N/G
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E- Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

INDUSTRY AND SOCIETY

Course Outcome	Upon the completion of the course, INDUSTRY AND SOCIETY, the student will be able to	Cognitive level	Knowledge Level	Mapping to PSO No	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand the evolution, features and developments in industrial society.	U	F	1,5,6	L/R/N/G
CO 2	Familiarize the different types of industrial relations as well as industrial disputes.	U	F,C	1,2,6	L/R/N/G
CO 3	Identify management functions and labour welfare in industry.	A	C,F	1,4	L/R/N
CO 4	Analyze how economy and industry influences all other parts of society.	AN	F	1	L/R/N/G
CO 5	Evaluate how sociologists considered modern work to be central to sociology.	AP	F	3	N/G
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

CULTURE AND PERSONALITY

Course Outcome	Upon the completion of the course, CULTURE AND PERSONALITY, the student will be able to	Cognitive level	Knowledge Level	Mapping to PSO No	Relevance to Local/ National/ Regional/ Global developmental
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					needs
CO 1	Conceive culture as a reality and process pertinent to the destinies of human society	U	F	1,5,6	L/R/N/G
CO 2	Understand the origin and development of culture in human world	U	F,C	1,2,6	L/R/N/G
CO 3	Demonstrate the factors and attributes responsible for the development of human personality	AN	C,F	1,2,3,4	L/R/N
CO 4	Understand Factors and theories influencing personality development	U	F	1	L/R/N/G
CO 5	Understand the concept of self and the theories and agents of socialization	AP	F	3,5,6	L/R/N/G
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

SOCIAL MOVEMENTS AND SOCIAL TRANSFORMATION

Course Outcome	Upon the completion of the course, SOCIAL MOVEMENTS AND SOCIAL TRANSFORMATION, the student will be able to	Cognitive level	Knowledge Level	Mapping to PSO No	Relevance to Local/ National/ Regional/ Global developmental needs

CO 1	Understand social movements as an instrument of social transformation	U	F	1,5,6	L/R/N/G
CO 2	Understand social movements as the product of social transformations.	U	F,C	1,2,6	L/R/N/G
CO 3	provide an elaborate account of different theoretical explanations on social movements	U	C,F	1,2,3,4	R/N/G
CO 4	Helps to examine the prominent movements in India , the dalit movement and the peasant movement by examining the socio political and historical context of their emergence and the transformation that resulted	AN	F	1	L/R/N
CO 5	Provide an insight into two new social movements ie. environmental movements and movements for the rights of sexual minorities	AP	F	3,5,6	L/R/N/G
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E- Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				
Course Outcome	Upon the completion of the course, SOCIETY, ENVIRONMENT AND HUMAN RIGHTS, the student will be able to	Cognitive level	Knowledge Level	Mapping to PSO No	Relevance to Local/ National/ Regional/ Global developmental needs

**SOCIETY,
ENVIRONMENT
AND
HUMAN
RIGHTS**

CO 1	Understands the mutual relationship between environment and society	U	F	1,5,6	L/R/N/G
CO 2	Apply the sociological discourses on environment	U	F,C	1,2,6	N/G
CO 3	Develops a basic awareness of major environmental issues and concerns affecting mankind	A	C,F	1,2,3,4	L/R/N/G
CO 4	Know the emerging trend in Environmental sociology	AN	F	1	L/R/N/G
CO 5	Identify the major socio-environmental movements and action	AN	F	3,5,6	L/R/N
CO 6	Understand the basic human rights	U	C	1,3,7	L/R/N/G
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

CRIME AND SOCIETY

Course Outcome	Upon the completion of the course, CRIME AND SOCIETY, the student will be able to	Cognitive level	Knowledge Level	PSO No	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Familiarize the students about impact of the problem resulting from criminal acts in society	U	F	1,5,6	L/R/N/G
CO 2	Provide an understanding on various approaches to the study of crime	U	F,C	1,2,6	L/R/N/G
CO 3	Familiarize the learners with different type of crimes and prevention	U	C,F	1,2,3,4	L/R/N

CO 4	Understand the need to study the impact of substance abuse,terrorism,organized crime	AN	F	1	L/R/N/G
CO 5	Develop a balanced and apathetic approach to social issues	AP	F	3,5,6	L/R/N/G
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

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Course Outcome	Upon the completion of the course, SOCIAL PSYCHOLOGY, the student will be able to	Cognitive level	Knowledge Level	Mapping to PSO No	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify social psychology which focus on social interaction.	U	F	1,5,6	L/R/N/G
CO 2	Understand human personality which determines the social self of individuals.	U	F,C	1,2,6	L/R/N
CO 3	Identify the dynamics of group behavior and leadership	U	C,F	1,2,3,4	L/R/N
CO 4	Familiarize the different methods and techniques to analyze human behavior.	AN	F	1	L/R
CO 5	Describe the various theories in the development of self	AP	F	3,5,6	L/R/N/G
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

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Course Outcome	Upon the completion of the course, SOCIOLOGY OF DEVELOPMENT, the student will be able to	Cognitive level	Knowledge Level	Mapping to PSO No	Relevance to Local/ National/ Regional/ Global developmental
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					needs
CO 1	create a sociological understanding about development and its effects on society	U	F	1,5,6	L/R/N/G
CO 2	Recognize the idea of development and its related issues	U	F,C	1,2,6	L/R/N/G
CO 3	Understand how the Indian society is adopting with the new developmental initiatives	AP	C,F	1,2,3,4	L/R/N
CO 4	Familiarize the Kerala model of development	AN	F	1	L/R/N
CO 5	Understand the sociological perspectives on development	AP	F	3,5,6	L/R/N/G
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

SOCIOLOGY OF PRIORITISED SECTIONS

Course Outcome	Upon the completion of the course, SOCIOLOGY OF PRIORITISED SECTIONS, the student will be able to	Cognitive level	Knowledge Level	Mapping to PSO No	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand the Sociology behind Prioritisation process	U	F	1,5,6	L/R/N/G

CO 2	Understand the social reason behind differentiation and seclusion of the neglected	U	F,C	1,2,6	L/R/N/G
CO 3	Identify the different aspects of Prioritisation	AN	C,F	1,2,3,4	L/R/N/G
CO 4	Realize gender differentiation and the different gender movements in India and Kerala	AN	F	1	L/R/N/G
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

RURAL SOCIOLOGY

Course Outcome	Upon the completion of the course, RURAL SOCIOLOGY, the student will be able to	Cognitive level	Knowledge Level	Mapping to PSO No	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Familiarize the field of Rural sociology.	U	F	1,5,6	L/R
CO 2	Understand the distinct features of rural environment.	U	F,C	1,2,6	L/R/N
CO 3	Evaluate rural development in India.	A	C,F	1,2,3,4	L/R/N/G
CO 4	Understand rural planning and development.	AN	F	1	L/R/N/G
CO 5	Analyze different rural issues in India.	AP	F	3,5,6	L/R/N

Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create	
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive	

**OPEN COURSE FIFTH SEMESTER
SOCIAL PSYCHOLOGY**

Course Outcome	Upon the completion of the course, SOCIAL PSYCHOLOGY, the student will be able to	Cognitive level	Knowledge Level	Mapping to PSO No	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand human personality which determines the social self of individuals.	U	F	1,5,6	L/R/N/G
CO 2	Identify the dynamics of group behavior.	U	F,C	1,2,6	L/R/N
CO 3	Familiarize the different methods and techniques to analyze human behavior.	A	C,F	1,2,3,4	L/R/N/G
CO 4	Understand the various theories in social psychology	AN	F	1	N/G
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

**COMPLEMENTARY COURSE FOR B A ENGLISH
INTRODUCTION TO SOCIOLOGY (SEMESTER I)**

Course Outcome	Upon the completion of the course, INTRODUCTION TO SOCIOLOGY, the student will be able to	Cognitive level	Knowledge Level	Mapping to PSO No	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify sociology as a discipline.	U	F	1,5,6	R/N/G
CO 2	Familiarize the basic concepts in sociology.	U	F,C	1,2,6	L/R/N/G
CO 3	Understand the fundamentals of social life.	A	C,F	1,2,3,4	L/R/N/G
CO 4	Trace the historical background of sociology.	AN	F	1	N/G
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

DEVELOPMENT OF SOCIOLOGICAL THEORIES (SEMESTER II)

Course Outcome	Upon the completion of the course, DEVELOPMENT OF SOCIOLOGICAL THEORIES, the student will be able to	Cognitive level	Knowledge Level	Mapping to PSO No	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand the historical background of sociological theories.	U	F	1,5,6	L/R/N/G
CO 2	Familiarize classical sociologists and their contributions to	U	F,C	1,2,6	N/G

	sociology.				
CO 3	Analyze the methodology of pioneering thinkers in sociology.	A	C,F	1,2,3,4	R/N/G
CO 4	Understand the major classical theories in sociology.	AN	F	1	L/R/N/G
Cognitive Level	R- Remember, U –Understanding, AP-Apply, AN-Analyze, E-Evaluative, C- Create				
Knowledge Level	F- Factual, C-Conceptual, P- Procedural, MC –Meta Cognitive				

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PO NO	Upon completion of undergraduate programme, the students :
PO-1	Understand the discipline
PO-2	Achieve an aim to expand their studies in the discipline at higher level
PO-3	Work as a team with enhanced communication and co-ordination skills.
PO-4	Attain skills for employment in their programme related professions
PO-5	Acquire awareness on socio-historical-cultural, human rights and environmental issues.
PO-6	Develop entrepreneurship and leadership abilities
PO-7	Inculcate a sense of ethics, discipline, time management, emotional intelligence and self- awareness
PO-8	Expand the mindset to pursue lifelong learning

B.A. HISTORY PROGRAMME

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO NO	Upon completion of undergraduate programme the students :	PO NO	Relevance to Local/National/Regional/Global developmental needs
PSO-1	Attains knowledge and skills that will enable critical thinking	PO 1	L/N/R
PSO-2	Identify& comprehend the major historical facts	PO 7	L/N/R/G
PSO-3	Understand the development in Indian history	PO 8	L/N/R
PSO-4	Gain proficiency in research methods and its applications.	PO 7	N/G

PSO-5	Acquire the ability in disseminating the historical knowledge.	PO 4	L/N/R/G
PSO-6	Gain proficiency in research methods and its applications. Theoretical frameworks of history	PO 8	N/G

Course Outcome	Upon the completion of the course EARLY INDIA (Upto 300AD)the student will be able to	Knowledge Level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify the main historical sites	K2	PSO 1	N/R
CO 2	Understand the historical knowledge	K2	PSO 3	L/N/R
CO 3	Familiarize the ancient Indian culture	K3	PSO 6	N/R
CO 4	Understand regional history	K4	PSO 2	N/R
CO 5	Understand the elements which constitute the social structure in Indian society	K6	PSO 4	L/N/R

Course Outcome	Upon the completion of the course SOCIAL FORMATIONS IN PRE-MODERN INDIA the student will be able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify the main historical sites	K2	PSO 1	N/R
CO 2	Understand the historical knowledge	K2	PSO 3	N/R
CO 3	Familiarize the ancient and medieval Indian culture	K3	PSO 6	N/R
CO 4	Understand regional history	K4	PSO 2	N/R
CO 5	Understand the elements which constitute the social cultural economic and historical structure	K6	PSO 4	L/N/R

	in Indian society			
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Course Outcome	Upon the completion of the course HISTORY OF EARLY MEDIEVAL INDIA (300-1206) the student will be able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify the main historical sites	K2	PSO 1	N/R
CO 2	Understand the historical knowledge	K2	PSO 7	N/R
CO 3	Familiarize the ancient Indian culture	K3	PSO 6	N/R
CO 4	Understand regional history	K4	PSO 2	L/N/R
CO 5	Understand the elements which constitute the social structure in Indian society	K6	PSO 4	L/N/R

Course Outcome	Upon the completion of the course TRANSITION TO THE CONTEMPORARY WORLD the student will be able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify the problems that led to revolution and wars in the world	K2	PSO 1	N/G
CO 2	Understand the historical knowledge	K2	PSO 7	N/G
CO 3	Familiarize the development in the world	K3	PSO 6	N/G
CO 4	Understand the progress of human civilization	K4	PSO 2	N/G
CO 5	Understand the elements which constitute the social structure in world society	K6	PSO 4	N/G

Course Outcome	Upon the completion of the course MEDIEVAL INDIA: THE SULTANATE OF DELHI (1206 - 1526) ADthe student willbe able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify the main historical sites	K2	PSO 1	N/R
CO 2	Understand the historical knowledge	K2	PSO 7	N/R
CO 3	Familiarize the Medieval Indian culture	K3	PSO 3	N/R
CO 4	Understand regional history	K4	PSO 6	N/R
CO 5	Understand the elements which constitute the socialstructure in Indian society	K6	PSO 4	N/R

Course Outcome	Upon the completion of the course MEDIEVAL INDIA: MUGHALS AND MARATHAS (1526-1757)the student willbe able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify the main historical sites	K2	PSO 1	N/R
CO 2	Understand the historical knowledge	K2	PSO 7	N/R
CO 3	Familiarize the Medieval Indian culture	K3	PSO 6	N/R
CO 4	Understand regional history	K4	PSO 2	N/R
CO 5	Understand the elements which constitute the socialstructure in Indian society	K6	PSO 4	N/R

Course Outcome	Upon the completion of the course MODERN INDIA (1757-1857) AD the student will be able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify the main historical sites	K2	PSO 1	N/R
CO 2	Understand the historical knowledge	K2	PSO 7	N/R/G
CO 3	Familiarize the Modern Indian history	K3	PSO 6	N/R/G
CO 4	Understand regional history	K4	PSO 2	N/R
CO 5	Understand the elements which constitute the social structure in Indian society	K6	PSO 1	N/R

Course Outcome	Upon the completion of the course HISTORY OF THE FREEDOM MOVEMENT IN INDIA (1857-1947) the student will be able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify the main historical sites	K2	PSO 1	N/R
CO 2	Understand the historical knowledge	K2	PSO 7	N/R/G
CO 3	Familiarize the Modern Indian history and political movements and associations in India	K3	PSO 6	L/N/R
CO 4	Understand regional history	K4	PSO 2	N/R
CO 5	Understand the elements which constitute the social structure in Indian society	K6	PSO 4	N/R

Course Outcome	Upon the completion of the course INDIA SINCE INDEPENDENCE the student will be able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify the problems in post Independent India	K2	PSO 1	N/R/G
CO 2	Understand how issues in post independent India were solved	K2	PSO 7	N/R/G
CO 3	Familiarize political movements and associations in post independent India	K3	PSO 3	N/R
CO 4	Understand regional issues	K4	PSO 4	N/R
CO 5	Understand the development in Indian society	K 6	PSO 1	L/N/R

Course Outcome	Upon the completion of the course ANCIENT AND EARLY MEDIEVAL KERALA the student will be able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify the historical sites in ancient Kerala	K2	PSO 1	L/R
CO 2	Understand socio-cultural and political development in Kerala	K2	PSO 3	L/N/R
CO 3	Familiarize with history of Kerala	K3	PSO 6	L/N/R
CO 4	Understand factors that influenced and moulded	K4	PSO 2	L/N/R
CO 5	Understand the development in Indian society	K 6	PSO 4	L/N/R

Course Outcome	Upon the completion of the course TRANSFORMATIONS IN MEDIEVAL KERALA the student will be able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify the historical sites in ancient Kerala	K2	PSO 1	L/N/R
CO 2	Understand socio cultural and political development in Kerala	K2	PSO 7	L/N/R
CO 3	Familiarize with history of Kerala	K3	PSO 3	L/N/R
CO 4	Understand factors that influenced and moulded	K4	PSO 6	L/N/R/G
CO 5	Understand the development in Indian society	K 6	PSO 4	L/N/R

Course Outcome	Upon the completion of the course ENVIRONMENTAL STUDIES & HUMAN RIGHTS IN HISTORICAL OUTLINE the student will be able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understands the mutual relationship between environment and society	K2	PSO 1	L/N/R/G
CO 2	Apply the historical discourses on Environment	K2	PSO 7	L/N/R/G
CO 3	Develops a basic awareness of major environmental issues and concerns affecting mankind	K3	PSO 3	L/N/R/G
CO 4	Know the emerging trend in Environmental history	K4	PSO 6	L/N/R/G
CO 5	Identify the major socio-environmental movements and action	K 6	PSO 4	L/N/R/G
CO 6	Understand the basic human rights	K2	PSO 1	L/N/R/G

Course Outcome	Upon the completion of the course ENVIRONMENTAL HISTORY IN INDIAN CONTEXT the student will be able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understands the mutual relationship between environment and society	K2	PSO 1	L/N/R
CO 2	Apply the historical discourses on environment	K2	PSO 7	L/N/R
CO 3	Develops a basic awareness of major environmental issues and concerns affecting mankind	K3	PSO 3	L/N/R
CO 4	Know the emerging trend in Environmental history	K4	PSO 6	L/N/R
CO 5	Identify the major socio-environmental movements and action	K 6	PSO 4	L/N/R
CO 6	Understand the basic human rights	K2	PSO 1	L/N/R

Course Outcome	Upon the completion of the course UNDERSTANDING HISTORY the student will be able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify the main concerns of social science disciplines	K2	PSO 1	L/N/R/G
CO 2	Understand the importance of interdisciplinary approach of social sciences	K2	PSO 7	L/N/R/G
CO 3	Familiarize the methods and theories of social science related to contemporary issues	K3	PSO 3	L/N/R/G
CO 4	Relevance of social sciences to understand and solve contemporary social problems at local, regional, national and global levels	K4	PSO 6	L/N/R/G
CO 5	Understand the elements which constitute the social structure in Indian society	K 6	PSO 4	L/N/R

Course Outcome	Upon the completion of the course MAKING OF MODERN KERALA the student will be able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify the main historical sites	K2	PSO 1	L/R
CO 2	Understand the historical knowledge	K2	PSO 7	L/R
CO 3	Familiarize the Modern Kerala history and political movements and associations in Kerala	K3	PSO 3	L/R
CO 4	Understand regional history	K4	PSO 6	L/R
CO 5	Understand the elements which constitute the social structure in Indian society	K 6	PSO 4	L/N/R

Course Outcome	Upon the completion of the course MEDIEVAL WORLD the student will be able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify the main historical sites	K2	PSO 1	N/G
CO 2	Understand the historical knowledge	K2	PSO 7	N/G
CO 3	Familiarize the development in the world	K3	PSO 3	N/G
CO 4	Understand the progress of human civilisation	K4	PSO 6	N/G
CO 5	Understand the elements which constitute the social structure in world society	K6	PSO 4	N/G

Course Outcome	Upon the completion of the course HISTORY OF THE MODERN WORLD the student will be able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Identify the problems that led to revolution and wars in the world	K2	PSO 1	N/G
CO 2	Understand the historical knowledge	K2	PSO 7	N/G
CO 3	Familiarize the development in the world	K3	PSO 3	N/G
CO 4	Understand the progress of human civilisation	K4	PSO 6	N/G
CO 5	Understand the elements which constitute the social structure in world society	K6	PSO 4	N/G

Course Outcome	Upon the completion of the course WORLD CIVILIZATIONS the student will be able to	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand how human life progressed in the world	K2	PSO 1	N/G
CO 2	Attain historical knowledge	K2	PSO 2	N/G
CO 3	Familiarize the development in the world	K3	PSO 7	N/G
CO 4	Understand the problems faced by ancient human beings	K4	PSO 3	N/G
CO 5	Understand the material culture, technology and other socio religious aspects	K6	PSO 6	N/G

PG DEPARTMENT OF STATISTICS(SF)

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO No.	Upon completion of M.Sc. Statistics Programme, the students will be able to:	PO No.	Relevance to Local/National/Regional/Global development needs
PSO-1	Recognize the significance of statistical thinking, training, and problem solving.	1, 2	L/N/R/G
PSO-2	Achieve the qualities of precision and clarity in the communication of statistical ideas.	2, 3	L/N/G
PSO-3	Acquire proficiency in the formulation and construction of statistical results, practice in analyzing, formulating, modeling, testing, and interpretation of the results.	1, 2, 3	L/N/G
PSO-4	Find careers in a broad range of government, financial, health, technical, banking, public policy and other sectors.	3, 4, 5	L/N/R/G
PSO-5	Develop skills to serve as a Statistical Consultant/ Data Analyst in the public or private sector and in research.	2, 3, 4	L/N/R/G
PSO-6	Pursue lifelong learning.	4, 5	L/R/N/G

FIRST SEMESTER

PG20ST101 : PROBABILITY DISTRIBUTIONS

Course Outcomes

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Define the concepts of random variables and probability distributions.	K1	1	L/N/R/G
2	Discuss the difference between how probabilities are computed for discrete and continuous random variables.	K2	2	L/N
3	Explain the distribution of order statistics.	K2	1, 2	N/R
4	Describe the practical applications of functions of random variables.	K2	4,5	L\R

Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.

PG20ST102 :MEASURE AND PROBABILITY

COURSE OUTCOME

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Describe the basic concepts of measure theory.	K1	1	L/N/R
2	Examine the theory of a measure and integration is for the statistical studies.	K4	2	L/N/R/G
3	Explain the measurable functions.	K2	2	L/N
4	Develop probabilistic concepts like random variable, expectation, inequalities, convergence and the related theorems.	K5	3	N/R

Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.

PG20ST103 : SAMPLING THEORY

Course Outcomes

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Describe the differences in simple random sampling(WR or WOR) and other types of sampling Schemes	K2	1	L/R/N
2	Distinguish between randomization and non randomization theory.	K2	2	L
3	Identify the bias and sampling variability.	K2	2	L/R
4	Analyze data from multi-stage surveys.	K4	3	L/R/N/G
5	Explain concept of ratio and regression methods in estimation	K2	2	L/R/N/G
6	Discuss the concept of unequal probability sampling.	K2	2	L\R\G
7	Explain the design and analysis of sampling methods that would be useful for research and management in many field.	K2	4,5	R/N/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20ST104 :ANALYTICAL TOOLS FOR STATISTICS

COURSE OUTCOMES

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Explain the concepts of Real Analysis.	K2	1	R/N
2	Explain the concepts of linear algebra.	K2	1	L\R/N/G
3	Analyse the quadratic forms and spectral decomposition of matrices, which often arises in a multivariate data analysis.	K4	3	R/N/G
4	Apply the mathematical problems in statistical analysis.	K3	3,4	L\R
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20ST105 : STATISTICAL COMPUTING - I

Course Outcomes

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CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Sharpen statistical intuition and abstract reasoning as well as their reasoning from numerical data through examples and exercise by using excel and statistical software R	K5	4,5	L\N\R\G
2	Testing the ability of students in solving the practical problems based on Probability Distributions, Sampling Theory and Analytical Tools for Statistics .	K6	4,5	L\N\R\G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

ND SEMESTER

PG20ST206 : MULTIVARIATE DISTRIBUTIONS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Explain the bivariate distributions such as normal and exponential distributions.	K2	2	R\N\G
2	Describe the properties and estimators of multivariate distributions such as multivariate normal, Wishart distribution etc.	K1	1	N\R\G

3	Discuss the concepts of simple, partial and multiple correlations, their properties and distributions are thoroughly investigated.	K2	4,5	L\N\R\G
4	Construct tests and estimators, and derive their properties.	K5	5	R\N
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Appling; K4-Analyzing; K5-Evaluating; K6-Creating.				

Course Outcomes

PG20ST207 : ADVANCED PROBABILITY THEORY

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Explain different types of convergences of distributions, probability measures and Characteristic functions	K2	3	N/R/G
2	Describe theory for conditional distributions and expectation from a measure- theoretic Perspective.	K1	2	L/R/N
3	Discuss the central limit theorem and its variants.	K2	4	R/N/G

4	Explain different types of martingales and its use in practical situations.	K2	4	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

Course Outcomes

PG20ST208 : STATISTICAL INFERENCE I

Course Outcomes

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Outline basic estimation methods.	K1	1	L/R/N/G
2	Explain basic estimator properties such as bias, efficiency and sufficiency.	K2	3	R/N/G
3	Describe Classical and Bayesian estimation approaches and their differences.	K2	4,5	R/N/G

4	Apply methods of estimation in inferential problems.	K3	4,5	R/N/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20ST209 : STOCHASTIC PROCESSES

Course Outcomes

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Know the basic knowledge about stochastic processes in the time domain.	K1	1	L/R
2	Construction of Markov Chains.	K5	3, 5	R/N/G

3	Explain the concepts of stationary processes and appreciate their significance.	K2	2	R/N
4	Explain the basic concepts of queueing models.	K2	4, 5	N/R/G
5	Create steady state equations for various queueing models	K5	5	R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20ST210 : STATISTICAL COMPUTING - II

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
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1	Sharpen statistical intuition and abstract reasoning as well as their reasoning from numerical data through examples and exercise by using excel and statistical software R	K5	4,5	L\N\R\G
2	Testing the ability of students in solving the practical problems based on Statistical Inference I, Multivariate Distributions and Stochastic Processes.	K6	4,5	L\N\R\G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

Course Outcomes

THIRD SEMESTER

PG20ST311 : STATISTICAL INFERENCE - II

Course Outcomes

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Describe the problem of statistical inference, problem of testing of hypothesis etc.	K1	3	L/R/N/G
2	Explain critical regions, test functions, two kinds of errors, size function, power function and apply them in real life data sets.	K2	4	N/R
3	Explain Sequential testing and Sequential probability ratio test.	K2	4	R/N/G
4	Construct SPRT in case of Binomial, Poisson and Normal Distribution.	K5	3	R/N

5	Explain Likelihood ratio test., Wald test, Pearson's chi-square test for goodness of fit and Bartlett's test for homogeneity of variances	K2	4,5	R/N/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20ST312 : DESIGN AND ANALYSIS OF EXPERIMENTS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Interpret the important role of experimentation in new product design, manufacturing process development, and process improvement.	K3	4	L/R
2	Describe factorial experiment for agriculture data.	K1	4,5	R/N
3	Describe the concept of confounding in experimental designs.	K1	2,4	R/G

4	Compare the yields obtained from different field experiments	K4	4,5	R/N/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

Course Outcomes

PG20ST313 : MULTIVARIATE ANALYSIS

Course Outcomes

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Analyze multivariate data.	K4	5	R/N/G
2	Compare multivariate techniques and corresponding univariate techniques.	K4	4	R/N/G
3	Apply factor analysis effectively for exploratory and confirmatory data analysis.	K3	3, 4	R/N/G
4	Describe the basic concepts of data mining techniques.	K1	5	R/N/G

5	Analyses data and reducing the dimensions of the data by using different dimension reduction techniques like PCA, Factor analysis etc.	K4	4	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20ST314 : TIME SERIES ANALYSIS

Course Outcomes

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Describe of the concepts of time series and their application to health, climate, finance and other areas.	K1	4,5	L/R/N/G
2	Analyze auto regressive, moving average, ARMA, ARIMA models and able to compute auto-covariance and autocorrelation of stationary time series models.	K4	5	R/N/G
3	Explain the concepts of spectral analysis of times series, Seasonal ARIMA, ARCH and GARCH models.	K2	4	R/N/G

4	Develop ability to analyze real life time series data sets.	K5	5, 6	L/R/N/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

PG20ST315 : STATISTICAL COMPUTING - III

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Sharpen statistical intuition and abstract reasoning as well as their reasoning from numerical data through examples and exercise by using excel and statistical software R.	K5	4, 5	L\N\R\G

2	Testing the ability of students in solving the practical problems based on Statistical Inference II, Design and Analysis of Experiments, Multivariate Analysis and Econometric Methods.	K6	4, 5	L\N\R\G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

Course Outcomes

FOURTH SEMESTER

PG20ST416: ECONOMETRIC METHODS

Course Outcomes

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Apply the challenges of empirical modelling in economics and business.	K3	5	R/N/G
2	Analyze economic data by using regression analysis .	K4	4,5	R/N/G
3	Explain theoretical background for the standard methods used in empirical analyses, like properties of least squares estimators and the statistical testing of hypothesis.	K2	4,5	R/N/G
4	Describe the concept of structural econometric models and their applications in econometric modelling.	K1	5	R/N/G

Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.

PG20ST420 :STATISTICAL COMPUTING - IV

Course Outcomes

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Sharpen statistical intuition and abstract reasoning as well as their reasoning from numerical data through examples and exercise by using excel and statistical software R.	K5	4, 5	L\N\R\G
2	Testing the ability of students in solving the practical problems based on Statistical Quality Control, Time Series Analysis and Operations Research.	K6	4,5	L\N\R\G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

ELECTIVES

Bunch A

ELECTIVE 01- OPERATIONS RESEARCH

Course Outcomes

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Explain the basic concepts of LPP.	K2	1	R/N/G
2	Describe basic concepts of inventory problems and solve various types of EOQ models	K1	3,4	R/N/G
3	Explain sequencing problems, travelling salesman problem and various methods to solve sequencing problems.	K2	2	L/R/N/G
4	Identify strategic situations and represent them as games.	K1	3	L/R/N
5	Evaluate simple games using various techniques.	K6	2	L/R/G
6	Illustrate the theory and applications of NLPP.	K3	5	R/G

Knowledge Levels: K1-Remembering; K2-Understanding; K3-Appling; K4-Analyzing; K5-Evaluating; K6-Creating.

ELECTIVE 02 : STATISTICAL QUALITY CONTROL

Course Outcomes

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Outline the basic concepts of quality monitoring.	K1	4	L/R/N/G

2	Construct various types of control charts such as X bar, R, \bar{X} , s, p charts, EWMA, CUSUM charts etc and draw conclusions.	K5	4, 5	R/N/G
3	Explain Various sampling inspection techniques.	K2	5	L/R/N/G
4	List different performance measures of control chart such as OC, ARL etc.	K1	3	L/R/N/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

ELECTIVE 03-STATISTICAL RELIABILITY ANALYSIS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/National/Regional/Global development needs
1	Describe the basic concepts of reliability.	K1	2	R/N/G

2	Explain coherent systems are, and can represent such systems by paths and cuts.	K2	3	R/G
3	Calculate the reliability of components in a complicated systems.	K3	4,5	L/R/G
4	Explain different reliability measures.	K2	5	R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

Programme outcome of M.Sc.Microbiology

PSO NO	Upon completion of M.Sc.Microbiology programme , the students will be able to:	PO NO	Relevance to Local/National/Regional/Global developmental needs
PSO 1	Able to characterize Microorganisms based on Taxonomical features, phenotypical and genotypical characteristics	PO 1,2	G
PSO 2	Able to analyze the Structure function relationships of biomolecules, interaction between macro molecules and cellular processes at the molecular level.	PO 1,2	G
PSO 3	Understand the concepts of microbiology and immunology and their application	PO 1,2	G
PSO 4	Utilize interdisciplinary knowledge in basic Biotechnology and Biochemistry.	PO 2,3	G
PSO 5	Understand the concepts of molecular biology and applications in genetic engineering	PO 1,2	G
PSO 6	Relate the Metabolic pathways, Clinical aspects, Bioenergetics and Catalysis.	PO 1,2	G
PSO 7	Role of microorganisms and their interactions in the ecosystem including Biogeochemical cycles, Biodegradation <i>etc.</i>	PO 1,4	G

PSO 8	Explain the reason for ubiquitous distribution of microorganism in wide range of ecological habitat including extreme environments in nature.	PO 1,2	G
PSO 9	Attain laboratory skills in microbiological practices including immunological and molecular microbiological methods	PO 1,2,3	G
PSO 10	Application of microorganisms in the production of fermented food products and organic compounds, biofertilizers, bioactive products and organic compounds, biofertilizers, bioactive compounds etc	PO 1,4,5	G
PSO 11	Students will be able to conduct experiments, analyze and interpret for various problems in the field of medical, industrial, agricultural and environmental microbiology	PO 1,2,3,4	G
PSO 12	Awareness of Environmental policies, problems and ethical issues related to Bioscience research	PO 2,3,4	G
PSO 13	Promoting scientific discoveries and familiarizing research methodology through implementation of projects.	PO 1,2,3,5	G
PSO 14	Students can go for Higher studies, can become technical assistants or production analyst in various Microbiology Industries.	PO 1,2,3,4,5, 6	G

Course Outcome of M.Sc.Microbiology

SEMESTER - I

PG20BS101- BIOCHEMISTRY

Course Outcome No.	Upon completion of the course <i>BIOCHEMISTRY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the basic concepts of biomolecules	K2	PSO 2, PSO 4	G
2	Analyze the structure – function relationship of biomolecules	K4	PSO 2, PSO 4	G
3	Explain about the interactions between macromolecules	K2	PSO 2, PSO 4	G

PG20BS102 - CELL BIOLOGY AND GENETICS

Course Outcome No.	Upon completion of the course <i>CELL BIOLOGY AND GENETICS</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the various organelles of a cell and its functions	K2	PSO 2	G
2	Know about the different cellular receptors and signal transduction pathways	K3	PSO 2	G

3	Understand the etiology of cancer	K2	PSO 2	G
4	Understand fundamental principles of heredity and deviations from mendelian behavior. AnalyzeThe effect of mutations and mutational analysis.	K2, K4	PSO 2	G
5	Understand the principles of behavioural and population genetics.	K2	PSO 2, PSO 5	G

PG20BS103 – BIOPHYSICS, BIOINSTRUMENTATION AND BIOINFORMATICS

Course Outcome No.	Upon completion of the course BIOPHYSISCS, BIOINSTRUMENTATION AND BIOINFORMATICS, the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the biochemical techniques used in research and industry	K2	PSO 13, PSO 14	G
2	Practice experiment with various instruments used in laboratories	K3	PSO 13, PSO 14	G
3	Demonstrate the <i>Insilico</i> tools for biological data analysis	K3	PSO 2, PSO 4	G
4	Analyze the significance and precautions to be taken during radioactivity experiments	K4	PSO 13	G

PG20BS104 – HUMAN PHYSIOLOGY AND BIostatISTICS

Course Outcome No.	Upon completion of the course – <i>HUMAN PHYSIOLOGY AND BIOSTATISTICS</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the tissues and organs of the human body	K2	PSO 2	G
2	Demonstrate the ability to differentiate physiology from the cellular and molecular level to the organ system	K3	PSO 2	G
3	Apply physiological and anatomical knowledge to enhance their well-being	K3	PSO 2	G

PG20BSP1-MB-LABORATORY COURSE –I

Course Outcome No.	Upon completion of the course <i>LABORATORY COURSE - I</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Prepare molar, normal and percentage solutions	K5	PSO 4	G
2	Analyze unknown samples by systematic analysis	K4	PSO 4	G
3	Assess samples, present in	K6	PSO 4	G

	solutions by selecting appropriate methods			
4	Analyze and evaluate samples present in a mixture, by various separation techniques	K4 & K6	PSO 4	G
5	Demonstrate laboratory experiments in physiology	K3	PSO 13	G
6	Analyze data and/or information present in databanks	K4	PSO 13	G

SEMESTER – II

PG20BS205 – GENERAL MICROBIOLOGY

Course Outcome No.	Upon completion of the course GENERAL <i>MICROBIOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the diversity of microbial world and their interactions with the environment	K2	PSO 1, PSO 8	G
2	Explain the genetic materials and mechanisms in bacteria and their role in the transmission of genetic characters	K2	PSO 2	G
3	Illustrate the importance of sterilization and disinfection and the methods used in a	K2	PSO 3, PSO 9	G

	microbiology laboratory and premises			
4	Demonstrate microorganisms based on their characteristics	K3 & K4	PSO 1, PSO 3	G

PG20BS206 – IMMUNOLOGY

Course Outcome No.	Upon completion of the course <i>IMMUNOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the cellular and molecular basis of the immune system	K2	PSO 3	G
2	Demonstrate the adaptive immune responses coordinate to fight against invading pathogens	K3	PSO 3	G
3	Describe the structure and functions of MHC molecules and Immunoglobulins	K2	PSO 3	G
4	Explain the complement system, its activation and biological consequences of complement activation	K1 & K2	PSO 3	G
5	Illustrate the use of vaccines and analyze the strategies for future vaccines	K2 & K4	PSO 3	G
6	Explain the genetic defects that lead to immunodeficiency diseases and their treatment as well as the current status of gene therapy	K2	PSO 3, PSO 5	G

PG20BS20 – MOLECULAR BIOLOGY AND GENETIC ENGINEERING

Course Outcome No.	Upon completion of the course <i>MOLECULAR BIOLOGY AND GENETIC ENGINEERING</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Explain the various molecular mechanism underlying the transmission of genetic information	K2	PSO 5	G
2	Illustrate the theoretical aspects of rDNA technology and genetic engineering	K2	PSO 5	G
3	Apply the different molecular tools and strategies explored in rDNA technology	K3	PSO 5	G
4	Formulate the outcome of various molecular biology experiments	K5	PSO 5	G

PG20BS208 – METABOLISM AND ENZYMOLOGY

Course Outcome No.	Upon completion of the course <i>METABOLISM AND ENZYMOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Explain the various molecular mechanism underlying the transmission of genetic information	K2	PSO 6	G
2	Illustrate the theoretical aspects of rDNA technology and genetic engineering	K2	PSO 6	G
3	Apply the different molecular tools and strategies explored in rDNA technology	K3	PSO 6	G
4	Formulate the outcome of various molecular biology experiments	K5	PSO 6	G

PG20BSP2-MB - LABORATORY COURSE-II

Course Outcome No.	Upon completion of the course <i>LABORATORY COURSE II</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Describe good microbiological practices in the laboratory	K1 & K2	PSO 3, PSO 9	G
2	Illustrate various Culture media and their applications and also understand various physical and chemical means of sterilization	K1 & K2	PSO 3, PSO 9	G
3	Experiment to perform staining, biochemical and cultural tests to characterize and identify microorganisms	K4	PSO 3, PSO 9 , PSO 6	G
4	Illustrate the procedures for sterilization, cultivation procedures and enumeration methods of microorganism	K2 & K3	PSO 3, PSO 9	G
5	Describe the principle and practices of immunological tests	K1, K2 & K3	PSO 3, PSO 9	G
6	Discuss and practice basic technique in molecular biology	K2 & K3	PSO 5, PSO 9	G

SEMESTER – III

PG20BS309-MB - FOOD AND INDUSTRIAL MICROBIOLOGY

Course Outcome No.	Upon completion of the course - FOOD AND INDUSTRIAL MICROBIOLOGY , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the beneficial role of microorganisms in fermented foods, dairy and food products. Principles involving various methods of food preservation	K1 & K2	PSO 10	G
2	Analyze the spoilage mechanisms in food and the role of microorganisms in spoilage of foods	K4	PSO 10	G
3	Illustrate the design of bioreactors, factors affecting growth and production	K2	PSO 10	G
4	Analyze the techniques applicable for improvement of microorganisms based on known biochemical pathways and regulatory mechanisms	K4	PSO 10	G
5	Apply microbiology in manufacture of industrial	K3	PSO 10 , PSO 11	G

	products			
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PG20BS310-MB - ENVIRONMENTAL AND AGRICULTURAL MICROBIOLOGY

Course Outcome No.	Upon completion of the course ENVIRONMENTAL AND AGRICULTURAL MICROBIOLOGY , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the beneficial and harmful role of microorganisms in agriculture and environment	K2	PSO 7	G
2	Explain various biogeochemical cycles occurring in soil	K2	PSO 7	G
3	Analyze plant – microbe interactions and microbe - microbe interactions in soil and there by improve the fertility of soil and yield	K4	PSO 7	G
4	List various plant diseases caused by bacteria, fungi and viruses and their control measures	K1	PSO 7	G
5	Illustrate genetically modified crops and their importance in various aspects such as pest resistance, high nutrient value, easy to grow under unfavorable weather conditions, etc.	K2 & K3	PSO 7 , PSO 10	G

6	Demonstrate the use of microorganisms in the process of extraction of metals in an economic and ecofriendly manner	K3	PSO 7	G
7	Analyze the pollutants in the environment using microorganisms	K4	PSO 7	G

PG20BS311-MB - MARINE MICROBIOLOGY

Course Outcome No.	Upon completion of the course MARINE MICROBIOLOGY, the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the marine ecosystem and discuss the structure and various habitat of marine environment	K1 & K2	PSO 7, PSO 8	G
2	Categorize water borne diseases and water borne pathogen	K4	PSO 7, PSO 8	G
3	Demonstrate the biotechnological applications of marine microbiology such as biosensor, transgenic, biosurfactantetc	K3	PSO 10	G
4	Assess marine pollution and	K6	PSO 7, PSO 10	G

	control measure, bio-corrosion and bioremediation			
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PG20BS312-MB - ENVIRONMENTAL SCIENCE

Course Outcome No.	Upon completion of the course ENVIRONMENTAL SCIENCE , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the ecosystem and discuss the structure and various features of ecosystem	K2	PSO 7	G
2	Explain different types of ecology and endangered and threatened Species	K2	PSO 7	G
3	Demonstrate the status of biological diversity and its conservation	K3	PSO 7	G
4	Compare different types of environmental pollutions and Illustrate control measures, bioremediation and bio-weapons	K2 & K6	PSO 7	G
5	Analyze various environmental problems and efforts for environmental protection	K4	PSO 7, PSO 12	G

PG20BSP3-MB-LABORATORY COURSE III

Course Outcome No.	Upon completion of the course <i>LABORATORY COURSE III</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Describe the occurrence, abundance and distribution of microorganism in the environment and their role in the environment and also outline different methods for their detection and characterization	K1 & K2	PSO 8, PSO 9, PSO 10	G
2	Explain and demonstrate the theories and principles of food microbiology in practical	K2 & K3	PSO 9, PSO 10, PSO 11	G
3	Illustrate various methods for their isolation, detection and identification of microorganisms in food	K2 & K3	PSO 9, PSO 10, PSO 11	G
4	Investigate ways to control microorganisms in foods and thus know the procedures for the microbiological analysis of food	K4	PSO 9, PSO 10, PSO 11	G

SEMESTER – IV

PG20BS413-MB- SYSTEMATIC BACTERIOLOGY

Course Outcome No.	Upon completion of the course SYSTEMATIC BACTERIOLOGY, the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Explain the morphology, culture, antigenic structure and virulence factors of microorganisms of medical importance and the diseases they produce	K2	PSO 3	G
2	Demonstrate the identifying characteristics of major classes of bacteria	K2	PSO 1, PSO 3	G
3	Examine the epidemiology and pathogenesis, lab diagnosis and treatment of different classes of bacteria	K4	PSO 3	G
4	Summarize and apply the information on lab diagnosis and treatment of different classes of bacteria	K2 & k3	PSO 3, PSO 9	G

PG20BS414-MB - VIROLOGY, MYCOLOGY AND PROTOZOOLOGY

Course Outcome No.	Upon completion of the course VIROLOGY, MYCOLOGY AND PROTOZOOLOGY , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Explain the general characteristics and pathobiology of different classes of viruses	K2	PSO 1, PSO 3	G
2	Identify lab diagnosis, prophylaxis and treatment of viral diseases	K3	PSO 3, PSO 9	G
3	Illustrate different fungal infections and protozoal diseases	K2	PSO 3	G

PG20BS415-MB - CLINICAL MICROBIOLOGY

Course Outcome No.	Upon completion of the course CLINICAL MICROBIOLOGY, the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
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1	Summarize the concept of safe microbiology	K2	PSO 3	G
2	Explain the infections of various organs and systems of the human body	K2	PSO 3	G
3	To extend etiology, pathogenesis and laboratory diagnosis of local infections	K2	PSO 3, PSO 9	G
4	Demonstrate and analyse various infections of skin, soft tissue and wound	K2 & K4	PSO 3, PSO 9	G
5	To compare and evaluate serological and molecular diagnostic methods	K2 & k5	PSO 3, PSO 9	G
6	Develop antibacterial therapy and prophylaxis	K3	PSO 3	G

PG20BSP4-MB-Laboratory Course IV

Course Outcome No.	Upon completion of the course <i>LABORATORY COURSE IV</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Describe standard laboratory	K1	PSO 3, PSO 9	G

	procedures in clinical microbiology	& K2		
2	Recognise how to handle and identify medically important bacteria	K2	PSO 3, PSO 9, PSO 13, PSO 14	G
3	Describe how to learn culture, isolate and identify fungi	K1 & K2	PSO 3, PSO 9, PSO 13, PSO 14	G
4	Describe and demonstrate the procedures of viral cultivation	K2 & K3	PSO 3, PSO 9, PSO 13, PSO 14	G
5	Practice the antimicrobial sensitivity tests	K3	PSO 3, PSO 9	G

Programme outcome of M.Sc.Microbiology

PSO NO	Upon completion of M.Sc.Microbiology programme , the students will be able to:	PO NO	Relevance to Local/National/Regional/Global developmental needs
PSO 1	Able to characterize Microorganisms based on Taxonomical features, phenotypical and genotypical characteristics	PO 1,2	G
PSO 2	Able to analyze the Structure function relationships of biomolecules, interaction between macro molecules and cellular processes at the molecular level.	PO 1,2	G
PSO 3	Understand the concepts of microbiology and immunology and their application	PO 1,2	G
PSO 4	Utilize interdisciplinary knowledge in basic Biotechnology and	PO 2,3	G

	Biochemistry.		
PSO 5	Understand the concepts of molecular biology and applications in genetic engineering	PO 1,2	G
PSO 6	Relate the Metabolic pathways, Clinical aspects, Bioenergetics and Catalysis.	PO 1,2	G
PSO 7	Role of microorganisms and their interactions in the ecosystem including Biogeochemical cycles, Biodegradation <i>etc.</i>	PO 1,4	G
PSO 8	Explain the reason for ubiquitous distribution of microorganism in wide range of ecological habitat including extreme environments in nature.	PO 1,2	G
PSO 9	Attain laboratory skills in microbiological practices including immunological and molecular microbiological methods	PO 1,2,3	G
PSO 10	Application of microorganisms in the production of fermented food products and organic compounds, biofertilizers, bioactive products and organic compounds, biofertilizers, bioactive compounds etc	PO 1,4,5	G
PSO 11	Students will be able to conduct experiments, analyze and interpret for various problems in the field of medical, industrial, agricultural and environmental microbiology	PO 1,2,3,4	G
PSO 12	Awareness of Environmental policies, problems and ethical issues related to Bioscience research	PO 2,3,4	G
PSO 13	Promoting scientific discoveries and familiarizing research methodology through implementation of projects.	PO 1,2,3,5	G
PSO 14	Students can go for Higher studies, can become technical assistants or production analyst in various Microbiology Industries.	PO 1,2,3,4,5, 6	G

Course Outcome of M.Sc.Microbiology

SEMESTER - I

PG20BS101- BIOCHEMISTRY

Course Outcome No.	Upon completion of the course <i>BIOCHEMISTRY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the basic concepts of biomolecules	K2	PSO 2, PSO 4	G
2	Analyze the structure – function relationship of biomolecules	K4	PSO 2, PSO 4	G
3	Explain about the interactions between macromolecules	K2	PSO 2, PSO 4	G

PG20BS102 - CELL BIOLOGY AND GENETICS

Course Outcome No.	Upon completion of the course <i>CELL BIOLOGY AND GENETICS</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
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1	Understand the various organelles of a cell and its functions	K2	PSO 2	G
2	Know about the different cellular receptors and signal transduction pathways	K3	PSO 2	G
3	Understand the etiology of cancer	K2	PSO 2	G
4	Understand fundamental principles of heredity and deviations from mendelian behavior. AnalyzeThe effect of mutations and mutational analysis.	K2, K4	PSO 2	G
5	Understand the principles of behavioural and population genetics.	K2	PSO 2, PSO 5	G

PG20BS103 – BIOPHYSICS, BIOINSTRUMENTATION AND BIOINFORMATICS

Course Outcome No.	Upon completion of the course BIOPHYSISCS, <i>BIOINSTRUMENTATION</i> AND <i>BIOINFORMATICS</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the biochemical techniques used in research and industry	K2	PSO 13, PSO 14	G
2	Practice experiment with various instruments used in laboratories	K3	PSO 13, PSO 14	G

3	Demonstrate the <i>Insilico</i> tools for biological data analysis	K3	PSO 2, PSO 4	G
4	Analyze the significance and precautions to be taken during radioactivity experiments	K4	PSO 13	G

PG20BS104 – HUMAN PHYSIOLOGY AND BIostatISTICS

Course Outcome No.	Upon completion of the course – <i>HUMAN PHYSIOLOGY AND BIostatISTICS</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the tissues and organs of the human body	K2	PSO 2	G
2	Demonstrate the ability to differentiate physiology from the cellular and molecular level to the organ system	K3	PSO 2	G
3	Apply physiological and anatomical knowledge to enhance their well-being	K3	PSO 2	G

PG20BSP1-MB-LABORATORY COURSE –I

Course Outcome No.	Upon completion of the course <i>LABORATORY COURSE - I</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Prepare molar, normal and percentage solutions	K5	PSO 4	G
2	Analyze unknown samples by systematic analysis	K4	PSO 4	G
3	Assess samples, present in solutions by selecting appropriate methods	K6	PSO 4	G
4	Analyze and evaluate samples present in a mixture, by various separation techniques	K4 & K6	PSO 4	G
5	Demonstrate laboratory experiments in physiology	K3	PSO 13	G
6	Analyze data and/or information present in databanks	K4	PSO 13	G

SEMESTER – II

PG20BS205 – GENERAL MICROBIOLOGY

Course Outcome No.	Upon completion of the course <i>GENERAL MICROBIOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
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				needs
1	Illustrate the diversity of microbial world and their interactions with the environment	K2	PSO 1, PSO 8	G
2	Explain the genetic materials and mechanisms in bacteria and their role in the transmission of genetic characters	K2	PSO 2	G
3	Illustrate the importance of sterilization and disinfection and the methods used in a microbiology laboratory and premises	K2	PSO 3, PSO 9	G
4	Demonstrate microorganisms based on their characteristics	K3 & K4	PSO 1, PSO 3	G

PG20BS206 – IMMUNOLOGY

Course Outcome No.	Upon completion of the course <i>IMMUNOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the cellular and molecular basis of the immune system	K2	PSO 3	G
2	Demonstrate the adaptive immune	K3	PSO 3	G

	responses coordinate to fight against invading pathogens			
3	Describe the structure and functions of MHC molecules and Immunoglobulins	K2	PSO 3	G
4	Explain the complement system, its activation and biological consequences of complement activation	K1 & K2	PSO 3	G
5	Illustrate the use of vaccines and analyze the strategies for future vaccines	K2 & K4	PSO 3	G
6	Explain the genetic defects that lead to immunodeficiency diseases and their treatment as well as the current status of gene therapy	K2	PSO 3, PSO 5	G

PG20BS20 – MOLECULAR BIOLOGY AND GENETIC ENGINEERING

Course Outcome No.	Upon completion of the course <i>MOLECULAR BIOLOGY AND GENETIC ENGINEERING</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Explain the various molecular mechanism underlying the transmission of genetic information	K2	PSO 5	G
2	Illustrate the theoretical aspects of rDNA technology and genetic engineering	K2	PSO 5	G
3	Apply the different molecular tools and strategies explored in rDNA technology	K3	PSO 5	G
4	Formulate the outcome of various molecular biology experiments	K5	PSO 5	G

PG20BS208 – METABOLISM AND ENZYMOLOGY

Course Outcome No.	Upon completion of the course <i>METABOLISM AND ENZYMOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Explain the various molecular mechanism underlying the transmission of genetic information	K2	PSO 6	G
2	Illustrate the theoretical aspects of rDNA technology and genetic engineering	K2	PSO 6	G
3	Apply the different molecular tools and strategies explored in rDNA technology	K3	PSO 6	G
4	Formulate the outcome of various molecular biology experiments	K5	PSO 6	G

PG20BSP2-MB - LABORATORY COURSE-II

Course Outcome No.	Upon completion of the course <i>LABORATORY COURSE II</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Describe good microbiological practices in the laboratory	K1 & K2	PSO 3, PSO 9	G
2	Illustrate various Culture media and their applications and also understand various physical and chemical means of sterilization	K1 & K2	PSO 3, PSO 9	G

3	Experiment to perform staining, biochemical and cultural tests to characterize and identify microorganisms	K4	PSO 3, PSO 9, PSO 6	G
4	Illustrate the procedures for sterilization, cultivation procedures and enumeration methods of microorganism	K2 & K3	PSO 3, PSO 9	G
5	Describe the principle and practices of immunological tests	K1, K2 & K3	PSO 3, PSO 9	G
6	Discuss and practice basic technique in molecular biology	K2 & K3	PSO 5, PSO 9	G

SEMESTER – III

PG20BS309-MB - FOOD AND INDUSTRIAL MICROBIOLOGY

Course Outcome No.	Upon completion of the course - FOOD AND INDUSTRIAL MICROBIOLOGY , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the beneficial role of microorganisms in fermented foods, dairy and food products.	K1 & K2	PSO 10	G

	Principles involving various methods of food preservation			
2	Analyze the spoilage mechanisms in food and the role of microorganisms in spoilage of foods	K4	PSO 10	G
3	Illustrate the design of bioreactors, factors affecting growth and production	K2	PSO 10	G
4	Analyze the techniques applicable for improvement of microorganisms based on known biochemical pathways and regulatory mechanisms	K4	PSO 10	G
5	Apply microbiology in manufacture of industrial products	K3	PSO 10 , PSO 11	G

PG20BS310-MB - ENVIRONMENTAL AND AGRICULTURAL MICROBIOLOGY

Course Outcome No.	Upon completion of the course ENVIRONMENTAL AND AGRICULTURAL MICROBIOLOGY , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the beneficial and harmful role of microorganisms in agriculture and environment	K2	PSO 7	G
2	Explain various biogeochemical	K2	PSO 7	G

	cycles occurring in soil			
3	Analyze plant – microbe interactions and microbe - microbe interactions in soil and there by improve the fertility of soil and yield	K4	PSO 7	G
4	List various plant diseases caused by bacteria, fungi and viruses and their control measures	K1	PSO 7	G
5	Illustrate genetically modified crops and their importance in various aspects such as pest resistance, high nutrient value, easy to grow under unfavorable weather conditions, etc.	K2 & K3	PSO 7 , PSO 10	G
6	Demonstrate the use of microorganisms in the process of extraction of metals in an economic and ecofriendly manner	K3	PSO 7	G
7	Analyze the pollutants in the environment using microorganisms	K4	PSO 7	G

PG20BS311-MB - MARINE MICROBIOLOGY

Course Outcome No.	Upon completion of the course MARINE MICROBIOLOGY , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the marine ecosystem and discuss the structure and various habitat of marine environment	K1 & K2	PSO 7, PSO 8	G
2	Categorize water borne diseases and water borne pathogen	K4	PSO 7, PSO 8	G
3	Demonstrate the biotechnological applications of marine microbiology such as biosensor, transgenic, biosurfactant etc	K3	PSO 10	G
4	Assess marine pollution and control measure, bio-corrosion and bioremediation	K6	PSO 7, PSO 10	G

PG20BS312-MB - ENVIRONMENTAL SCIENCE

Course Outcome No.	Upon completion of the course ENVIRONMENTAL SCIENCE , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
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				needs
1	Illustrate the ecosystem and discuss the structure and various features of ecosystem	K2	PSO 7	G
2	Explain different types of ecology and endangered and threatened Species	K2	PSO 7	G
3	Demonstrate the status of biological diversity and its conservation	K3	PSO 7	G
4	Compare different types of environmental pollutions and Illustrate control measures, bioremediation and bio-weapons	K2 & K6	PSO 7	G
5	Analyze various environmental problems and efforts for environmental protection	K4	PSO 7, PSO 12	G

PG20BSP3-MB-LABORATORY COURSE III

Course Outcome No.	Upon completion of the course <i>LABORATORY COURSE III</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Describe the occurrence,	K1	PSO 8, PSO 9,	G

	abundance and distribution of microorganism in the environment and their role in the environment and also outline different methods for their detection and characterization	& K2	PSO 10	
2	Explain and demonstrate the theories and principles of food microbiology in practical	K2 & K3	PSO 9, PSO 10, PSO 11	G
3	Illustrate various methods for their isolation, detection and identification of microorganisms in food	K2 & K3	PSO 9, PSO 10, PSO 11	G
4	Investigate ways to control microorganisms in foods and thus know the procedures for the microbiological analysis of food	K4	PSO 9, PSO 10, PSO 11	G

SEMESTER – IV

PG20BS413-MB- SYSTEMATIC BACTERIOLOGY

Course Outcome No.	Upon completion of the course SYSTEMATIC BACTERIOLOGY, the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Explain the morphology, culture, antigenic structure and virulence factors of microorganisms of medical importance and the diseases they produce	K2	PSO 3	G
2	Demonstrate the identifying characteristics of major classes of bacteria	K2	PSO 1, PSO 3	G
3	Examine the epidemiology and pathogenesis, lab diagnosis and treatment of different classes of bacteria	K4	PSO 3	G
4	Summarize and apply the information on lab diagnosis and treatment of different classes of bacteria	K2 & k3	PSO 3, PSO 9	G

Course Outcome No.	Upon completion of the course VIROLOGY, MYCOLOGY AND PROTOZOOLOGY , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Explain the general characteristics and pathobiology of different classes of viruses	K2	PSO 1, PSO 3	G
2	Identify lab diagnosis, prophylaxis and treatment of viral diseases	K3	PSO 3, PSO 9	G
3	Illustrate different fungal infections and protozoal diseases	K2	PSO 3	G

PG20BS415-MB - CLINICAL MICROBIOLOGY

Course Outcome No.	Upon completion of the course CLINICAL MICROBIOLOGY, the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Summarize the concept of safe microbiology	K2	PSO 3	G
2	Explain the infections of various organs and systems of the human body	K2	PSO 3	G

3	To extend etiology, pathogenesis and laboratory diagnosis of local infections	K2	PSO 3, PSO 9	G
4	Demonstrate and analyse various infections of skin, soft tissue and wound	K2 & K4	PSO 3, PSO 9	G
5	To compare and evaluate serological and molecular diagnostic methods	K2 & k5	PSO 3, PSO 9	G
6	Develop antibacterial therapy and prophylaxis	K3	PSO 3	G

PG20BSP4-MB-Laboratory Course IV

Course Outcome No.	Upon completion of the course <i>LABORATORY COURSE IV</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Describe standard laboratory procedures in clinical microbiology	K1 & K2	PSO 3, PSO 9	G
2	Recognise how to handle and identify medically important bacteria	K2	PSO 3, PSO 9, PSO 13, PSO 14	G
3	Describe how to learn culture, isolate and identify fungi	K1 & K2	PSO 3, PSO 9, PSO 13, PSO 14	G

PSO NO	Upon completion of M Sc Zoology Programme, students will be able to:	PO NO	Relevance to Local/National/Regional/Global developmental needs
PSO-1	Practice scientific creativity and disseminate the knowledge for the benefit of society	1,2,3	L/N/R/G
PSO-2	Plan, execute and appraise high quality research in the pure and applied biological sciences	2,3,5	N/R/G
PSO-3	Develop a sense of responsibility towards environment conservation, sustainable development and pursue lifelong learning.	4,5	L/N/R/G
PSO-4	Experiment and perform conceptual skills in various branches of biological sciences	1,2,3	L/N/R
PSO-5	Identify important problems having biological component, create environmental consciousness among fellow citizens and work towards development of the nation.	3,4,5	L/R/N

4	Describe and demonstrate the procedures of viral cultivation	K2 & K3	PSO 3, PSO 9, PSO 13, PSO 14	G
5	Practice the antimicrobial sensitivity tests	K3	PSO 3, PSO 9	G

Programme outcome of M Sc Zoology

Course Outcome of M Sc Zoology

Course Outcome No.	Upon completion of the course <i>Biosystematics and animal diversity</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global development

					ental needs
CO1	Identify the various taxa of organisms and establish their relationship and to name them	U	F	1,2	L/N/R/G
CO2	Classify organisms and arrange them in hierarchical order	AP	P	1,4	L/N/R/G
CO3	Interpret the ecological role of various organisms in the animal Kingdom	AN	C	2,4	L/N/R/G
CO4	Examine the relationship between abiotic and biotic factors, various biological interaction	E	MC	3,5	L/N/R/G

Course Outcome No.	Upon completion of the course <i>Evolutionary biology and ethology</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
CO1	Define the process and theories in Evolutionary biology	R	F	2,3	L/N/R/G
CO2	Describe the mechanism by which evolution occurs	AP	P	4,5	L/N/R/G
CO3	Analyze the evidence for evolution and its required corollaries	AN	C	1,2	L/N/R/G
CO4	Understand the advances in Ethology and generate an interest in the subject in order to understand the complexities of both animal and human behavior	U	MC	3,4	L/N/R/G

Course Outcome No.	Upon completion of the course <i>Biochemistry</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
CO1	Know the chemical nature of life and life process and demonstrate an understanding of fundamental biochemistry principles	U	F	1,3	L/N/R/G
CO2	Use current biochemical and molecular techniques to plan and carry out	AP	C	2,5	L/N/R/G

	experiments.				
CO3	Investigate new developments in biochemistry	E	P	4,1	L/N/R/G
CO4	Illustrate the relationship of organic compounds and homeostasis in organisms	C	MC	2,3	L/N/R/G

Course Outcome No.	Upon completion of the course <i>Biostatistics, computer application and research methodology</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
CO1	Recall the practices in future for further experiments	R	F	2,4	L/N/R/G
CO2	Identify the processes involved in scientific method and design of experiment	U	C	5,1	L/N/R/G
CO3	Practice analytical and critical thinking through problem solving	AP	P	3,1	L/N/R/G
CO4	Analyze the advantages of using computers in the statistical analysis of data generated by studies and experiments	AN	MC	5,2	L/N/R/G
CO5	Create enthusiasm and awareness about tools, techniques and accessories in biological research	C	P	4,2	L/N/R/G

Course Outcome No.	Upon completion of the course <i>Practical of animal diversity, evolutionary, ethological and biochemical methods and approaches</i> , the students will be able to:		Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
CO1	Identify common animals, the morphology and their importance in the living world	AP	F	2,4	L/N/R/G
CO2	Explain the behavior of experimental animals under various conditions.	R	C	5,1	L/N/R/G
CO3	Demonstrate the evolution and behavior of organisms in different situations.	U	NC	1,3	L/N/R/G
CO4	Record various organic compounds in human blood	C	P	4,3	L/N/R/G
CO5	Predict the possibility of new generation diseases in human.	E	P	5,2	L/N/R/G

CO6	Relate statistical tools in the biological field.	AP	F	1,4	L/N/R/G
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Course Outcome No.	Upon completion of the course <i>Ecology, principles and practices</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
CO1	Identify the rules and acts as a major approach to conservation of environment	AP	F	3,5	L/N/R/G
CO2	Recognize the current environmental issues based on ecological principles	U	P	4,1	L/N/R/G
CO3	Identify the causes and consequences of human interference on environment	R	C	5,2	L/N/R/G
CO4	Practice positive approach towards the conservation of nature and natural resources	AN	MC	3,4	L/N/R/G
CO5	Plan biotechnological method in the cleaning up of environment	E	P	1,2	L/N/R/G

Course Outcome No.	Upon completion of the course <i>Cell and molecular biology</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
CO1	Know the structural and functional details of the basic unit of life	U	F	3,1	L/N/R/G
CO2	Demonstrate the knowledge of common and advanced laboratory practices in cell and molecular biology	AP	P	4,2	L/N/R/G
CO3	Analyze the new developments in molecular biology and its implications in human welfare	AN	C	5,3	L/N/R/G
CO4	Engage in review of scientific literature in the area of biomedical sciences	C	MC	1,4	L/N/R/G

Course Outcome	Upon completion of the course <i>Genetics</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme	Relevance to Local/
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e No.				e Specific Outcome	National/Regional/Global developmental needs
CO1	Describe principles and mechanism of inheritance	R	C	3,5,	L/N/R/G
CO2	Describe applications and techniques of modern genetic technology as well as select the correct techniques to solve genetic problems	AP	F	2,4	L/N/R/G
CO3	Learn the importance of inheritance in man and role of genetic mechanisms in evolution	AN	P	1,3	L/N/R/G
CO4	Understand the nature of heritable traits in families and populations to provide insight in to cellular and molecular mechanisms	U	MC	1,4	L/N/R/G
CO5	Understand how genetic concepts affect broad social issues including health and disease, food and natural resources, environmental sustainability etc.	U	C	3,2	L/N/R/G

Course Outcome No.	Upon completion of the course <i>Biophysics, instrumentation and biological techniques</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
CO1	Learn the biophysical properties and function of life process	U	F	1	L/N/R/G
CO2	Know the techniques available for studying biochemical and biophysical nature of life	R	C	3,4	L/N/R/G
CO3	Recall and relate the concept of radioactivity and its application	AP	P	5,1	L/N/R/G
CO4	Equip the learner to use the tools and techniques for project work/research in biology	C	MC	2,4	L/N/R/G

Course Outcome No.	Upon completion of the course <i>Practical of ecological, molecular, hereditary, Biophysical approaches and biological techniques</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developm
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					ental needs
CO1	Gain experience to develop ecological hypothesis and designing observational and experimental studies in field and laboratory settings.	U	C	2	L/N/R/G
CO2	Analyze interactions within the context of specific habitats and analyze the key factors that influence the habitats	AN	F	1,2	L/N/R/G
CO3	Evaluate the relationships among ecological interactions	E	P	3,4	L/N/R/G
CO4	Acquire deep understanding of Mendelian genetics and its application, population genetics and microbial genetics	R	MC	5,1	L/N/R/G
CO5	Learn about applied genetics and gene mapping methods	R	C	3,5	L/N/R/G
CO6	Acquire exhaustive knowledge on the culture of microbes, application of microbes in industry.	AP	F	2	L/N/R/G

Course Outcome No.	Upon completion of the course <i>Developmental biology</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO1	Describe the basic concepts of process in Developmental biology	U	F	1,3	L/N/R/G
CO2	Illustrate the development process through various model organisms	AP	C	4	L/N/R/G
CO3	Apply the knowledge of new developments in developmental biology for human welfare	AP	P	5,2	L/N/R/G
CO4	Relate the role of developmental genetics in defining biological process	E	MC	3	L/N/R/G

Course Outcome No.	Upon completion of the course <i>Biotechnology and bioinformatics</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
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CO1	Describe the basic concepts of techniques in biotechnology and bioinformatics	U	C	1	L/N/R/G
CO2	Identify the applications of biotechnology in the field of tissue culture, agriculture and industry	R	F	3	L/N/R/G
CO3	Apply the techniques in biotechnology and bioinformatics for environment & human welfare	AP	P	4,5	L/N/R/G
CO4	Differentiate between various biological databases & tool for extracting specific information	AN	MC	2,5	L/N/R/G

Course Outcome No.	Upon completion of the course <i>Advances in animal physiology</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO1	Outline the basic knowledge of human physiology	R	P	1,2	L/N/R/G
CO2	Discuss how separate biological systems interact to yield integrated physiological response	U	C	4	L/N/R/G
CO3	Apply the theoretical models of human physiology to define, solve & evaluate problems	AP	F	5	L/N/R/G
CO4	Compare the functioning of organ systems across the animal world	E	MC	3,4	L/N/R/G

Course Outcome No.	Upon completion of the course <i>Microbiology and immunology</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO1	Define the morphological structure & functional features of microbial world	U	P	4	L/N/R/G
CO2	Identify causative agents of diseases in human and other organisms	R	C	5	L/N/R/G

CO3	Use immunological guidelines in the treatment of diseases	AN	F	2,3	L/N/R/G
CO4	Apply technologies in the identification of malignant disease	AP	MC	1	L/N/R/G

Course Outcome No.	Upon completion of the course <i>Practical of developmental, physiological, microbial, immunological and biotechnological methods</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO1	Describe the morphological and histological studies of mammalian placenta & embryo	U	C	1	L/N/R/G
CO2	Identify different developmental stages in frog and chick	R	F	4,5	L/N/R/G
CO3	Examine the various constituents in human blood	AP	P	3,5	L/N/R/G
CO4	Describe the various aspects in preparation of culture media, culturing & identification of microorganisms	AN	C	2,1	L/N/R/G
CO5	Identify & illustrate various bioinformatics tools for data retrieval	C	MC	3	L/N/R/G
CO6	Demonstrate & practice various immunological techniques	E	C	1,4	L/N/R/G

Course Outcome No.	Upon completion of the course <i>Concepts of environmental science, biodiversity conservation and microbial ecology</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO1	Define & describe the concept of environment and biodiversity conservation.	R	C	1,2	L/N/R/G
CO2	Describe & distinguish the threats of biodiversity & strategies for biodiversity conservation	E	F	3,5	L/N/R/G
CO3	Practice & apply various conservation methods for sustainable development.	E	P	4	L/N/R/G
CO4	Question & criticize the threats to biodiversity	AP	P	2,4	L/N/R/G

Course Outcome No.	Upon completion of the course <i>Environmental pollution and toxicology</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO1	Define, and memorize different types of pollution & sources of pollution.	R	C	1	L/N/R/G
CO2	Explain the impacts of different pollution on human health & environment.	U	F	3,4	L/N/R/G
CO3	Apply different measures to control pollution in the daily life	AP	P	5	L/N/R/G
CO4	Examine different methods for treatment of water & air for quality.	E	MC	2	L/N/R/G

Course Outcome No.	Upon completion of the course <i>Environmental management and climatology</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO1	Describe the basic principles of management of physical, social & economic environment	R	F	2	L/N/R/G
CO2	Discuss the impact of climate change on environment	U	C	1	L/N/R/G
CO3	Practice different management strategies for forest, grassland, wetland, reclaimed land etc.....	AN	P	3,4	L/N/R/G
CO4	Apply different environment programs for the conservation of environment	AP	MC	5	L/N/R/G

Course Outcome No.	Upon completion of the course <i>Practical of environmental science</i> , the students will be able to:	Cognitive level	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO1	Recall & reproduce different soil	R	C	1	L/N/R/G

	parameters commonly used				
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PSO NO	Upon completion of B A Hindi programme , the students will be able to:	PO NO	Relevance to Local/National/ Regional/Global developmental needs		
PSO 1	Communicate effectively with society	1,3,5	L/G/N/R		
PSO 2	Enrich listening, reading, writing, speaking and translation skills	2,4	L/G/N/R		
PSO 3	Appraise the history of Hindi Literature and literary theories	2,5	L/G/N/R		
PSO 4	Analyze and suggest solutions to contemporary political, cultural, environmental and social problems	3,5,6	L/G/N/R		
PSO 5	Attain professional competency for Media and Central Government Services	1,3,4	L/G/N/R		
PSO 6	Develop an aptitude to teach and pursue higher studies.	2,4,6	L/G/N/R		
PSO 7	Demonstrate writing, speaking, reading and listening competence in English.	1,3	L/G/N/R		
CO2	Classify different soil samples according to their texture and pH	U	P	3,4	L/N/R/G
CO3	Illustrate different soil quality analysis test and find out the amount of different minerals present in soil samples	AP	F	5,2	L/N/R/G
CO4	Name and memorize the standards for drinking water	R	MC	4	L/N/R/G
CO5	Illustrate the presence of different toxic chemicals in water	E	C	2,1	L/N/R/G
CO6	Carry out water quality analysis tests and to interpret the data	C	P	3	L/N/R/G

Cognitive Level	R –Remember, U-Understanding, AP-apply, AN-Analyze, E-Evaluative, C-Create
Knowledge Level	F-Factual, C-Conceptual, P-Procedural, MC-Meta cognitive

Programme Specific outcome of B A Hindi

Course Outcome of BA Hindi

Course Outcome No.	Upon completion of the course Prose and One Act Plays , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	To familiarize the students with various trends in Hindi Prose and One act Plays.	K2	1,2	N/R/L
CO 2	To get an awairness of contentent form	K2	2,4	G/N/R/L

	of Hindi One act plays.			
CO 3	To sensitize the student to the aesthetic and cultural aspects of literary appreciation and analysis through Prose and One act plays.	K4, K5	3,4,6	G/N/R/L

Course Outcome No.	Upon completion of the course Methodology and Development of Hindi Language the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Acceptance of the creativity of Hindi Language.	K4	1, 2, 6	G/N/R/L
CO 2	Awareness of the development of Hindi Language in different periods.	K2	2, 3, 4	G/N/R/L
CO 3	Knowing History of literature and its past.	K1,k2	3, 5	G/N/R/L

Course Outcome No.	Upon completion of the course Functional Hindi- Hindi Language - Functional Aspects the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	To understand various forms of Functional Hindi according to its area of application.	K2, K3	2	G/N/R/L
CO 2	To understand the importance of Translation.	K2	3,5	G/N/R/L
CO 3	To familiarize the meaning, expression and the scope of Functional Hindi.	K1	6	G/N/R/L
CO 4	To know the provisions, different acts of regulations and presidential orders passed from time to time in our institutions with regards to Hindi.	K5	1,3,4	L/G/N/R

Course	Upon completion of the course	Knowledge	Mapping to	Relevance
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Outcome No.	Journalism- An Introduction to Journalism the students will be able to:	Knowledge level	Programme Specific Outcome	to Local/ National/ Regional/ Global developmental needs
CO 1	To initiate the feelings of patriotism, truth, non-violence, hard work and self-sufficiency.	K2	1,2	G/N/R/L
CO 2	To uplift the creation of citizens for public service and make the world a peaceful place to live in.	K1, K2	5,6	G/N/R/L
CO 3	To get an idea about technicality of Journalism.	K5	3,4	G/N/R/L
CO 4	To introduce the origin and development of Journalism in India.	K1, K2, K4	4	L/G/N/R
CO 5	To develop the skill of Journalism.	K6	5	L/G/N/R

Course Outcome No.	Upon completion of the course Short Story and Novel , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	To gain knowledge about the relation between the socio cultural conditions of a society and in Hindi Fiction.	K2	PSO 1, 2	N/R/L
CO 2	Develop Competency of Literary forms like short story and novel.	K2	PSO 3, 4	G/N/R/L
CO 3	To give awareness to the students about the role of Hindi Fiction in introducing the different forms of Indian society of Hindi literature.	K1	PSO 6	N/R/L

Course Outcome No.	Upon completion of the course Hindi Grammar and Short Stories , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	To understand the grammar of Hindi and the structure of Hindi Language.	K2	PSO 1, 2	G/N/R/L
CO 2	To know the grammatical rules.	K1, K2, K3	PSO 2,3	G/N/R/L
CO 3	To give awareness to the students about the role of Hindi Fiction in introducing the different forms of Indian society of Hindi literature.	K2	PSO 1, 2, 6	N/R/L
CO 4	To develop their imagination sense and creativity.	K3, K6	PSO 2, 5, 6	L/G/N/R
CO 5	To develop the capacity of creative process and communication skill.	K2, k5, k6	PSO 1,2,4	L/G/N/R

Course Outcome No.	Upon completion of the course Functional Hindi- Administrative Noting and Drafting , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand the two administrative levels – central and state that exist in Indian Democratic Republic.	k2	1,2	N/R/L
CO 2	Awareness of the practical usage of Hindi in offices.	k3	5,6	G/N/R/L
CO 3	Handle Hindi in almost all official fields.	k1	1,2,4	G/N/R/L
CO 4	Familiarize with the secretarial	k2	5,2	L/G/N/R

	practice in Hindi.			
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Course Outcome No.	Upon completion of the course Journalism- Art of Editing , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand the importance of Newspaper	K2, k4	1,2	G/N/R/L
CO 2	Understand the importance of Editing.	K2, k5	5	G/N/R/L
CO 3	Understand the duties and importance of Editorial board.	K1,k4	4,6	G/N/R/L
CO 4	Familiarize to prepare a page in Newspaper	K3,k6	4,5,6	L/G/N/R
CO 5	Aware Press management system.	K2,k5	1,5,6	L/G/N/R
CO 6	Gets an idea of the history and development of press.	K1,k2	1,3	L/G/N/R

Course Outcome No.	Upon completion of the course Poetry, Grammar and Translation the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	To enable the students to explore the	k1,k4	1	G/N/R/L

	beautiful world of imagination.			
CO 2	To create awareness about the human values.	k2,k6	4	G/N/R/L
CO 3	To understand the grammar of Hindi and the structure of Hindi Language.	k1, k2	2,5,6	G/N/R/L
CO 4	To know the grammatical rules.	k3,k5	1,3,6	G/N/R/L
CO 5	To develop the use of language without errors.	k3,k4	2,3,5,6	G/N/R/L
CO 6	To understand the problem of translation in Hindi and English.	k2,k3	2,5,6	G/N/R/L

Course Outcome No.	Upon completion of the course Development of Hindi Literature Upto Ritikal the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	To understand the origin and development of the Ancient Hindi literature and different trends of each period.	k1,k2	1,2,5	G/N/R/L
CO 2	To familiarize with the great poets like, Kabeer, Jayasi, Tulsi, Sur, Bihari, and their thought and Philosophy.	k2,k5	3,4	G/N/R/L
CO 3	To get connected to the history of the language.	k2,k4	2,4,6	G/N/R/L
CO 4	To understand the features of Adikal, Bhaktikal and Ritikal.	k2	1,3	L/G/N/R
CO 5	To understand the context of socio-cultural and political condition of each period.	k4,k5	2,4	L/G/N/R
CO 6	Understand the importance and basics of the names given to each period of Hindi literature.	k2,k4,k5	3,6	L/G/N/R
CO 7	To understand the basics of the classification of Hindi literature.	k1	1,2,3	L/G/N/R

Course	Upon completion of the course	Knowledge	Mapping to	Relevance
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Outcome No.	Functional Hindi- Functional Hindi And Translation the students will be able to:	e level	Programme Specific Outcome	to Local/ National/ Regional/ Global developmental needs
CO 1	To develop communicative skills in Hindi and English through the Translation.	k3,k6	1,2	G/N/R/L
CO 2	To familiarize with the technical terms using in offices.	k2	5,6	G/N/R/L
CO 3	To make the students aware of the, creative and non -creative problems of translation.	k3,k4	2,3	G/N/R/L
CO 4	To understand the qualities of a translator.	k1,k2,k5	4,6	L/G/N/R
CO 5	To familiarize the theory and practice of translation.	k1,k2,k3	2,5,6	L/G/N/R
CO 6	To know the use of translation.	k4,k5,k6	2,5	L/G/N/R

Course Outcome No.	Upon completion of the course Journalism- Journalism, Advertisement and Hindi the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Help to study different aspects of Journalism such as Advertisement and modern communication Media of Journalism.	k2,k4	1,2,5	G/N/R/L
CO 2	To understand the social relevance of journalism and its commitment to the society.	k1,k5	4,6	G/N/R/L
CO 3	Motivate the students closely through mass media for different job opportunities.	k4,k6	4,5	G/N/R/L

Course Outcome No.	Upon completion of the course Drama and Long Poem the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	To appreciate and analyze the dramatic elements in literature.	k2,k4	1,2,3	G/N/R/L
CO 2	To understand the distinct features of Hindi Drama with special reference to 'Konark'	k2	3,4	G/N/R/L
CO 3	To understand the society and its impact on mankind through contemporary Hindi long Poems.	k1,k5	4,6	G/N/R/L
CO 4	To improve the poetic sense in language of the students.	k3,k6	2	L/G/N/R

Course Outcome No.	Upon completion of the course Authentic Study of Ancient Hindi Poetry the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Enable students to understand the literature of Hindi poetry.	k2	2,3	G/N/R/L
CO 2	To understand the ancient poetry, themes, thought and philosophy of ancient poets.	k1,k4	4,6	G/N/R/L
CO 3	To Realize difference between the poetry of different period.	k4,k5	3,6	G/N/R/L
CO 4	To familiarize with the prominent writers in ancient Hindi poetry.	k2, k5	4	L/G/N/R
CO 5	To Introduce the dialects of Ancient Poetry.	k2	2,6	L/G/N/R
CO 6	To understand the ancient period through the help of ancient Hindi	k2, k4, k5	1,2,4	L/G/N/R

	Poetry.			
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Course Outcome No.	Upon completion of the course Functional Hindi and Information Technology the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	To update and expand basic computer skills in Hindi.	K2	1,5	G/N/R/L
CO 2	Understand various forms of Functional Hindi Language related with Internet.	K3	2	G/N/R/L
CO 3	Understand the Functionality of Hindi in social media.	K2,K6	5	G/N/R/L
CO 4	Understand the concept of Information Technology.	K3,K4	5	L/G/N/R
CO 5	Enable the students for the different application of Computer and Information Technology.	K3,K6	6	L/G/N/R

Course Outcome No.	Upon completion of the course Journalism- Journalism and Mass Communication the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Understand various forms of writing in media	K2,K6	2	G/N/R/L
CO 2	Understand the impact of social media on society.	K4,K5	5	G/N/R/L
CO 3	Understand the relation between social media and Journalism.	K4,K5	1	G/N/R/L
CO 4	Help to work in the field of communication.	K3	1,5	L/G/N/R

Course Outcome No.	Upon completion of the course Ecology and Human Rights in Hindi Literature the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Enable the students to understand the world we live, the Ecology, our Human Rights and the literature which emphasizes on human values.	K2	4	G/N/R/L
CO 2	Provide the student with the capacity to identify issues and problems relating with environment and human rights.	K2,K4	4	G/N/R/L
CO 3	Identify and assess primary sources as well scholarly literature about ecology and human rights.	K3	3	G/N/R/L
CO 4	To understand the relation between environment and human beings.	K2,K5	1	L/G/N/R
CO 5	To gain knowledge about the concept of 'Environment' and its role in making human life healthy.	K2	4	L/G/N/R

Course Outcome No.	Upon completion of the course Development of Modern Hindi Literature the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	To aware the modern trends in the Hindi literature.	K2	3,4	G/N/R/L
CO 2	To create interest in the different genres of literature.	K4	2,3	G/N/R/L
CO 3	To understand the modern trends in Hindi literature.	K3	6	G/N/R/L

Course Outcome No.	Upon completion of the course Modern Hindi Fiction the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	To enrich the knowledge of Hindi fiction.	K2	3,4	G/N/R/L
CO 2	To familiarize the culture, theme and form of modern Hindi Fiction.	K2,K4	4	G/N/R/L
CO 3	To guide the students to world of Hindi fiction.	K5	2,6	G/N/R/L
CO 4	To understand the problems facing the society and family.	K4,K5	1,4	L/G/N/R

Course Outcome No.	Upon completion of the course Modern Hindi Poetry the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	To understand the peculiarities of Modern Hindi poetry.	K2	3	G/N/R/L
CO 2	To understand the latest trends prevailing in the Modern Hindi poetry.	K4	6	G/N/R/L
CO 3	To enrich aesthetic sense of modern Hindi poetry.	K1	2,3	G/N/R/L
CO 4	To familiarize with prominent modern poets and poems.	K2	1,6	L/G/N/R

Course Outcome No.	Upon completion of the course Communicative Hindi the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Enable the students to understand language in an eloquent manner.	K2	1.2	G/N/R/L
CO 2	To improve communication skills in Hindi	K2,K3	1,7	G/N/R/L
CO 3	Make the students to improve creative thinking, reading and writing.	K3,K6	2,7	G/N/R/L
CO 4	To develop analytical skills through conversations.	K4	1,2,7	L/G/N/R

Course Outcome No.	Upon completion of the course Literary Criticism the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	To introduce the eastern and Western Criticism	K1,K2	3	G/N/R/L
CO 2	To develop interest in Criticism.	K2	2	G/N/R/L

CO 3	To develop analytical skills through the interpretation of essays.	K4	1	G/N/R/L
CO 4	To understand the theories of Aesthetic pleasure and different schools of Indian Literary theories and thoughts.	K4,K5	3,6	G/N/R/L

Course Outcome No.	Upon completion of the course Feminist Literature in Hindi the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	To understand the development of women's writing in Hindi.	K2	3,6	G/N/R/L
CO 2	To understand the woman issues through the Feminist Literature.	K4	4	G/N/R/L
CO 3	To understand the current issues of women through feminist principles and ideology.	K5	1,4	G/N/R/L
CO 4	Analyse the narrative of male domination by exploring the economic, social, political and psychological features in literature.	K4	3,4,6	L/G/N/R

Course Outcome No.	Upon completion of the course Hindi Language and Literature - Prose the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	Make the students aware of Prose	K2	2,3	G/N/R/L

	literature as a whole.			
CO 2	To appreciate and criticize different forms of Prose.	K5	2,4	G/N/R/L
CO 3	To make the students aware of prose writings of prominent writers.	K2,K4	6	G/N/R/L
CO 4	To create interest with minor prose forms of Hindi.	K6	3	L/G/N/R
CO 5	Make the students aware of Prose literature as a whole.	K2	2,3	L/G/N/R

Course Outcome No.	Upon completion of the course Drama and One Act Plays the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	To appreciate and analyze the dramatic elements in literature.	K4	3,4	G/N/R/L
CO 2	To understand the distinct features of Hindi Drama and One Act Play.	K2	2,6	G/N/R/L
CO 3	To enrich the knowledge of Drama and One Act Play.	K1,K2	6	G/N/R/L

Course Outcome No.	Upon completion of the course Hindi Satire the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	To aware the importance of satire in literature	K2	2,3	G/N/R/L
CO 2	Enable the students to understand the role of satire in Literature.	K2	1,3,4	G/N/R/L
CO 3	Enable to understand the ridicule and	K4	4,6	G/N/R/L
	point out society's flaws through satire.			
CO 4	Intend to inspire and initiate positive changes in social cinereous.	K5	4	L/G/N/R

PSO NO	Upon completion of MSc Biochemistry programme , the students will be able to:	PO NO	Relevance to Local/National/ Regional/Global developmental needs
PSO 1	Analyse the Structure function relationships of biomolecules, interaction between macro molecules and cellular processes at the molecular level.	1,2	L,N,R,G
PSO 2	Apply Tools and techniques used in biological analysis	2	L,N,R, G
PSO 3	Relate the Metabolic ,pathways, Clinical aspects, Bioenergetics and Catalysis.	1,2	L,N,R ,G
PSO 4	Understand the concepts of molecular biology and applications in genetic engineering	1,2	L,N,R ,G
PSO 5	Understand the concepts of microbiology and immunology and their application	1,2	L,N,R ,G
PSO 6	Utilize interdisciplinary knowledge in basic biotechnology and microbiology .	2,3	L,N,R ,G
PSO 7	Awareness of Environmental policies, problems and ethical issues related to Bioscience research.	2,3,4	L,N,R ,G
PSO 8	Apply <u>Research methodology</u> , Promote scientific discoveries	2,3,4,5	L,N,R,G

Course Outcome of MSc BIOCHEMISTRY

PG20BS101- BIOCHEMISTRY SEMESTER - I

Course Outcome No.	Upon completion of the course <i>BIOCHEMISTRY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the basic concepts of biomolecules	K2	PSO 1, PSO 4,	L,N,R,G
2	Analyze the structure – function relationship of biomolecules	K4	PSO 1	L,N,R,G
3	Explain about the interactions between macromolecules	K2	PSO 1	L,N,R,G

PG20BS102 - CELL BIOLOGY AND GENETICS

Course Outcome No.	Upon completion of the course <i>CELL BIOLOGY AND GENETICS</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Explain and Illustrate the various organelles of a cell and its functions	K2	PSO 1	L,N,R,G
2	Demonstrate the different cellular receptors and signal transduction pathways	K3	PSO 1, PSO 3, PSO 4	L,N,R,G
3	Illustrate the etiology of cancer	K2	PSO1,PSO 3, PSO 6	L,N,R ,G
4	Analyze the genetic aspects of inheritance	K4	PSO1, PSO 6	L,N,R, G

PG20BS103 – BIOPHYSICS, BIOINSTRUMENTATION AND BIOINFORMATICS

Course Outcome No.	Upon completion of the course <i>BIOPHYSICS, BIOINSTRUMENTATION AND BIOINFORMATICS</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the biochemical techniques used in research and	K2	PSO2, PSO 8	L,N,R ,G

	industry			
2	Practice experiment with various instruments used in laboratories	K3	PSO2, PSO 8	L,N,R ,G
3	Demonstrate the <i>Insilico</i> tools for biological data analysis	K3	PSO 1, PSO 6,PSO 8	L,N,R ,G
4	Analyze the significance and precautions to be taken during radioactivity experiments	K4	PSO 2,PSO8	L,N,R ,G

PG20BS104 – HUMAN PHYSIOLOGY AND BIOSTATISTICS

Course Outcome No.	Upon completion of the course – <i>HUMAN PHYSIOLOGY AND BIOSTATISTICS</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the tissues and organs of the human body	K2	PSO 1	L,N,R ,G
2	Demonstrate the ability to differentiate physiology from the cellular and molecular level to the organ system	K3	PSO 1	L,N,R ,G
3	Apply physiological and anatomical knowledge to enhance their well-being	K3	PSO 7,PSO8	L,N,R ,G
4	Apply statistics in biological science	K3	PSO2	L,N,R,G

PG20BSP1-BC-LABORATORY COURSE –I

Course Outcome No.	Upon completion of the course <i>LABORATORY COURSE - I</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Experiment with preparation of solutions	K3	PSO 2	L,N,R ,G
2	Analyze unknown samples by systematic analysis	K4	PSO 2, PSO 8	L,N,R ,G
3	Estimate biomolecules from plant and animal sources by selecting appropriate methods	K6	PSO2, PSO 8	L,N,R, G
4	Analyze and evaluate samples present in a mixture, by various separation techniques	K4 & K6	PSO2, PSO 8	L,N,R ,G
5	Demonstrate laboratory experiments in physiology	K3	PSO 1,PSO2	L,N,R ,G
6	Apply bioinformatic tools	K3	PSO 1, PSO2,PSO 4,PSO8	L,N,R ,G
7	Make use of biostatistics to solve problems	K3	PSO2,PSO 8	L,N,R,G

SEMESTER – II

PG20BS205 – MICROBIOLOGY

Course Outcome No.	Upon completion of the course GENERAL <i>MICROBIOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the diversity of microbial world and their interactions with the environment	K2	PSO 5, PSO 6	L,N,R ,G
2	Explain the genetic materials and mechanisms in bacteria and their role in the transmission of genetic characters	K2	PSO 4,PSO6	L,N,R ,G
3	Illustrate the importance of sterilization and disinfection and the methods used in a microbiology laboratory and premises	K2	PSO 2, PSO 7	L,N,R, G
4	Demonstrate microorganisms based on their characteristics	K3	PSO 5, PSO 6	L,N,R ,G

PG20BS206 – IMMUNOLOGY

Course Outcome No.	Upon completion of the course <i>IMMUNOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the cellular and molecular basis of the immune system	K2	PSO 1, PSO 5	L,N,R ,G
2	Demonstrate how the innate and adaptive immune responses coordinate to fight against invading pathogens	K3	PSO 5	L,N,R, G
3	Describe the structure and functions of MHC molecules and Immunoglobulins	K2	PSO 1, PSO 5	L,N,R ,G
4	Explain the complement system, its activation and biological consequences of complement activation	K2	PSO 5	L,N,R ,G
5	Illustrate the use of vaccines and analyze the strategies for future vaccines	K4	PSO 5, PSO 8	L,N,R,G
6	Explain the genetic defects that lead to immunodeficiency diseases and their treatment as well as the current status of gene therapy	K2	PSO 5, PSO 6	L,N,R, G

PG20BS207 – MOLECULAR BIOLOGY AND GENETIC ENGINEERING

Course Outcome No.	Upon completion of the course <i>MOLECULAR BIOLOGY AND GENETIC ENGINEERING</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Explain the various molecular mechanism underlying the transmission of genetic information	K2	PSO1,PSO 4	L,N,R G
2	Illustrate the theoretical aspects of	K2	PSO 4	L,N,R ,G

	rDNA technology and genetic engineering			
3	Apply the different molecular tools and strategies explored in rDNA technology	K3	PSO 5	L,N,R ,G
4	Analyze the outcome of various molecular biology experiments	K4	PSO 5,PSO 6	L,N,R ,G

PG20BS208 – BC -METABOLISM AND BIOENERGETICS

Course Outcome No.	Upon completion of the course <i>METABOLISM AND BIOENERGETICS</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Explain the metabolism of carbohydrates, proteins, lipids and nucleic acids	K2	PSO1,PSO 3	L,N,R ,G
2	Describe the major pathways of intermediary metabolism , their energetics and regulation	K2	PSO 3	L,N,R ,G
3	Relate the metabolic activity of tissues and organs with their function.	K4	PSO 3, PSO8	L,N,R ,G
4	Illustrate Bioenergetics	K2	PSO 3	L,N,R ,G

PG20BSP2-BC - LABORATORY COURSE-II

Course Outcome No.	Upon completion of the course <i>LABORATORY COURSE II</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs

1	Describe good microbiological practices in the laboratory	K2&K3	PSO 2, PSO 5	L,N,R G
2	Illustrate various Culture media and their applications	K2& K3	PSO 2,PSO 5	L,N,R ,G
3	Experiment to perform staining, biochemical and cultural tests to characterize and identify microorganisms	K4	PSO 2,PSO 5, PSO 6	L,N,R G
4	Illustrate the procedures for sterilization, cultivation procedures and enumeration methods of microorganism	K2 & K3	PSO 2,PSO 5	L,N,R G
5	Evaluate immunological experiments	K2 & K6	PSO 2,PSO 5	L,N,R G
6	Apply molecular biology techniques	K2 & K3	PSO 2, PSO 4	L,N,R G
7	Illustrate the techniques involved in the preparation and introduction of rDNA to the host.	K2, K3	,PSO 2,PSO4,PSO6,PSO8	L,N,R G

SEMESTER – III

PG20BS309-BC - ENZYMOLOGY

Course Outcome No.	Upon completion of the course <i>ENZYMOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Describe structure, functions and mechanism of action of enzymes	K2	PSO 1, PSO 3	L,N,R ,G
2	Classify enzymes based on the reactions catalysed.	K2	PSO 3,	L,N,R ,G
3	Relate kinetics, inhibition and regulation of enzyme catalysed reactions	K4	PSO1, PSO 3,PSO 8	L,N,R ,G

PG20BS310-BC – PLANT BIOCHEMISTRY

Course Outcome No.	Upon completion of the course <i>PLANT BIOCHEMISTRY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Outline photosynthesis and photorespiration	K1	PSO 1, PSO 3	L,N,R ,G
2	Describe various plant hormones and its applications in agriculture.	K2	PSO 1, PSO 8	L,N,R ,G
3	Demonstrate the use of plant lectins in the purification of glycans	K3	PSO 8	L,N,R ,G
4	Illustrate how plants survive stress conditions and climate change.	K2	PSO 3, PSO 7	L,N,R ,G

5	Evaluate the various phytoconstituents and their application in drug development	K6	PSO2,PSO 8	L,N,R,G
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PG20BS311-BC MOLECULAR ENDOCRINOLOGY

Course Outcome No.	Upon completion of the course <i>MOLECULAR ENDOCRINOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Outline the various hormones produced by human body	K1	PSO 1	L,N,R,G
2	Describe the different cellular signals and regulation of metabolic activities.	K2	PSO1, PSO 3	L,N,R,G
3	Explain the mechanism of action of various hormones and discuss different types of hormone receptors	K2	PSO 1, PSO 3	L,N,R,G
4	Discuss the biosynthesis and degradation of hormones	K2	PSO 3	L,N,R,G
5	Analyze the mechanism of hormonal control in various diseases.	K4	PSO 3, PSO 8	L,N,R,G

PG20SBC312-BC – NEUROBIOLOGY

Course Outcome No.	Upon completion of the course <i>NEUROBIOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
1	Describe neurons and their functions	K1	PSO 1	L,N,R G
2	Recognise the role of neurotransmitters in health and disease.	K2	PSO 1, PSO 3	L,N,R G
3	Illustrate various neurodegenerative diseases	K2	PSO 1, PSO 3	L,N,R G
4	Discuss different types of learning and memory systems	K2	PSO 1, PSO 3, PSO 8	L,N,R,G

PG20BSP3-BC-LABORATORY COURSE III

Course Outcome No.	Upon completion of the course <i>LABORATORY COURSE III</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
1	Apply protein purification techniques	K3,K6	PSO 2, PSO 8	L,N,R G
2	Estimate biomolecules from plant and animal sources by	K3	PSO 2, PSO 8	L,N,R ,G

	selecting appropriate methods			
3	Analyze kinetic parameters of enzymes	K4	PSO 1, PSO 2	L,N,R G
4	Illustrate the techniques involved in the isolation and analysis of phytopharmaceuticals	K3	PSO2,PSO8	L,N,R G

SEMESTER – IV

PG20BS413-BC CLINICAL BIOCHEMISTRY

Course Outcome No.	Upon completion of the course <i>CLINICAL BIOCHEMISTRY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Describe various inborn errors of metabolism	K2	PSO 3	L,N,R ,G
2	Illustrate the importance of quality control in clinical laboratories.	K2	PSO 2, PSO 3	L,N,R ,G
3	Analyse, and interpret the common result patterns in routine clinical biochemistry.	K4	PSO 2, PSO 3, PSO8	L,N,R, G
4	Discuss the various molecular markers in the diagnosis of diseases	K2	PSO 3,PSO8	L,N,R,G

PG20BS414-BC ENVIRONMENTAL SCIENCES

Course Outcome No.	Upon completion of the course <i>ENVIRONMENTAL SCIENCES</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Describe the ecological homeostasis	K2	PSO 7	L,N,R,G
2	Analyse and examine current threats to the environment by pollution and the technological solutions leading to sustainable environment	K4	PSO 7, PSO 8	L,N,R,G
3	Recognise environmental policies .	K2	PSO 7	L,N,R,G

PG20BS415-BC-PLANT AND ANIMAL TISSUE CULTURE

Course Outcome No.	Upon completion of the course <i>PLANT AND ANIMAL TISSUE CULTURE</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Describe the basics of Plant and animal cell culture	K2	PSO 6	L,N,R ,G
2	Describe the sources, selection, potential and challenges of using stem cells for tissue engineering.	K2	PSO 2,PSO6	L,N,R ,G
3	Identify the key challenges in gene editing technology	K2	PSO 2, PSO 4,PSO 6,PSO8	L,N,R ,G
4	Demonstrate different techniques to produce novel and hybrid plants	K3	PSO 2, PSO 4,PSO6,PS	L,N,R,G

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PSO NO	Upon completion of MSc Biotechnology programme , the students will be able to:	PO NO	Relevance to Local/National/ Regional/Global developmental needs	
PSO 1	Analyse the Structure function relationships of biomolecules, interaction between macro molecules and cellular processes at the molecular level.	1,2	N/G	
PSO 2	Apply Tools and techniques used in biological analysis	1,2	N/G	

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LABORATORY COURSE –IV

Course Outcome No.	Upon completion of the course <i>LABORATORY COURSE IV</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional / Global developmental needs
1	Estimate clinically relevant biomolecules from animal sources by selecting appropriate methods	K3,K6	PSO 2 , PSO 8	L,N,R G
2	Analyze parameters related to soil and water quality	K4	PSO 2,PSO7	L,N,R ,G
3	Apply the procedures for sterilization for plant tissue culture	K3	PSO 2, PSO 6	L,N,R G
4	Illustrate the different techniques involved in plant tissue culture	K3	PSO2,PS O6	L,N,R G

PSO 3	Relate the Metabolic pathways, Clinical aspects, Bioenergetics and Catalysis.	1, 2, 5	N/G
PSO 4	Understand the concepts of molecular biology and applications in genetic engineering	1, 2, 4, 6	N/G
PSO 5	Understand the concepts of microbiology and immunology and their application	1, 2	N/G
PSO 6	Students will be able to conduct experiments, analyse and interpret for various problems in the field of Biotechnology and its allied fields	1, 3, 5, 6	N/G
PSO 7	Awareness of Environmental policies, problems and ethical issues related to Bioscience research.	1, 4	N/G

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Course Outcome of MSc BIOTECHNOLOGY

SEMESTER - I

PG20BS101- BIOCHEMISTRY

Course Outcome No.	Upon completion of the course <i>BIOCHEMISTRY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the basic concepts of biomolecules	K2	PSO 1, PSO 4,	N/G
2	Analyze the structure – function relationship of biomolecules	K4	PSO 1	N/G
3	Explain about the interactions between macromolecules	K2	PSO 1	N/G

PG20BS102 - CELL BIOLOGY AND GENETICS

Course Outcome No.	Upon completion of the course <i>CELL BIOLOGY AND GENETICS</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the various organelles of a cell and its functions	K2	PSO 1, PSO 4	N/G
2	Know about the different cellular receptors and signal transduction pathways	K3	PSO 1, PSO 3, PSO 4	N/G
3	Understand the etiology of cancer	K2	PSO 4, PSO 5	N/G

4	Understand fundamental principles of heredity and deviations from mendelian behavior. AnalyzeThe effect of mutations and mutational analysis.	K2, K4	PSO 6	N/G
5	Understand the principles of behavioural and population genetics.	K2	PSO 6	N/G

PG20BS103-BT - INSTRUMENTATION AND BIOSTATISTICS

Course Outcome No.	Upon completion of the course <i>INSTRUMENTATION AND BIOSTATISTICS</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the techniques used in the visualization of cellular components and macromolecules.	K2	PSO 2	N/G
2	Analytical techniques used in detection and quantification of biological compounds and the separation techniques used in biology.	K5	PSO 2, PSO 4	N/G
3	The application of statistical principles in biological studies.	K3	PSO 6	N/G
4	The research methodology and documentation.	K2	PSO 8	N/G

PG20BS104-BT – BIOPHYSICS AND BIOINFORMATICS

Course Outcome No.	Upon completion of the course – <i>BIOPHYSICS AND BIOINFORMATICS</i> the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs

1	Understand the bioenergetics of cell and the basic architecture of macromolecules.	K2	PSO 1, PSO 4	N/G
2	Analyse the interaction between macromolecules.	K4	PSO 1	N/G
3	Evaluate the role of bioinformatics in biological data storage.	K5	PSO 6	N/G
4	The applications of bioinformatic tools in analysing biological data.	K3	PSO 6	N/G

PG20BSP1-BT-LABORATORY COURSE –I

Course Outcome No.	Upon completion of the course <i>LABORATORY COURSE - I</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the basic principles of preparation of solutions.	K2	PSO 2	N/G
2	Analyse and purify the biological compounds.	K4	PSO 1, PSO 2, PSO 6	N/G
3	The applications of bioinformatic tools in analysing biological data.	K3	PSO 6, PSO 8	N/G

SEMESTER – II

PG20BS205 - MICROBIOLOGY

Course Outcome No.	Upon completion of the course <i>MICROBIOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs

				needs
1	Illustrate the diversity of microbial world and their interactions with the environment.	K2	PSO 5	N/G
2	Cultivation and identification of microorganisms	K5	PSO 5	N/G
3	Explain the genetic materials and mechanisms in bacteria and their role in the transmission of genetic characters	K2	PSO 5	N/G
4	Tools and techniques used in microbiology.	K3	PSO 2, PSO 5	N/G
5	Microbial metabolism and molecular processes..	K2	PSO 3, PSO 5	N/G

PG20BS206 – IMMUNOLOGY

Course Outcome No.	Upon completion of the course <i>IMMUNOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Illustrate the cellular and molecular basis of the immune system	K2	PSO 1, PSO 5	N/G
2	Demonstrate the adaptive immune responses coordinate to fight against invading pathogens	K3	PSO 5	N/G
3	Describe the structure and functions of MHC molecules and Immunoglobulins	K2	PSO 1, PSO 5	N/G
4	Explain the complement system, its activation and biological consequences of complement activation	K1 & K2	PSO 5	N/G

5	Illustrate the use of vaccines and analyze the strategies for future vaccines	K2 & K4	PSO 5, PSO 9	N/G
6	Explain the genetic defects that lead to immunodeficiency diseases and their treatment as well as the current status of gene therapy	K2	PSO 5, PSO 6	N/G

PG20BS207-BT – MOLECULAR BIOLOGY

Course Outcome No.	Upon completion of the course <i>MOLECULAR BIOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the structural and functional organization of genome.	K2	PSO 1, PSO 4	N/G
2	Describe the molecular phenomena of DNA copying and transmission of information.	K3	PSO 4	N/G
3	The regulation of gene function and associated phenomena.	K2	PSO 1, PSO 4	N/G

PG20BS208 – ENZYMOLOGY AND METABOLISM

Course Outcome No.	Upon completion of the course <i>ENZYMOLOGY AND METABOLISM</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs

1	Explain the metabolism of carbohydrates, proteins, lipids and nucleic acids	K2	PSO 3	N/G
2	Illustrate the structure, functions and mechanism of action of enzymes	K2	PSO 3	N/G
3	Demonstrate the classification of enzymes based on the reactions catalysed	K3	PSO 3	N/G
4	Explain the kinetics of enzyme catalysed reactions and enzyme inhibitory and regulatory processes	K2	PSO 3, PSO 6	N/G

PG20BSP2-BT - LABORATORY COURSE-II

Course Outcome No.	Upon completion of the course <i>LABORATORY COURSE II</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the cultivation, observation and identification of microorganisms	K2	PSO 2, PSO 5, PSO 6	N/G
2	Learn to design various immunological experiments	K2	PSO 5, PSO 6	N/G
3	Understand the detection of compounds of interest in biological samples	K3	PSO 2, PSO 5, PSO 6	N/G

SEMESTER – III

PG20BT309-BT BIOPROCESS TECHNOLOGY

Course Outcome No.	Upon completion of the course <i>BIOPROCESS TECHNOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Explain the Screening for microbial strains from different samples	K2	PSO 2, PSO 5	N/G
2	Illustrate the Types of Bioprocess and standard lab practices	K2	PSO 5, PSO 9	N/G
3	Demonstrate the Bioreactor designing and control	K3	PSO 2, PSO 5	N/G
4	Explain the Industrial production conditions through fermentation	K2	PSO 6, PSO 9	N/G

PG20BS310-BT RECOMBINANT DNA TECHNOLOGY

Course Outcome No.	Upon completion of the course <i>RECOMBINANT DNA TECHNOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Explain the basic requirements to perform genetic engineering experiments.	K2	PSO 2, PSO 4	N/G
2	Illustrate the techniques involved in the preparation and introduction of rDNA to the host.	K2	PSO 4, PSO 9	N/G
3	Regulations in carrying out rDNA experiments	K3	PSO 7	N/G
4	Explain the applications of rDNA	K2	PSO 8, PSO 9	N/G

	technology			
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PG20BS311-BT ENVIRONMENTAL BIOTECHNOLOGY

Course Outcome No.	Upon completion of the course <i>ENVIRONMENTAL BIOTECHNOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the role of biotechnology in environmental applications.	K2	PSO 6, PSO 7	N/G
2	Illustrate the degradation of recalcitrant compounds by biological agents	K2	PSO 7	N/G
3	Demonstrate the treatment technologies involved in the processing of solid and liquid waste.	K3	PSO 7	N/G
4	Explain the Alternate green energy sources and green technologies.	K2	PSO 7, PSO 9	N/G

PG20BS312-BT PLANT AND ANIMAL BIOTECHNOLOGY

Course Outcome No.	Upon completion of the course <i>PLANT AND ANIMAL BIOTECHNOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the fundamental requirements and design of lab to carry out plant and animal cell culture experiments	K2	PSO 6, PSO 9	N/G
2	Illustrate the approaches and techniques involved in creating recombinant plant and animals.	K2	PSO 4, PSO 9	N/G
3	Demonstrate the applications and demerits of genetic modification in plants and animals.	K3	PSO 4, PSO 7, PSO 9	N/G

PG20BSP3-BT LABORATORY COURSE III

Course Outcome No.	Upon completion of the course <i>LABORATORY COURSE III</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs

				needs
1	Understand the fundamentals of plant tissue culture	K2	PSO 2, PSO 6	N/G
2	Illustrate the approaches and techniques in bioprocess technologies	K2	PSO 6	N/G
3	Understand the various procedures in waste water treatment plants	K3	PSO 6, PSO 9	N/G

SEMESTER – IV

PG20BSP4-BT Laboratory Course IV

Course Outcome No.	Upon completion of the course <i>LABORATORY COURSE IV</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the fundamentals molecular biology techniques	K2	PSO 2, PSO 4, PSO 6	N/G
2	Illustrate the approaches and techniques in rDNA technology	K2	PSO 4, PSO 6	N/G
3	Understand the various procedures in Biotech industries and research	K3	PSO 6, PSO 9	N/G

	industries			
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PG20BS413-BT ADVANCED MOLECULAR TECHNIQUES

Course Outcome No.	Upon completion of the course <i>ADVANCED MOLECULAR TECHNIQUES</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs
1	Summarize the different DNA extraction and visualization methods	K5	PSO 2	N/G
2	Illustrate different PCR techniques for various analysis	K3	PSO 2	N/G
3	Illustrate various DNA sequencing methods	K2	PSO 2, PSO 4	N/G
4	Demonstrate various applications of DNA analysis in Forensic and diagnostic areas	K3	PSO 2	N/G

PG20BS414-BT MOLECULAR BIOLOGY OF DEVELOPMENT

Course Outcome No.	Upon completion of the course <i>MOLECULAR BIOLOGY OF DEVELOPMENT</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/National/Regional/Global developmental needs

1	Summarize the cellular processes leading to organogenesis and development.	K5	PSO 4	N/G
2	Illustrate the Significance of molecular patterns and molecular mechanisms of development in plants and animals	K3	PSO 4, PSO 6	N/G
3	Illustrate the Basic mechanism of senescence and cell death.	K2	PSO 4	N/G

PG20BS415-BT CANCER BIOLOGY

Course Outcome No.	Upon completion of the course <i>CANCER BIOLOGY</i> , the students will be able to:	Knowledge level	Mapping to Programme Specific Outcome	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the basic aspects of cancer pathology	K5	PSO 5	N/G
2	Illustrate the mechanisms of Carcinogenesis and metastasis.	K3	PSO 5	N/G
3	Illustrate the diagnostic techniques and treatment approaches.	K2	PSO 2, PSO 5, PSO 6	N/G

Programme Specific Outcomes:

Upon completion of the M.Sc. Biotechnology Programme, the students will be able to:

PSO 1	Analyse the Structure function relationships of biomolecules, interaction between macro molecules and cellular processes at the molecular level.	PO.1,2
PSO 2	Apply Tools and techniques used in biological analysis	PO 2
PSO 3	Relate the Metabolic pathways, Clinical aspects, Bioenergetics and Catalysis.	PO 1,2
PSO 4	Understand the concepts of molecular biology and applications in genetic engineering	PO 1,2
PSO 5	Understand the concepts of microbiology and immunology and their application	PO 1,2
PSO 6	Students will be able to conduct experiments, analyse and interpret for various problems in the field of Biotechnology and its allied fields	PO 2,5
PSO 7	Awareness of Environmental policies, problems and ethical issues related to Bioscience research.	PO 2,3 4
PSO 8	Apply Research methodology, Promote scientific discoveries	PO 2,3,4
PSO 9	Students can go for Higher studies, can become Production officers or technical assistants in various Biotech companies, can start entrepreneurship ventures like training centres, consultancy, and they also have got ample opportunities in academics.	PO 3,4,5

UNDER GRADUATE PROGRAMME OUTCOME

PO No.	Upon completion of undergraduate programme, the students will be able to:
PO-1	Apply and innovate
PO-2	Achieve a desire for higher learning
PO-3	Work as a team with enhanced communication and coordination skills
PO-4	Attain skills for employment and entrepreneurship
PO-5	Acquire awareness on socio-cultural and environmental issues
PO-6	Develop a sense of ethics, self-discipline and sustainability

B.Sc. BOTANY PROGRAMME

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO No.	Upon Completion of B.Sc. Botany Programme, the students will be able to	PO No.	Relevance to Local/National/ Regional/Global developmental needs
PSO-1	Identify, differentiate and appraise the diversity and beauty of flora and fauna.	1,3,5	G/N/R/L
PSO-2	Demonstrate writing, speaking, reading and listening competence in two languages.	3,4	G/N/R/L
PSO-3	Apply concepts of Chemistry and Zoology relevant to plant science.	1,2,4	G/N/R/L
PSO-4	Acquire proficiency to use biological instruments and apply practical skills in the field.	1,4	G/N/R/L
PSO-5	Apply methodologies and techniques to explore plant and animal life comprehensively.	1,2,4	G/N/R/L
PSO-6	Integrate the knowledge acquired to preserve natural resources and lead an environmental friendly life.	5,6	G/N/R/L
PSO-7	Develop knowledge about environmental laws and human rights.	2,5,6	G/N/R/L

SEMESTER 1**Core course 1****Code: UG21BO1CR01****METHODOLOGY OF SCIENCE AND AN INTRODUCTION TO BOTANY**

CO No.	EXPECTED COURSE OUTCOME Upon completion of this course, the students will be able to	COGNITIV E LEVEL	PSO No	Relevance to Local/National/ Regional/Global developmental needs
1	Appraise the universal nature of science.	K5	1	G/N/R/L
2	Explain different types of classifications in living kingdom.	K2	5	R/L
3	Appraise the world of organisms and its course of evolution and diversity.	K4	1	G/N/R/L
4	Develop basic botanical skills like microscopy and specimen preparation.	K6	4	R/L
5	Summarize basic concepts in Botany.	K2	2	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

SEMESTER 2
MICROBIOLOGY, MYCOLOGY AND PLANT PATHOLOGY

CO No.	EXPECTED COURSE OUTCOME Upon completion of this course, the students will be able to	COGNITIVE LEVEL	PSO No	Relevance to Local/National/Regional/Global developmental needs
1	Compare different microbes, fungi and lichens.	K4	1,2	N/R/L
2	Appraise the adaptive strategies of the microbes, fungi and lichens.	K5	5	N/R/L
3	Analyze the economic and pathological importance of microorganisms.	K4	1,5	G/N/R/L
4	Explain ecological and economic significance of Lichens.	K2	1,2,5	G/N/R/L
5	Identify selected plant diseases and analyze control measures.	K4	5	N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

SEMESTER 3

Core course 3

Code: UG21BO3CR03

PHYCOLOGY AND BRYOLOGY (Theory 54 hrs; Practical 36 hrs; Credits 3 + 1)

CO No.	Expected Course Outcomes Upon completion of this course, the students will be able to	Cognitive level	PSO No	Relevance to Local/National/Regional/Global developmental needs
1	Assess the general characters of algae and bryophytes	K5	1,5	N/R/L
2	Explain the structure and reproduction of algae and identify the types studied.	K2	1,2	N/R/L
3	Compare the structure, lifecycle and evolution of bryophytes and identify the types studied.	K2 K4	1,2,5	N/R/L
4	Analyse the application of Phycology and Bryology in different fields.	K4 K3	4,6	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

SEMESTER 4

Core course 4

Code: UG21BO4CR04

PTERIDOLOGY, GYMNOSPERMS AND PALEOBOTANY

CO No.	Expected Course Outcomes Upon completion of this course, the students will be able to	Cognitive level	PSO No	Relevance to Local/National/Regional/Global developmental needs
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1	Compare general characters of Pteridophytes and Gymnosperms	K2 K4	1,5	N/R/L
2	Explain the morphology, structure and lifecycle and identify the types mentioned in the course.	K2 K1	1,2	N/R/L
3	Analyze the economic importance of Pteridophytes and Gymnosperms.	K4 K5	5,6	G/N/R/L
4	Explain the types of fossils and process of fossilization	K2	5	N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

SEMESTER 5

Core course 5

Code: UG21BO5CR05

ANATOMY, REPRODUCTIVE BOTANY AND MICROTECHNIQUE

CO No.	EXPECTED COURSE OUTCOME Upon completion of this course, the students will be able to	COGNITIVE LEVEL	PSO No	Relevance to Local/National/Regional/Global developmental needs
1	Illustrate the mechanism of reproduction of angiosperms.	K2	2,5	N/R/L
2	Explain the structure and function of cells and tissues.	K2	2, 5	N/R/L
3	Compare the structure of root, stem and leaves.	K2	1,2	N/R/L
4	Analyse the structural adaptations in plants growing in different environments.	K4	5	G/N/R/L
5	Apply the techniques used to preserve and study plant materials.	K3	6	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

Core course 6

Code: UG21BO5CR06

RESEARCH METHODOLOGY, BIOPHYSICS AND BIOSTATISTICS

CO No.	EXPECTED COURSE OUTCOME Upon completion of this course, the students will be able to	COGNITIVE LEVEL	PSO No	Relevance to Local/National/Regional/Global developmental needs
1	Explain different tools and techniques used in plant science research.	K2	2,4	G/N/R/L
2	Explain the principle and applications of analytical instruments.	K2	2,4	G/N/R/L
3	Apply basic statistical skills in research.	K3	5	G/N/R/L
4	Develop basic computer skills necessary for conducting research and apply them for preparation of research reports.	K3, K6	2,5	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying;				

K4-Analyzing; K5-Evaluating; K6-Creating.

Core course 7

Code: UG21BO5CR07

PLANT PHYSIOLOGY AND BIOCHEMISTRY

CO No.	EXPECTED COURSE OUTCOME Upon completion of this course, the students will be able to	COGNITIVE LEVEL	PSO No	Relevance to Local/National/Regional/Global developmental needs
1	Explain the various physiological phenomena in plants.	K2	2,5	G/N/R/L
2	Identify the basic concepts and techniques in plant physiology.	K3	4	G/N/R/L
3	Appraise the role of enzymes in plant life.	K5	1	G/N/R/L
4	Assess the role, structure and importance of biomolecules associated with plant life.	K5	1,5	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

Core course 8

Code: UG21BO5CR08

ENVIRONMENTAL SCIENCE AND HUMAN RIGHTS

CO No.	EXPECTED COURSE OUTCOME Upon completion of this course, the students will be able to	COGNITIVE LEVEL	PSO No	Relevance to Local/National/Regional/Global developmental needs
1	Analyse the structure and function of the ecosystems.	K4	5	G/N/R/L
2	Discuss major environmental problems and its causes and suggest control measures.	K2, K6	2, 5, 6	G/N/R/L
3	Create awareness about the extent of the total biodiversity, its loss and need of conservation.	K6	6,7	G/N/R/L
4	Analyse national and international human rights.	K4	7	G/N/R/L
5	Appraise various environmental laws and human rights in India.	K5	7	N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

Open course

Code: UG21BO5OP01

HORTICULTURE AND NURSERY MANAGEMENT

CO No.	EXPECTED COURSE OUTCOME Upon completion of this course, the students will be able to	COGNITIVE LEVEL	PSO No	Relevance to Local/National/Regional/Global developmental needs
1	Analyse the importance of horticulture	K2	1	N/R/L

	in human welfare.			
2	Choose methods for preserving fruits and vegetables	K3	4	N/R/L
3	Analyse the advantages and disadvantages of various propagation techniques.	K4	5	N/R/L
4	Assess the basic concepts and develop interest in landscaping and garden designing.	K5	4,6	G/N/R/L
5	Develop interest in floriculture, olericulture, pomology and nursery management.	K6	4,5	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

SEMESTER 6

Core course 9

Code: UG21BO6CR09

GENETICS, PLANT BREEDING AND HORTICULTURE

CO No.	Expected Course Outcome Upon completion of this course, the students will be able to	Cognitive Level	PSO No	Relevance to Local/National/Regional/Global developmental needs
1	Explain the principles of heredity and pattern of inheritance	K2	2,5	N/R/L
2	Analyse gene interactions, multiple allelism, linkage and its significance.	K4	4,5	N/R/L
3	Explain the mechanism of sex determination	K2	5	N/R/L
4	Compare breeding techniques and their applications.	K2	4	G/N/R/L
5	Illustrate vegetative propagation techniques.	K2	4	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

Core course 10

Code: UG21BO6CR10

CELL AND MOLECULAR BIOLOGY

CO No.	Expected Course Outcome Upon completion of this course, the students will be able to	Cognitive Level	PSO No	Relevance to Local/National/Regional/Global developmental needs
1	Analyse the structure and function of cell and its components.	K4	1,4	G/N/R/L
2	Explain the mechanism of cell division.	K2	4	G/N/R/L
3	Analyse the consequence of ploidy and chromosomal aberrations.	K4	4	G/N/R/L
4	Explain mutation, its causes and significance.	K2	3,5	G/N/R/L
5	Understand the mechanism of gene regulation and expression.	K2	4	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying;				

K4-Analyzing; K5-Evaluating; K6-Creating.

Core course 11 **Code: UG21BO6CR11**
ANGIOSPERM MORPHOLOGY, TAXONOMY AND ECONOMIC BOTANY

CO No.	Expected Course Outcome Upon completion of this course, the students will be able to	Cognitive Level	PSO No	Relevance to Local/National/Regional/Global developmental needs
1	Acquaint with aims, objectives and significance of taxonomy.	K2	1	N/R/L
2	Categorize plants to their respective families on the basis of vegetative and floral characters.	K3	1,5	G/N/R/L
3	Outline nomenclature and classification and apply preservation techniques.	K2, K3	4,5	G/N/R/L
4	Evaluate the economic and ethnobotanical importance of plants.	K5	5	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

Core course 12

Code: UG21BO6CR12

BIOTECHNOLOGY AND BIOINFORMATICS

CO No.	Expected Course Outcome Upon completion of this course, the students will be able to	Cognitive Level	PSO No	Relevance to Local/National/Regional/Global developmental needs
1	Explain with latest developments in the field of Biotechnology and Bioinformatics.	K2	3,4	N/R/L
2	Appraise the technique of tissue culture, its applications and limitations.	K2, K3	4,5	G/N/R/L
3	Analyse the biological data available in the databases.	K4	5	G/N/R/L
4	Utilize sequence analysis and molecular phylogeny tools.	K2	5	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

Programme elective course

Code: UG21BO6CB01

PHYTOCHEMISTRY AND PHARMACOGNOSY

CO No.	Expected Course Outcome Upon completion of this course, the students will be able to	Cognitive Level	PSO No	Relevance to Local/National/Regional/Global
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				developmental needs
1	Compare the extraction and separation techniques used in phytochemistry.	K2	3,4	N/R/L
2	Explain the structure and function of basic secondary metabolites in medicinal plants.	K2	3,4,5	G/N/R/L
3	Analyse organoleptic, anatomical and chemical characters of plant parts.	K4	3,4	G/N/R/L
4	Apply microscopy and phytochemical methods to identify plants from their adulterants	K2	4,5	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.				

MAR ATHANASIOUS COLLEGE (AUTONOMOUS), KOTHAMANGALAM
DEPARTMENT OF MATHEMATICS
B.Sc. MATHEMATICS PROGRAMME

PROGRAMME OUTCOME

PO No.	Upon completion of undergraduate programme, the students:
PO-1	Understand the discipline at both theoretical and application levels
PO-2	Achieve an aim to expand their studies in the discipline at higher level.
PO-3	Work as a team with enhanced communication and coordination skills
PO-4	Attain skills for employment in their programme related professions.
PO-5	Acquire awareness on socio-cultural and environmental issues.
PO-6	Develop entrepreneurship and leadership abilities.
PO-7	Inculcate a sense of ethics, discipline, time management, emotional intelligence and self-awareness
PO-8	Expand the mindset to pursue lifelong learning.

PROGRAMME SPECIFIC OUTCOME

PSO No.	Upon completion of B.Sc. Mathematics programme, the students:	PO No.	Relevance to Local / National /Regional/ Global developmental needs
PSO-1	Acquire a comprehensive knowledge and understanding of the fundamental concepts and theories of mathematics.	1, 2, 8	L/N/R/G
PSO-2	Become skillful in logical thinking, problem solving and reasoning.	1, 2, 8	L/N/R/G
PSO-3	Learn mathematics as a tool for analysing various scientific and physical problems	1, 2, 4	L/N/R/G
PSO-4	Gain a thorough understanding of the fundamentals of statistical methods and techniques	1, 2, 4	L/N/R/G
PSO-5	Acquire awareness on environmental issues and human rights.	5	L/N/R/G
PSO-6	Develop analytical skills via group projects, seminar presentation and viva voce sessions	3, 6, 7	L/N/R/G
PSO-7	Develop a sense of inquiry and capability for asking relevant/ appropriate questions, problematizing, synthesising and articulating through research projects.	3, 7	L/N/R/G
PSO-8	Accrue mathematical aptitude to qualify competitive examinations and to pursue higher studies in Mathematics and related fields.	1, 2, 8	L/N/R/G
PSO-9	Attain skills for employment in their programme related professions.	4	L/N/R/G
PSO-10	Recognize the need of self-learning and life-long learning	1, 2, 8	L/N/R/G

Semester I

FOUNDATIONS OF MATHEMATICS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global
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			developmental needs
1	Explain logical expressions and understand proofs as formal logical process.	K2	L/N/R/G
2	Construct simple proofs.	K3, K5	N/R/G
3	Describe basic mathematical objects such as sets, functions and relations.	K1	N/R/G
4	Use computational and algebraic skills to calculate rank, eigen values and eigen vectors of a matrix.	K3, K5	N/R/G
5	Solve simultaneous linear equations using matrices.	K3, K5	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.			

COMPLEMENTARY COURSE TO PHYSICS/CHEMISTRY

PARTIAL DIFFERENTIATION, MATRICES, TRIGONOMETRY AND NUMERICAL METHODS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Describe the concept of partial differentiation and learn to find the partial derivatives.	K1,K2	L/N/R/G
2	Use computational and algebraic skills to calculate rank, eigen values and eigen vectors of a matrix.	K3, K5	N/R/G
3	construct and solve algebraic equations using numerical techniques	K3, K5,K6	N/R/G
4	Apply and construct proofs for trigonometric identities	K3, K5,K6	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.			

COMPLEMENTARY COURSE TO STATISTICS

DIFFERENTIAL CALCULUS, LOGIC AND BOOLEAN ALGEBRA

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Express and evaluate the different ideas in differential calculus	K2, K4, K5	L/N/R/G
2	Memorize and apply the important theorems of differential calculus	K1, K3	N/R/G
3	Define and evaluate the different partial derivatives of multivariable functions	K1, K2	N/R/G
4	Illustrate the importance of different logical operations	K2, K3	N/R/G
5	Construct truth tables and switching circuits	K3, K6	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.			

Semester II

ANALYTIC GEOMETRY, TRIGONOMETRY AND PARTIAL DIFFERENTIATION

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Visualize and identify a conic as sections of a cone	K1, K2	L/N/R/G
2	construct geometric objects like tangents and normals related to different conic sections	K3, K6	N/R/G
3	Discover the polar equations of different conic sections	K2, K3	N/R/G
4	Express the circular and hyperbolic functions of a complex variable and determine the sum of infinite series using $C+iS$ method.	K2, K3	N/R/G
5	Explain the basic concepts of partial derivatives.	K2, K3, K4	N/R/G

6	Determine and analyse stationary points to find the extreme values	K3, K4	N/R/G
7	Solve the multi constraint extreme value problems using Lagrange multipliers	K3, K5	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.			

COMPLEMENTARY COURSE TO PHYSICS/CHEMISTRY

INTEGRAL CALCULUS AND DIFFERENTIAL EQUATIONS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Define and associate various geometric measures to integrals.	K1, K2	L/N/R/G
2	Construct and evaluate multiple integrals	K3, K4, K5, K6	N/R/G
3	Categorise differential equations and use the best techniques to solve them.	K3, K4, K6	N/R/G
4	Formulate partial differential equations using two different methods	K6	N/R/G
5	Solve lagranges partial differential equations	K3, K6	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.			

COMPLEMENTARY COURSE TO STATISTICS

INTEGRAL CALCULUS AND TRIGONOMETRY

CO	Upon completion of this course, the students	Knowledge	Relevance to
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No.	will be able to:	Level	Local / National /Regional/ Global developmental needs
1	Recall and apply the fundamental theorem of calculus.	K1, K3	L/N/R/G
2	Define definite integrals and evaluate them.	K1, K4, K5	N/R/G
3	Associate various geometric measures to integrals and eventually construct and evaluate them	K2, K4, K5, K6	N/R/G
4	Employ different integration techniques	K3	N/R/G
5	Calculate the sum of infinite series using trigonometric identities.	K3, K4	N/R/G

Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.

Semester III

CALCULUS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Administer advanced integration and differentiation techniques	K3	L/N/R/G
2	State Leibnitz Theorem and use it to calculate higher order derivatives of functions and product of functions using	K1, K3, K4	N/R/G
3	Visualize and describe the concept of integration	K1, K2	N/R/G
4	Associate various geometric measures to integrals and eventually construct and evaluate them	K2, K4, K5, K6	N/R/G

Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.

COMPLEMENTARY COURSE TO PHYSICS/CHEMISTRY

VECTORS, ANALYTIC GEOMETRY AND ABSTRACT ALGEBRA

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Define ,evaluate and express various concepts in vector calculus	K1, K4, K5, K6	N/R/G
2	State and validate the important theorems in vector calculus	K1, K6	N/R/G
3	Evaluate the concepts like work,circulation and determine conservative fields by constructing its potential function.	K3, K4, K5, K6	N/R/G
4	Classify conic sections and determine them in polar coordinates	K2, K3	N/R/G
5	Define and explain the basic concepts of abstract algebra	K1, K3, K4	N/R/G

Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.

COMPLEMENTARY COURSE TO STATISTICS

VECTOR CALCULUS, DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORM

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Define, evaluate and express various concepts in vector calculus	K1, K4, K5, K6	N/R/G
2	Categorise differential equations and use the best techniques to solve them.	K3, K4, K6	N/R/G
3	Formulate partial differential equations using two different methods	K6	N/R/G

4	Solve Lagrange's partial differential equations	K3, K6	N/R/G
5	Explain the concept of Laplace transforms and evaluate both Laplace and inverse Laplace transforms	K2, K3, K4, K5	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.			

Semester IV

VECTOR CALCULUS, THEORY OF EQUATIONS AND NUMERICAL METHODS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Define and describe various concepts of vector calculus like tangent vector, curvature ,binormal vector .	K1, K2	N/R/G
2	Evaluate the Integral of functions of several variables over curves and surfaces	K4, K5	N/R/G
3	State and Administer Green's theorem , Divergence theorem to evaluate integrals	K1, K3, K5	N/R/G
4	Solve algebraic equations using different methods like Cardon's and Ferrari's methods	K3, K6	N/R/G
5	Solve algebraic and transcendental equations using numerical methods	K3, K6	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.			

COMPLEMENTARY COURSE TO PHYSICS/CHEMISTRY

FOURIER SERIES, LAPLACE TRANSFORM AND LINEAR ALGEBRA

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global
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			developmental needs
1	Define and describe Fourier series ,Legendre equations and Legendre polynomials	K1, K2	N/R/G
2	Construct the periodic functions in terms sine and cosine series.	K3, K6	N/R/G
3	Evaluate the Laplace transforms of various functions	K4, K5	N/R/G
4	Recognise the features of vector space through various examples	K1	N/R/G
5	Explain the concept of linear transformation and construct their matrix representation .	K2, K3, K4, K6	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.			

COMPLEMENTARY COURSE TO STATISTICS

LINEAR ALGEBRA, THEORY OF EQUATIONS, NUMERICAL METHODS AND SPECIAL FUNCTIONS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Identify and distinguish different types of matrices	K1, K2, K4, K5	N/R/G
2	Solve linear systems using the concept of Rank of a matrices	K3, K6	N/R/G
3	Devise various methods to solve algebraic equations	K3, K6	N/R/G
4	Apply various numerical methods to calculate the roots of algebraic equations	K3, K4	N/R/G
5	Define Beta gamma functions and state the relationship between them	K1	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.			

Semester V

MATHEMATICAL ANALYSIS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global
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			developmental needs
1	Define and distinguish the basic properties of field of real numbers.	K1, K2	N/R/G
2	Develop a systematic and rigorous understanding of real valued function of real variable.	K2	N/R/G
3	Analyze and apply theorems in a precise mathematical manner	K4, K3	N/R/G
4	Analyse and understand complex numbers and their properties	K4	N/R/G
5	Evaluate Laplace transform of various functions	K5	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Appling; K4-Analyzing; K5-Evaluating;K6-Creating.			

DIFFERENTIAL EQUATIONS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Understand different types of differential equations	K2	N/R/G
2	Obtain an integrating factor which may reduce a given differential equation into an exact one and eventually provide its solution	K2, K5	N/R/G
3	Identify and obtain the solution of Clairaut's equation	K2, K5	N/R/G
4	Find the complementary function and particular integrals of linear differential equation	K5	N/R/G
5	Familiarize the orthogonal trajectory of the system of curves on a given surface	K2	N/R/G
6	Find power series solutions of differential equations	K2, K5	N/R/G
7	Describe the origin of partial differential equation and distinguish the integrals of first order linear partial differential equation into complete, general and singular integrals	K1, K2, K4	N/R/G

8	Use Lagrange's method for solving the first order linear partial differential equation	K3, K5	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.			

ABSTRACT ALGEBRA

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Have a thorough knowledge and familiarity of important mathematical concepts in abstract algebra.	K2	N/R/G
2	Form a group structure from a given set.	K6	N/R/G
3	Develop and analyze different types of subgroups such as normal subgroups, cyclic subgroups permutation groups, and factor groups .	K5 ,K6	N/R/G
4	Distinguish the concepts of rings and fields and understand their properties.	K2,K4	N/R/G
5	Gain a clear knowledge of the concepts of homomorphism's, isomorphisms and their properties.	K2, K3	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.			

HUMAN RIGHTS AND ENVIORNMENTAL MATHEMATICS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Work towards the social, economic and cultural upliftment of human beings	K3	L/N/R/G
2	Promote and encourage the basic principles of liberty, equality, brotherhood and respect for fellow human beings	K3	L/N/R/G
3	Reframe their actions and decisions that affect the environment	K5	L/N/R/G

4	Develop knowledge and skills to confront severe environmental problems and take action to keep our environment healthy and sustainable for future generations	K6	L/N/R/G
5	Interpret the myriad properties of Fibonacci numbers and Golden ratio and fathom theorem applications to various disciplines	K2	L/N/R/G
6	Illustrate how mathematics manifests in nature through Fibonacci numbers and Golden ratio	K4	L/N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.			

OPEN COURSE: APPLICABLE MATHEMATICS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Understand basic mathematical concepts which helps in perform well in different competitive examinations	K2	L/N/R/G
2	Attain arithmetic and quantitative reasoning skills to understand and solve problems	K3, K4, K5	L/N/R/G
3	Able to solve a variety of problems using shortcut methods	K4, K5	L/N/R/G
4	Able to apply general mathematical models to solve different problems	K3, K4, K5	L/N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.			

Semester VI

REAL ANALYSIS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global
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			developmental needs
1	Determine the continuity and differentiability of functions defined on subsets of real line	K4	N/R/G
2	Recognize the difference between point wise and uniform convergence of a sequence of functions	K2, K4	N/R/G
3	Determine the Riemann integrability of a bounded function and prove a selection of theorems concerning integration	K4	N/R/G
4	Produce rigorous proofs of results and develop solutions to problems that arise in the context of real analysis	K3, K6	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.			

COMPLEX ANALYSIS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Understand complex numbers algebraically and geometrically	K2	N/R/G
2	Conceive the concept of analytic functions and will be familiar with the elementary complex functions and their properties	K2, K3	N/R/G
3	Familiar with the theory and techniques of complex integration	K3, K5	N/R/G
4	Familiar with the theory and application of the power series expansion of analytic functions and evaluation of residues.	K3, K5	N/R/G
5	Use the residue theorem to compute complex line integrals and real integrals	K5	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.			

DISCRETE MATHEMATICS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Understand graphical terms and get the ability to model real world problems through graphs.	K2	L/N/R/G
2	Distinguish between Hamiltonian and Eulerian graphs.	K4	N/R/G
3	Attain the ideas of Posets and Tosets	K2	N/R/G
4	Gets concrete knowledge about Lattice Structure.	K2, K4	N/R/G
5	Understand basis of modular arithmetic and use it to solve linear congruence's	K2, K5	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.			

LINEAR ALGEBRA AND METRIC SPACES

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Develop a geometric understanding of finite dimensional vector spaces and linear transformations	K2	N/R/G
2	Relate matrix algebra to linear transformations	K4	N/R/G
3	Identify the relation between linear dependence, linear independence with the rank of a matrix	K2, K4	N/R/G
4	Identify the relationship between dimension of a vector space and the rank of a matrix	K4	N/R/G

5	Visualize the concept of distance as a mathematical function in various spaces	K3	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.			

OPERATIONS RESEARCH

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Understand Linear programming modal formulation and able to solve LP problems in two dimension graphically.	K2, K5	L/N/R/G
2	Write a given LPP in standard form and in a canonical form	K2, K3	N/R/G
3	Identify a feasible solution, a basic feasible solution, and an optimal solution using simplex method	K4, K5	N/R/G
4	Understands duality theorems and method to find optimal solutions using dual simplex method	K2	N/R/G
5	Identify the Transportation Problem and formulate it as an LPP and hence solve the problem	K2, K5	N/R/G
6	Determine that an Assignment problem is a special case of LPP and hence solve by Hungarian method	K3, K4, K5	N/R/G
7	Identify the queuing models	K2	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.			

**MAR ATHANASIOUS COLLEGE (AUTONOMOUS),
KOTHAMANGALAM
DEPARTMENT OF MATHEMATICS**

M.Sc. MATHEMATICS PROGRAMME

POSTGRADUATE PROGRAMME OUTCOME

PO No.	Upon completion of postgraduate programme, the students will be able to:
PO-1	Create, apply and disseminate knowledge leading to innovation
PO-2	Think critically, explore possibilities and exploit opportunities positively
PO-3	Work in teams, facilitating effective interaction in work places.
PO-4	Lead a sustainable life
PO-5	Embrace lifelong learning

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO No.	Upon completion of M.Sc Mathematics programme, the students will be able to:	PO No.	Relevance to Local / National /Regional/ Global developmental needs
PSO-1	Acquire good theoretical insight, creative and logical mind for formulating, analyzing mathematical concepts.	1,2,4,5	L/N/R/G
PSO-2	Achieve abstract mathematical thinking capability and good knowledge in broad range of methods and techniques for analyzing and solving problems in Mathematics	1,2,4,5	L/N/R/G
PSO-3	Attain advanced knowledge and fundamental understanding of a number of specialist mathematical topics.	2,5	L/N/R/G
PSO-4	Develop skills to do project works independently and pursue higher studies towards the Ph.D. degree in mathematics	1,2,5	L/N/R/G
PSO-5	Acquire thorough knowledge to prepare for the CSIR NET, GATE and SET examinations	1,2,5	L/N/R
PSO-6	Gain proficiency to take up jobs as teacher in Mathematics at a higher level	1,2,3,5	L/N/R/G
PSO-7	Acquire self-learning and life-long learning skills, ethical values, self-discipline, environmental and social consciousness.	3,4,5	L/N/R/G

COURSE OUTCOME

SEMESTER 1

LINEAR ALGEBRA

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Develops algebraic and computational skills needed to study vector spaces, linear transformations, representation of transformation as a matrix.	K6, K4	L/N/R/G
2	Analyze finite and infinite dimensional vector spaces and subspaces over a field and their properties, including the basis structure of vector spaces	K4	N/R/G
3	Facilitate to use the definition and properties of linear transformations and matrices of linear transformations and change of basis	K6	N/R/G
4	Identify and operate determinants, permutations and their properties	K1,K2, K3	N/R/G
5	Explain the concepts of canonical forms, characteristic values, triangulation and diagonalisation	K2	N/R/G
6	Integrate different decompositions of linear equations	K6	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Appling; K4-Analyzing; K5-Evaluating; K6-Creating.			

ABSTRACT ALGEBRA

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Demonstrate knowledge of identifying group homomorphism, isomorphism, automorphism, conjugates, Class Equation and Sylow theorems.	K1,K3	N/R/G
2	Derive and apply Sylow Theorems.	K4,K6	N/R/G
3	Demonstrate knowledge of polynomial rings and associated properties.	K4	N/R/G
4	Derive and apply Gauss Lemma, Eisenstein criterion for irreducibility of rationals.	K3	N/R/G
5	Explain the characteristic of a field and the prime subfield.	K3	N/R/G
6	Develop knowledge on Field extensions, characterization of finite normal extensions as splitting fields, structure and construction of finite fields and Galois theory.	K5	N/R/G

Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.

REAL ANALYSIS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Explain metric spaces and related properties like uniform convergence, Equicontinuity etc.	K3	N/R/G
2	Describe Heine-Borel theorem , Baire Category Theorem and Ascoli- Arzela Theorem	K1, K2	N/R/G
3	Distinguish between uniform convergence and point wise convergence of sequence and series of functions.	K2, K4	N/R/G
4	Combine functions of bounded variation and rectifiable curves	K6	N/R/G
5	Define properties of Riemann Stieltjes Integral and Differentiation	K1	N/R/G

Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.

BASIC TOPOLOGY

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Develop their abstract thinking skills.	K3,K6	L/N/R/G
2	Produce precise definitions and appropriate examples and counter examples of fundamental concepts in general topology.	K1, K3,K6	N/R/G
3	Define and illustrate the concept of topological spaces and continuous functions	K1, K2	N/R/G
4	Describe and explain the concept of product topology and quotient topology	K1,K2	N/R/G
5	State connectedness and compactness, and prove a selection of related theorems	K1	N/R/G
6	Identify and give examples of spaces satisfying different separation axioms.	K1, K2	N/R/G

Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.

GRAPH THEORY

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
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1	Understand the definitions namely, independent sets, matchings and coverings.	K2	L/N/R/G
2	Distinguish Eulerian and Hamiltonian graphs and apply results to identify these graphs.	K5	N/R/G
3	Formulate the properties of graph colourings.	K6	N/R/G
4	Understand the concepts Planarity and formulate Euler identity.	K2, K6	N/R/G
5	Expalin the importance of the concepts of Domination in Graphs.	K3	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.			

SEMESTER 2 COMPLEX ANALYSIS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Describe local properties of Analytic functions.	K2	N/R/G
2	State topological and geometrical properties of complex plane.	K1	N/R/G
3	Develop functions as power series and classify singularities	K3,K6	N/R/G
4	Apply Cauchy's theorem and integral formula for disks .	K3	N/R/G
5	Integrate complex functions by counting zeroes and poles.	K6	N/R/G
6	Explain Residue theorem and Argument principle	K4	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.			

ADVANCED TOPOLOGY

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Illustrate product topology by constructing suitable examples	K2, K3,K6	N/R/G
2	Describe and explain Tietze characterisation of Normality.	K1,K2,K4	N/R/G
3	consider Evaluation Functions in to Products	K5	N/R/G
4	Interpret Compactness, Nets and Filters, produce examples and counter example for various properties	K3,K6	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.			

THEORY OF ORDINARY DIFFERENTIAL EQUATIONS

CO	Upon completion of this course, the	Knowledge	Relevance to Local /
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No.	students will be able to:	Level	National /Regional/ Global developmental needs
1	Analyse ordinary differential equations (ODEs) and system of ODEs and employ them to design and solve various physical problems.	K3,K4,K6	N/R/G
2	Explain the notion of solution of an ODE and the methods to evaluate homogeneous as well as non-homogeneous ODEs of first and second order.	K2,K4,K5	N/R/G
3	Describe the existence and uniqueness of initial value problem and produce examples and counterexamples to justify the same.	K1,K6	N/R/G
4	Analyse and evaluate the stability of linear and non-linear systems ..	K4,K5	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.			

MULTIVARIABLE CALCULUS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Interpret the importance of fourier series and integral transform.	K3	N/R/G
2	Extend the derivative theory from the realm of real valued functions to vector valued functions.	K2	N/R/G
3	Recognise and review the relevance of total derivative over the usual partial derivatives and directional derivatives .	K1,K2	N/R/G
4	Analyse the implicit function theorem and extremum problems.	K4	N/R/G
5	Assess and appraise multiple integrals and differential forms.	K5,K4	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.			

NUMBER THEORY AND CRYPTOGRAPHY

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Develop a deeper conceptual understanding of the theoretical basis of number theory and cryptography.	K3,K6	N/R/G
2	Apply number theory in cryptography.	K3	N/R/G
3	Describe Quadratic residues and Jacobi symbols.	K2	N/R/G
4	Illustrate the working method of various Public key cryptosystems.	K2,K3,K4	N/R/G
5	Facilitate Factorization of large numbers using Rho method and Fermat's Factorization.	K6	N/R/G
6	Associate the knowledge of discrete log problems as the basis of cryptography.	K2	N/R/G

Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.

SEMESTER 3

MEASURE THEORY AND INTEGRATION

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Describe fundamental concepts of Measure theory, like measurable sets and functions	K1, K2	N/R/G
2	State some of the classical theorems in measure like Monotone convergence theorem, Dominated convergence theorem, Fatou's Lemma etc.	K1	N/R/G
3	Classify functions using properties of convergence in measure and almost uniform convergence.	K4	N/R/G
4	Develop measure in product space and use it for integrating measurable functions.	K6	N/R/G

Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.

FUNCTIONAL ANALYSIS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Understand and compare the basic concepts of Normed Space, Inner Product Space	K2, K5	N/R/G
2	Explain the concepts of operators and linear functionals.	K3	N/R/G
2	Understand and apply fundamental theorems from the theory of normed and Banach spaces, including the Hahn-Banach theorem and uniform	K2, K3	N/R/G

	boundedness theorem.		
3	Appreciate the role of Zorn's lemma.	K4	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.			

DIFFERENTIAL GEOMETRY

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Develop sound knowledge in the basic concepts in geometry of curves and surfaces in Euclidean space.	K3	N/R/G
2	Explain the concept of Graphs, Level sets, Vector fields.	K3	N/R/G
3	Analyze Surfaces and Vector field on surfaces	K4	N/R/G
4	Appreciate the concepts of gauss map, geodesics, parallel transport, Weingarten map, curvature of plane curves and surface	K4, K5	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.			

PARTIAL DIFFERENTIAL EQUATIONS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Recognise and restate the basic properties of partial differential equations (PDEs) and boundary value problems.	K1, K2	N/R/G
2	Apply a range of techniques to evaluate the solutions of standard partial differential equations.	K3,K5	N/R/G
3	Gain a clear insight to distinguish and analyse the properties of parabolic, hyperbolic and elliptic equations	K2, K4	N/R/G
4	Examine the solutions of Laplace Equations and achieve the capacity to design and evaluate physical phenomena using PDEs..	K1,K4,K6	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.			

OPTIMIZATION TECHNIQUES

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Develops a thorough understanding, knowledge and skill to solve problems using different integer linear programming techniques and mixed integer linear programming techniques.	K1, K6	N/R/G
2	Interpret applying sensitivity analysis, Networks	K2, K3, K4	N/R/G

	Techniques like minimum path problem, maximum flow problem etc.		
3	Solve simple games using various techniques	K6	N/R/G
4	Improves skills to analyse a problem and make a mathematical formulation of the problem thus leading to the solution of the problem.	K4, K6	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.			

SEMESTER 4

SPECTRAL THEORY

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Distinguish different kinds of convergence of sequence of operators and functionals	K5	N/R/G
2	Explain Banach Algebra and its properties.	K4	N/R/G
3	formulate the spectral mapping theorem.		N/R/G
4	Apply fundamental properties of bounded and unbounded operators.	K3	N/R/G
5	Develop ideas from the theory of Hilbert spaces to other areas, including Fourier series.	K6	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.			

OPERATIONS RESEARCH

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Identify the mathematical tools that are needed to solve optimization problems.	K2	N/R/G
2	Differentiate deterministic and probabilistic processes	K4	N/R/G
3	Evaluate various inventory models, queueing models and its applications	K5	N/R/G
4	Devise dynamic programming in various applications	K6	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.			

PROBABILITY THEORY

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
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1	Write probabilities by applying probability laws and theoretical results	K6	L/N/R/G
2	Identify an appropriate probability distribution for a given discrete or continuous random variable and use its properties to calculate probabilities	K1, K6	N/R/G
3	Use random variables, distribution functions, probability mass functions, and probability density functions, through calculus and functional transformations, to answer quantitative questions	K4, K5	N/R/G
4	Apply results from Central Limit Theorem to approximate sampling distribution	K3	N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.			

CODING THEORY

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Analyse various error control code properties, error detection and correction	K4	L/N/R/G
2	Describe various methods of generating and detecting different types of error correcting codes	K2	L/N/R/G
3	Describe the fundamentals of coding theory	K2	L/N/R/G
4	Apply properties and algorithms for coding and decoding of linear block codes, cyclic codes.	K3	L/N/R/G
5	Apply various algorithms and techniques for BCH decoding.	K3	L/N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.			

COMPUTER METHODS

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	Relevance to Local / National /Regional/ Global developmental needs
1	Describe the core syntax and semantics of Python programming language.	K2	L/N/R/G
2	Interpret the process of structuring the data using lists	K3	L/N/R/G
3	Experiment with small meaningful Python programs	K4	L/N/R/G
4	Facilitate Python programming for solving problems in Mathematics.	K6	L/N/R/G
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating; K6-Creating.			

MAR ATHANASIUS COLLEGE(AUTONOMOUS), KOTHAMANGALAM
CURRICULUM

B.Com PROGRAMME (MODEL I & III)

UNDER GRADUATE PROGRAMME OUTCOME

PO No.	Upon completion of undergraduate programme, the students will be able to:
PO-1	Apply and innovate
PO-2	Achieve a desire for higher learning
PO-3	Work as a team with enhanced communication and coordination skills
PO-4	Attain skills for employment and entrepreneurship
PO-5	Acquire awareness on socio-cultural and environmental issues
PO-6	Develop a sense of ethics, self-discipline and sustainability

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO No.	Upon completion of B.Com programme, the students will be able to:	PO No.	Relevance to Local/ National/Regional /Global developmental needs
PSO-1	Develop a broad understanding and practical exposure of various specializations under the discipline of Commerce	1,2,4	G/N/R/L
PSO-2	Acquire relevant financial accounting and financial management skills that combine both theoretical and practical knowledge to make them industry ready	1,2,4	G/N/R/L
PSO-3	Attain essential leadership and managerial skills that enable students to evolve as good team players in the workplace	3,4,6	G/N/R/L
PSO-4	Promote critical thinking and problem solving ability that makes students competitive in analyzing and interpreting quantitative and qualitative data	1,2,6	G/N/R/L

PSO-5	Demonstrate writing, speaking, reading and listening competence in two languages	1,2	G/N/R/L
PSO-6	Acquire awareness on environmental issues and human rights.	5,6	G/N/R/L
PSO-7	Inspire students to become entrepreneurs and make them responsible towards the society	4,5,6	G/N/R/L

Semester I	Code:UG18C O1CR01	TITLE OF THE COURSE- DIMENSIONS AND METHODOLOGY OF BUSINESS STUDIES	Total Hrs:54	Credits: 2
			Hrs/Week:3	

Course Outcomes

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Develop awareness about business and business environment.	K1	PSO-7	G/N/R/L
2	Understand business and its role in society.	K2	PSO-7	N/R/L
3	Follow Business ethics and CSR.	K3	PSO-7	N/R/L
4	Apply technology integration in business.	K3	PSO-7	G/N/R/L
5	Analyse the developments of business in the Indian economy since independence.	K4	PSO-7	N/R/L
6	Introduce the concept of research and structure of research report.	K4	PSO-7	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester I	Code:UG18C O1CR02	TITLE OF THE COURSE- FINANCIAL ACCOUNTING– I	Total Hrs:90	Credits: 4
			Hrs/Week:5	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Understand the principles and concepts of Accountancy.	K2	1	G/N/R/L
2	Prepare books of accounts for further reference.	K3	1,6	N/R/L
3	Understand the double entry system to prepare the accounts.	K2	1	N/R/L
4	Prepare Royalty Accounts and Consignment accounts.	K3	1,6	N/R/L
5	Prepare Farm Accounts.	K6	1,6	N/R/L
6	Understand the principles and concepts of Accountancy.	K1	1	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester I	Code: UG18CO1C R03	TITLE OF THE COURSE- CORPORATE REGULATIONS AND ADMINISTRATION	Total Hrs:72	Credits: 3
			Hrs/Week:4	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Understand fundamentals of Company Law and provisions of the Companies Act , 2013.	K2	3,4	N/R/L
2	Understand the Memorandum of Association and Articles of Association.	K2	3	N/R/L
3	To acquaint the students with the duties and responsibilities of Key Managerial Personnel	K1	3	N/R/L
4	Understand the types of company.	K2	3	G/N/R/L
5	Understand the prospectus and contents of prospectus.	K2	3	N/R/L
6	Understand the winding up procedures.	K2	3	N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester I	Code: UG18CO1C M01	TITLE OF THE COURSE- BANKING AND INSURANCE	Total Hrs:72	Credits: 3
			Hrs/Week:4	

Course Outcomes

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Understand the evolution of banking.	K2	4	G/N/R/L
2	Evaluate the innovations and reforms in banking.	K5	4	G/N/R/L
3	Understand the digital banking transactions.	K2	4	G/N/R/L
4	Familiarize the concepts of insurance	K1	4	G/N/R/L
5	Analyse different types of insurance	K4	4	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester I	Code: UG18CO1C M02	TITLE OF THE COURSE- BUSINESS COMMUNICATION AND MANAGEMENT INFORMATION SYSTEM	Total Hrs:72	Credits: 4
			Hrs/Week:4	

Course Outcomes

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Understand the process and importance of communication.	K2	5	G/N/R/L
2	Prepare various business letters, reports, resumes and press release.	K3	5	G/N/R/L
3	Understand basic legal deeds and documents.	K2	5	N/R/L
4	Analyse the role of social Medias in communication.	K4	5	G/N/R/L
5	Understand various elements of MIS.	K1	5	G/N/R/L
6	Extend business communication skills through the application and exercises	K3	5	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester II	Code: UG18CO2C R01	TITLE OF THE COURSE- FINANCIAL ACCOUNTING – II	Total Hrs:90	Credits: 4
			Hrs/Week:5	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Prepare Hire Purchase accounts.	K6	2	N/R/L
2	Prepare Branch and Departmental Accounts.	K6	2	N/R/L
3	Get thorough knowledge on the accounting practice prevailing in partnership firms.	K2	6	N/R/L
4	Prepare departmental accounts	K6	2	N/R/L
5	Understand the various accounting Standard	K2	1	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester II	Code: UG18CO2C R02	TITLE OF THE COURSE- BUSINESS REGULATORY FRAMEWORK	Total Hrs:72	Credits: 3
			Hrs/Week:4	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Understand the concept of law of contract.	K2	3	N/R/L
2	Analyse the duties and rights in special contracts.	K4	3	N/R/L
3	Understand the contract of guarantee	K2	3	N/R/L
4	Identify agency, agent and principal, creation and termination of agency.	K4	3	N/R/L
5	Understand the Sales of Goods Act, 1930.	K2	3	N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester II	Code: UG18CO2CR 03	TITLE OF THE COURSE- BUSINESS MANAGEMENT	Total Hrs:54	Credits: 3
			Hrs/Week:3	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Understand the concept, functions and importance of management and its application.	K2	7	G/N/R/L
2	Understand principles, functions and different management theories.	K2	7	G/N/R/L
3	Develop the knowledge of business and management principles.	K1	7	G/N/R/L
4	Understand Organizing and Organization structure.	K2	7	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester II	Code: UG18CO2CC01	TITLE OF THE COURSE- PRINCIPLES OF BUSINESS DECISIONS	Total Hrs:72	Credits:3
			Hrs/Week:4	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Apply marginal analysis to the “firm” under different market conditions.	K3	4	G/N/R/L

2	Understand the causes and consequences of different market structures.	K2	4	G/N/R/L
3	Understand the meaning of marginal revenue and marginal cost and their relevance for firm profitability.	K2	4	G/N/R/L
4	Understand how households (demand) and businesses (supply) interact in various market structures to determine price and quantity of a good produced	K2	4	G/N/R/L
5	Represent demand, in graphical form, including the downward slope of the demand curve and what shifts the demand curve.	K5	4	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester II	Code: UG18CO2C M01	TITLE OF THE COURSE- BUSINESS ENVIRONMENT	Total Hrs:72	Credits: 4
			Hrs/Week:4	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Understand the Macro and Micro Business environment.	K2	7	G/N/R/L
2	Identify various economic policies and economic factors like inflation, GDP, etc.	K4	7	G/N/R/L
3	Analyse the cultural and social environment.	K4	7	G/N/R/L
4	Understand the effects of political aspects on business.	K2	7	G/N/R/L
5	Apply the technological innovations in business.	K3	7	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester III	Code:UG18C O3CR01	TITLE OF THE COURSE- CORPORATE ACCOUNTS - I	Total Hrs:90	Credits: 4
			Hrs/Week:5	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Understand accounting for Issue, Forfeiture, Re-Issue and Redemption of shares.	K2	6	G/N/R/L
2	Calculate underwriter's liability.	K6	6	G/N/R/L
3	Prepare company final accounts.	K6	6	N/R/L
4	Prepare investment accounts.	K6	6	N/R/L
5	Understand the computation of insurance claim.	K2	6	N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester III	Code: UG18CO3C R02	TITLE OF THE COURSE- QUANTITATIVE TECHNIQUES FOR BUSINESS - I	Total Hrs:90	Credits: 4
			Hrs/Week:5	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Familiarizes the concept of statistics	K1	4	G/N/R/L
2	Understand the concept of population and sample.	K2	4	G/N/R/L
3	Provide practical exposure on calculation of various measures of averages.	K3	4	G/N/R/L
4	Independently calculate basic statistical parameters (mean and measures of dispersion)	K3	4	G/N/R/L
5	Understand the concepts of interpolation and extrapolation.	K2	4	G/N/R/L

Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.	
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Semester III	Code: UG18CO3C R03	TITLE OF THE COURSE- FINANCIAL MARKETS AND OPERATIONS	Total Hrs:72	Credits: 3
			Hrs/Week:4	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Understand the Indian financial system and financial markets	K2	3	N/R/L
2	Understand the functions of New issue market.	K2	3	N/R/L
3	Understand the role and functions of stock exchanges	K2	3	G/N/R/L
4	Analyse mutual fund investment	K4	3	G/N/R/L
5	Understand the features of derivatives	K2	3	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester III	Code UG18CO3C R04	TITLE OF THE COURSE- MARKETING MANAGEMENT	Total Hrs:54	Credits: 3
			Hrs/Week:3	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Understand the concept of marketing and marketing mix	K2	7	G/N/R/L
2	Familiarise the term PLC and factors influencing pricing.	K2	7	G/N/R/L
3	Understand the role of pricing in marketing strategy.	K2	7	G/N/R/L
4	Understand the concept of physical distribution mix.	K2	7	N/R/L
5	Analyse the recent trends in marketing.	K4	7	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Appling; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester III	Code: UG18CO3C M11	TITLE OF THE COURSE- BUSINESS ETHICS AND CORPORATE SOCIALRESPONSIBILITY	Total Hrs:54	Credits: 3
			Hrs/Week:3	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Understand the theoretical foundations of business ethics and ethical standards	K2	7	G/N/R/L

2	Understand the concept of ethical decision making and consumer protection act.	K2	7	N/R/L
3	Familiarise the concept of corporate governance and code of ethics.	K1	7	G/N/R/L
4	Understand the concept of HRM and HR related ethical issues.	K2	7	N/R/L
5	Familiarise the concept of CSR provisions under Companies Act 2013	K2	7	N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester III	Code: UG18CO30 C11	TITLE OF THE COURSE- GOODS AND SERVICES TAX	Total Hrs:90	Credits: 4
			Hrs/Week:5	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	understand the concepts indirect tax and GST	K2	3	N/R/L
2	understand the importance of GST in the Indian economy.	K2	3	N/R/L
3	Analyse taxable events under GST and Supply.	K4	6	N/R/L
4	familiar with the registration and return filing under GST.	K2	3	N/R/L
5	aware about offence and penalties under GST.	K4	3	N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester IV	Code: UG18CO43C R01	TITLE OF THE COURSE- CORPORATE ACCOUNTS – II	Total Hrs:108	Credits: 4
			Hrs/Week:6	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Compute the financial statements of Insurance Companies.	K6	6	N/R/L
2	Understand the preparation of financial statements of Banking Companies.	K2	6,4	N/R/L
3	Solve the accounting problems relating to Amalgamation, Absorption and External Reconstruction of Companies.	K3	6	N/R/L
4	Explain about Internal Reconstruction.	K2	6	N/R/L
5	Summarize the accounting procedures for Liquidation of Companies.	K4	6	N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Appling; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester IV	Code: UG18CO43C R02	TITLE OF THE COURSE-QUANTITATIVE TECHNIQUES FOR BUSINESS- II	Total Hrs:108	Credits: 4
			Hrs/Week:6	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	understand the concepts of correlation and regression analysis.	K2	4	G/N/R/L
2	Learn to construct various index numbers under different methods.	K3	4	G/N/R/L
3	understand time series analysis and determine trend.	K2	4	G/N/R/L
4	familiarise the concepts and theories of probability.	K3	4	G/N/R/L
5	Familiarise with more advanced tools of data analysis.	K2	4	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester IV	Code: UG18CO43C R03	TITLE OF THE COURSE- ENTREPRENEURSHIP DEVELOPMENT AND PROJECT MANAGEMENT	Total Hrs:90	Credits: 4
			Hrs/Week:5	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Understand the concept of entrepreneurship and entrepreneurial skills and traits.	K2	7	G/N/R/L
2	Familiarise with the type of entrepreneurship.	K1	7	G/N/R/L
3	Develop project ideas, Protecting the ideas and preparing project report.	K4	7	G/N/R/L

4	Identify various entrepreneurial development schemes and programmes.	K4	7	N/R/L	
5	Start up a venture.	K3	7	N/R/L	
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.					
Semester IV	Code: UG18CO43C M11	TITLE OF THE COURSE- E-COMMERCE		Total Hrs:90	Credits: 3
				Hrs/Week:5	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs	
1	understand the basic concept and models of E-Commerce..	K2	1	G/N/R/L	
2	familiarise the application of E-Commerce.	K3	1	G/N/R/L	
3	analyse various payment mechanism under E-Commerce.	K4	1	G/N/R/L	
4	identify and analyse various security issues related to E-Commerce.	K4	1	G/N/R/L	
5	understand how to setup an E-Commerce business.	K4	1	G/N/R/L	
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.					
Semester IV	Code: UG18CO40 C11	TITLE OF THE COURSE- FINANCIAL SERVICES		Total Hrs:90	Credits: 4
				Hrs/Week:5	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	understand the fundamentals of financial services and players of financial sector.	K2	3	G/N/R/L
2	understand the concept of merchant banking and issue management.	K2	3	N/R/L
3	familiarise about leasing and hire purchase concepts.	K4	3	G/N/R/L
4	identify the various types of mergers and acquisition.	K1	3	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester V	Code:UG18C O5CR01	TITLE OF THE COURSE- COST ACCOUNTING- I	Total Hrs:108	Credits: 4
			Hrs/Week: 6	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Familiarise with cost concepts and learn the fundamentals of cost accounting as a separate system of accounting.	K2	4	G/N/R/L
2	Understand different methods of determining stock levels and	K2	4	G/N/R/L

	material pricing using LIFO ,FIFO ,Weighted and simple average methods.				
3	Compute labour cost using differential piece rate systems , incentive plans and identify the causes of labour turnover.	K6	4	G/N/R/L	
4	Prepare overhead distribution summary by primary, secondary and simultaneous equation methods.	K6	4	G/N/R/L	
5	Produce cost sheet , tenders and reconciliation statements.	K6	4	N/R/L	
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.					
Semester V	Code: UG18CO5C R02	TITLE OF THE COURSE ENVIRONMENT MANAGEMENT AND HUMAN RIGHTS		Total Hrs:90	Credits: 4
				Hrs/Week: 5	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Understand environmental management approaches in India and internationally	K2	7	G/N/R/L
2	Describe how human activities affected various natural resources such as forest, water, soil and air	K3	7	G/N/R/L
3	Create environmental management analysis reports of a locality independently and within team environments.	K6	7	G/N/R/L
4	Analyse the reasons for global and local environment issues scientifically	K4	7	G/N/R/L
5	Evaluate the provisions of Right to Information Act as a transformative legislation	K5	7	G/N/R/L
6	Outline the major developments in the field of human rights in India	K2	7	G/N/R/L

Semester V	Code:UG18C O5CR03	TITLE OF THE COURSE FINANCIAL MANAGEMENT	Total Hrs:90	Credits: 4
			Hrs/Week: 5	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Understand the concept of financial Management.	K2	2	G/N/R/L
2	Analyse the capital structure and understand theories of capital structure.	K4	2,4	G/N/R/L
3	Familiarise the concept of cost of capital.	K2	2,4	G/N/R/L
4	Estimate Working Capital Requirement	K6	2	G/N/R/L
5	Evaluate various dividend policies and various dividend models.	K5	2	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester V	Code:UG18C O5OC11	TITLE OF THE COURSE INCOME TAX- I	Total Hrs:90	Credits: 4
			Hrs/Week: 5	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	know the basic concepts of income tax.	K1	1,2	N/R/L
2	determine residential status of Individual , HUF, AOP/BOI and Company.	K2	1,2	N/R/L
3	Compute Income from salary.	K6	1,2	N/R/L
4	Build an idea about income from house property and it's computation.	K6	1,2	N/R/L
5	Compute profit and gains from business or profession.	K6	1,2	N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester VI	Code:UG18C O6CR01	TITLE OF THE COURSE COST ACCOUNTING- II	Total Hrs:108	Credits: 4
			Hrs/Week: 6	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	understand the process to compute total cost of a product .	K2	4	G/N/R/L
2	accumulate total cost of a contract assigned.	K6	4	G/N/R/L
3	prepare various budgets.	K6	4	G/N/R/L
4	calculate Marginal cost , Contribution , and understand the concept of variance analysis.	K6	4	G/N/R/L
5	understand the concept of Job costing and Batch Costing.	K6	4	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester VI	Code: UG18CO6C R02	TITLE OF THE COURSE AUDITING AND ASSURANCE	Total Hrs:90	Credits: 4
			Hrs/Week:5	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Familiarise audit concepts, qualification of an auditor and role of auditing in the present scenario	K1	3	G/N/R/L
2	Identify the procedure for conducting audit, physical verification and methods and techniques for auditing.	K2	3	N/R/L
3	Evaluate internal check, internal audit and vouching of various transactions and valuation and verification of assets and liabilities.	K5	3,4	G/N/R/L
4	Recognises the procedure for conducting audit of a limited company.	K3	3	N/R/L
5	Analyse different types of auditing develop audit procedure for conducting audit and investigation when fraud is suspected.	K4	3	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester VI	Code: UG18CO6C R03	TITLE OF THE COURSE MANAGEMENT ACCOUNTING	Total Hrs:90	Credits: 4
			Hrs/Week:5	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional
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				/Global developmental needs
1	Understand the concept of management accounting.	K2	2	G/N/R/L
2	apply various tools for analysing financial statements.	K3	2	G/N/R/L
3	Understand the importance of ratio analysis.	K2	2	G/N/R/L
4	prepare cash flow and fund flow statement.	K1, K6	2	G/N/R/L
5	analyse the concept of social responsibility accounting.	K4	2	G/N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester VI	Code:UG18C O6OC11	TITLE OF THE COURSE INCOME TAX -II	Total Hrs:90	Credits: 4
			Hrs/Week:5	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Develop an idea about capital gain.	K1	3,4	N/R/L
2	Enlighten the concept of income from other sources.	K2	3,4	N/R/L
3	Understand set off and carry forward of losses.	K3	3,4	N/R/L
4	Determine the concept of assessment of individual and computation of tax liability.	K6	3,4	N/R/L
5	Familiarise with Income tax Authorities and their powers.	K2	3,4	N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

Semester VI	Code:UG18C O6CM11	TITLE OF THE COURSE INCOME TAX – ASSESSMENT AND PLANNING	Total Hrs:90	Credits: 4
			Hrs/Week:5	

CO No.	Upon completion of this course, the students will be able to:	Knowledge Level	PSO No.	Relevance to Local/ National/Regional /Global developmental needs
1	Understand the assessment of Firms and AOP.	K2	3,4	N/R/L
2	Compute the tax liability of cooperative societies.	K6	3,4	N/R/L
3	Determine residential status and assessment of HUF	K6	3,4	N/R/L
4	Familiarise the theoretical concept of assessment of companies.	K4	3,4	N/R/L
5	understand the basic knowledge about tax planning related to various heads of income.	K1	3,4	N/R/L
Knowledge Levels: K1-Remembering; K2-Understanding; K3-Applying; K4-Analyzing; K5-Evaluating;K6-Creating.				

COURSE OUTCOME OF COMMON COURSE MALAYALAM

Course Outcome No.	Upon completion of the course കമാസാഹിത്യം, the students will be able to:	Knowledge level	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	പ്രമുഖരായ എഴുത്തുകാരുടെ കൃതികൾ പരിചയപ്പെടുക	K2	N/R/L
CO 2	സമാനസ്വഭാവമുള്ള മറ്റ് എഴുത്തുകാരുടെ കൃതികൾ കണ്ടെത്തുക	K1	N/R/L
CO 3	ഒരു സാഹിത്യ ജനറലിൽപ്പെട്ട വ്യത്യസ്തകൃതികളിലെ സാമ്യവ്യത്യാസങ്ങൾ വിലയിരുത്തുക	K5	N/R/L
CO 4	സാഹിത്യകൃതികളുടെ ആഖ്യാനപരമായ സവിശേഷതകൾ മനസ്സിലാക്കുക	K2	G/N/R/L
CO 5	സാഹിത്യകൃതികളുടെ പ്രമേയപരമായ സവിശേഷതകൾ വിലയിരുത്തുക	K4	G/N/R/L

Course Outcome No.	Upon completion of the course കഥയും കവിയും the students will be able to:	Knowledge level	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	പ്രമുഖരായ എഴുത്തുകാരുടെ കൃതികൾ പരിചയപ്പെടുക	K2	N/R/L
CO 2	സമാനസ്വഭാവമുള്ള മറ്റ് എഴുത്തുകാരുടെ കൃതികൾ കണ്ടെത്തുക	K1	N/R/L
CO 3	ഒരു സാഹിത്യ ജനറലിൽപ്പെട്ട വ്യത്യസ്തകൃതികളിലെ സാമ്യവ്യത്യാസങ്ങൾ വിലയിരുത്തുക	K5	G/N/R/L
CO 4	സാഹിത്യകൃതികളുടെ ആഖ്യാനപരമായ സവിശേഷതകൾ മനസ്സിലാക്കുക	K2	G/N/R/L
CO 5	സാഹിത്യകൃതികളുടെ പ്രമേയപരമായ സവിശേഷതകൾ വിലയിരുത്തുക	K4	G/N/R/L

Course Outcome No.	Upon completion of the <i>course</i> കവിത, the students will be able to:	Knowledge level	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	പ്രമുഖരായ എഴുത്തുകാരുടെ കൃതികൾ പരിചയപ്പെടുക	K2	N/R/L
CO 2	സമാനസ്വഭാവമുള്ള മറ്റ് എഴുത്തുകാരുടെ കൃതികൾ കണ്ടെത്തുക	K1	G/N/R/L
CO 3	മലയാളകവിതാസാഹിത്യത്തിലെ ഭാവുകത്വപരിണാമം വിലയിരുത്തുക	K5	R/L
CO 4	കവിതകളുടെ ആഖ്യാനപരമായ സവിശേഷതകൾ മനസ്സിലാക്കുക	K2	R/L
CO 5	കവിതകളുടെ പ്രമേയപരമായ സവിശേഷതകൾ വിശകലനം ചെയ്യുക	K4	N/R/L

Course Outcome No.	Upon completion of the ആത്മകഥ, ലേഖനം students will be able to:	Knowledge level	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	പ്രമുഖരായ എഴുത്തുകാരുടെ കൃതികൾ മനസ്സിലാക്കുക	K2	R/L
CO 2	മലയാളഗദ്യത്തിൽ ആവിഷ്കരിച്ച വ്യത്യസ്ത വിഷയങ്ങളെ പരിചയപ്പെടുക	K1	R/L
CO 3	ഒരു സാഹിത്യ ജനറലിൽപ്പെട്ട വ്യത്യസ്തകൃതികളിലെ സാമ്യവ്യത്യാസങ്ങൾ വിലയിരുത്തുക	K5	G/N/R/L
CO 4	ലേഖനങ്ങളുടെയും ആത്മകഥയുടെയും ആഖ്യാനപരമായ സവിശേഷതകൾ മനസ്സിലാക്കുക	K2	N/R/L
CO 5	വ്യത്യസ്തവിഷയങ്ങളെ ആവിഷ്കരിക്കാനുള്ള മലയാളത്തിന്റെ ശേഷി തിരിച്ചറിയുക	K4	N/R/L
CO 6	നൂതനവസ്തുതകളെ മാതൃഭാഷയിൽ ആവിഷ്കരിക്കുക	K3	G/N/R/L

Course Outcome No.	Upon completion of the ദൃശ്യകലാസാഹിത്യം the students will be able to:	Knowledge level	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	കേരളത്തിന്റെ സമൃദ്ധമായ ദൃശ്യകലാപാരമ്പര്യത്തെക്കുറിച്ച് മനസ്സിലാക്കുക	K2	R/L
CO 2	വ്യത്യസ്തകാലഘട്ടങ്ങളിലെ രംഗകലാരൂപങ്ങളെ കണ്ടെത്തുക	K1	N/R/L
CO 3	ഓരോ കാലഘട്ടത്തിലെയും അരങ്ങിന്റെ സാമ്യവ്യത്യാസങ്ങൾ വിലയിരുത്തുക	K5	G/N/R/L
CO 4	ദൃശ്യകലാസാഹിത്യത്തിന്റെ ആഖ്യാനപരമായ സവിശേഷതകൾ മനസ്സിലാക്കുക	K2	R/L
CO 5	സാഹിത്യകൃതികളുടെ പ്രമേയപരമായ സവിശേഷതകൾ വിലയിരുത്തുക	K4	N/R/L

Course Outcome No.	Upon completion of the course മലയാളഗദ്യരചനകൾ the students will be able to:	Knowledge level	Relevance to Local/ National/ Regional/ Global developmental needs
CO 1	പ്രമുഖരായ എഴുത്തുകാരുടെ കൃതികൾ മനസ്സിലാക്കുക	K2	R/L
CO 2	മലയാളഗദ്യത്തിൽ ആവിഷ്കരിച്ച വ്യത്യസ്ത വിഷയങ്ങളെ പരിചയപ്പെടുക	K1	R/L
CO 3	ഒരു സാഹിത്യ ജനറലിൽപ്പെട്ട വ്യത്യസ്തകൃതികളിലെ സാമ്യവ്യത്യാസങ്ങൾ വിലയിരുത്തുക	K5	G/N/R/L
CO 4	ലേഖനങ്ങളുടെയും ആത്മകഥയുടെയും ആഖ്യാനപരമായ സവിശേഷതകൾ മനസ്സിലാക്കുക	K2	R/L
CO 5	വ്യത്യസ്തവിഷയങ്ങളെ ആവിഷ്കരിക്കാനുള്ള മലയാളത്തിന്റെ ശേഷി തിരിച്ചറിയുക	K4	N/R/L
CO 6	നൂതനവസ്തുതകളെ മാതൃഭാഷയിൽ ആവിഷ്കരിക്കുക	K3	G/N/R/L

PROGRAMME OUTCOME OF BSc CHEMISTRY

PSO No.	Upon completion of the BSc Chemistry program, the students will be able to:	PO No.	Relevance to Local/National/Regional/Global developmental needs
PSO-1	Acquire a comprehensive knowledge and understanding of the major areas of inorganic, organic, theoretical and physical chemistry including a wide range of other disciplinary subjects such as analytical, bio- and industrial chemistry	1, 2, 3	G/N/R/L
PSO-2	Interpret chemical information verbally, mathematically and graphically	1, 2, 4,5	G
PSO-3	Develop a sense of inquiry and problem-solving ability to pursue higher studies and succeed in competitive examinations.	1, 2, 3,4, 5,6	G/N/L
PSO-4	Apply the concepts and techniques in Mathematics and Physics as tools to learn Chemistry.	1,2,4	G
PSO-5	Demonstrate writing, speaking, reading and listening competence in two languages.	1,2,3,4,6	G/N/R
PSO-6	Achieve laboratory skills needed to design safe, eco-friendly and novel chemical experiments to succeed in graduate and professional school, chemical industry and research	1, 2, 3,4, 5,6	G/N/R
PSO-7	Use computers for chemical simulations and data analysis.	1,2, 3,4	G/N
PSO-8	Illustrate environmental issues and human rights for generating a novel society.	1,4,5,6	G/N/R/L

CORE COURSES IN CHEMISTRY

Semester 1

CO No :	Upon completion of THEORETICAL AND INORGANIC CHEMISTRY course the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Explain the features and limitations of various models of atomic structure	K2	1,2,4	G/N
2	To apply the principles of quantum mechanics to describe atomic structure.	K3	1,2,4	G/N
3	To apply Schrödinger equation in simple systems and understanding the quantum mechanical concepts in bonding theory	K3	1,2,4	G/N/R
4	To acquire a thorough knowledge about the long form of the periodic table and periodic properties of elements.	K2	1	G/N
5	To understand the chemistry of some selected important compounds of the main group	K2	1	G/N
6	To evaluate errors in chemical analysis.	K5	1	N/R/L
7	To develop skills required for data analysis and good laboratory practices	K6	1,6,7	G/N/R/L

Semester 2

CO No :	Upon completion of THEORETICAL AND ANALYTICAL CHEMISTRY course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Distinguish the type of chemical bonding	K1,K2	1	G/N/R/L
2	Predict the shape of molecules based on various bonding theories.	K3	1,2,3	G/N
3	Acquire knowledge about intermolecular forces	K2	1	N/R/L
4	Explain the features of metallic bonding.	K2	1,2	G/N
5	Understand the fundamental concepts of analytical chemistry.	K2	1,4,6	G/N

6	Appreciate the advantages of micro scale experiments in chemistry.	K4	1,6	G/N/R/L
7	Familiarize with various chromatographic techniques	K2	1,6	N/R/L

Semester 3

CO No :	Upon completion of ORGANIC CHEMISTRY- I course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Familiarize the classification and nomenclature of organic compounds	K1	1,2	G/N
2	Discuss the basic concepts, mechanism and factors which affect the reaction rate of different organic reactions	K2,,K4	1, 3	G/N
3	Understand the basic concepts of stereochemistry and conformational analysis of organic molecules	K2,K3	1,2	G/N
4	Interpret the concept of resonance and aromaticity	K4	1, 2	G/N
5	Explain the reaction mechanism of aromatic electrophilic and nucleophilic substitution reactions	K2,K3	1	G/N
6	Describe the structure and reactions of polynuclear hydrocarbons	K2,K3	1,2,3	G/N

Semester 4

CO No :	Upon completion of ORGANIC CHEMISTRY- II course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Discuss the classification, methods of preparation, physical/chemical properties and reactions of alcohols, phenols, ethers and epoxides	K1,K2,K3	1,6	G/N/R
2	Recognize the chemical reactions and mechanisms of carbonyl compounds and active methylene compounds	K2,K3	1,6	G/N
3	Explain the structure, acidity and chemical reactions of carboxylic acids and benzene sulphonic acids	K2,K4	1	G/N

4	Interpret the methods of preparation and chemical reactions of unsaturated, hydroxyl and dicarboxylic acids	K3,K4	1,2,6	G/N
5	Understand the preparation and reactions of derivatives of carboxylic acids	K2,K5	1,2	G/N
6	Understand the preparation and reactions of derivatives of carboxylic acids	K2,K5	1,2	G/N
7	Explain the method of preparation, reactions and structure of carbonic acid derivatives.	K2,K4	1,3	G/N

Semester 5

CO No :	Upon completion of ENVIRONMENTAL STUDIES AND HUMAN RIGHTS course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the environment functions and how it is affected by human activities.	K2, K4	2,8	G/N/R/L
2	Acquire knowledge of chemical principles of various environmental phenomena and processes in water and air	K1, K2	8	G/N/R/L
3	Appreciate the central role of chemistry in our society and use this as a basis for ethical behaviour in issues facing chemists including an understanding of safe handling of chemicals	K4, K5	8	G/N/R/L
4	Critically discuss local and global environmental issues facing our society in energy, health and medicine and toxic effects of pollutants.	K4, K5	8	G/N/R/L
5	Describe the practical chemistry in industrial processes including water purification, waste treatment, energy production, and pollution mitigation strategies	K2, K3	2,8	G/N/R/L
6	Analyze the role of the chemist in measurement and problem solving in environmental studies	K4	2,3,8	G/N/R/L
7	Sound knowledge about Human Rights , nature of Human rights violations and salient features of some important Acts	K6	8	G/N/R/L

CO No :	Upon completion of ORGANIC CHEMISTRY-III course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Study the fundamentals of heterocyclic compounds	K1, K2	1	G/N
2	Understand the structure and functions of enzymes, vitamins and lipids.	K2	1,2	G/N/R/L
3	Determine the structure, properties and reactions of carbohydrates	K2, K3	1	G/N/R
4	Discuss about the preparation, classification and structure of amino acids, proteins and nucleic acids	K2, K4	1	G/N
5	Explain the fundamentals of terpenoids, alkaloids and steroids	K2	1	G/N/L
6	Compare the basicity, aromaticity and reactions of heterocyclic compounds	K4, K5	1,2	G/N
7	Develop an idea of the purpose and types of research	K4, K5	3	G/N/R

CO No :	Upon completion of PHYSICAL CHEMISTRY-I course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand kinetic theory of gases and Maxwell distribution of molecular velocities.	K2	1,2	G
2	Calculate most probable, root mean square and average velocities.	K3	1,2	G
3	Interpret the collision properties of gases.	K5	1,2	N/G
4	Analyse the deviation of gases from ideal behaviour.	K4	1	G
5	Apply the intermolecular forces in liquids to determine the surface tension and viscosity of	K3	1	R/N/G

	liquids			
6	Identify the symmetry of solid states and predict the lattice type	K2	1	N/G
7	Implement the Braggs equation and powder diffraction techniques to obtain crystallographic data	K3	1,2	R/N/G
8	Distinguish the structure of ionic compounds.	K4	1	N/G
9	Identify the defects in crystals			N/G
10	Differentiate the types of liquid crystals and their applications.	K2	1	N/G
11	Understand the adsorption techniques and determine the surface area from BET data	K2	1	N/G

CO No :	Upon completion of course, PHYSICAL CHEMISTRY-II the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the origin of different spectroscopic techniques.	K2	1,2,3,4	L/N/R/G
2	Evaluate bond length using Microwave spectral data	K5	1,2,3,4	N/G
3	Differentiate fundamentals and overtones	K4	1,2	G
4	Sketch Morse curve of diatomic molecules	K2,K3	1,2,4	N/G
5	Distinguish between Stoke and Anti Stokes lines	K4	1,2	G
6	Acquire knowledge to interpret the NMR spectra of simple molecules	K2,K3	1,2,3,4	N/R/G
7	Analysis mass spectrum	K4	1,2,3,4	N/R/G
8	Interpret Jablonski diagram	K5	1,2,4	N/G
9	Understand the applications of different spectroscopic techniques.	K2	1,2,4	L/N/R/G
10	Evaluate bond length using Microwave spectral data	K5	1,2,4	N/G
11	Understand the adsorption techniques determine the surface area from BET data	K2	1,2,4	

Semester VI

CO No :	Upon completion of COORDINATION CHEMISTRY AND ORGANOMETALLICS course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the general characteristics of the d and f block elements	K2	1	G/N
2	Demonstrate various theories of bonding to explain the structure & properties of coordination compounds	K2,K3	2	G
3	Discuss the application of coordination chemistry in qualitative and quantitative analysis	K3	3	G/N/R/L
4	Identify the structure and bonding aspects of simple organometallic compounds	K4	4	G
5	Recognise the structure and properties of some metal carbonyls and clusters	K2, K5	5	G
6	Understand the role of metal ions in biological processes	K2, K4	6	G/N/L
7	Elucidate the structure and functions of some of biologically important inorganic transition metal complexes	K3, K5, K6	7	G/N
CO No :	Upon completion of ORGANIC CHEMISTRY-IV course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	State the reduction products of nitrobenzene in different conditions	K1	1	G/N
2	Discuss the preparation and properties of amines and diazo compounds	K1	2	G/N
3	Interpret the synthetic applications of organic reagents	K3	3	G/N/R

4	Describe and interpret the application of IR, UV and NMR and Mass spectrometry in structural determination of simple organic compounds	K2, K4	4	G/N/R/L
5	Recognize the role of organic chemistry in food and soap industry	K5	5	G/N/R/L
6	Explain the preparation and applications of plastics and synthetic rubbers	K2, K3	6	G/N/R/L
7	Discuss the structure and mode of action of sulphadiazine, antibiotics, analgesic and drugs in cancer therapy	K4, K5	7	G/N/R/L
8	Describe pericyclic reactions, photochemical reactions and supramolecular Chemistry	K2	8	G/N/R
9	Understand the theory of colours, structure, method of preparation and uses of important azo dye, triphenyl methane dye, phthalocyanine dye, vat dye and anthraquinone dye	K2	9	G/N/R/L

CO No :	Upon completion of PHYSICAL CHEMISTRY – III course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Analyse the thermodynamic properties in terms of extensive and intensive, state and path functions	K2	1,2	L/N/R/G
2	Relate internal energy, work and heat change	K4	1,2	N/G
3	Explain Joule –Thomson effect		1,2	N/G
4	To acquire knowledge to derive Gibbs-Helmholtz, Clausius- Clapeyron, Gibbs- Duhem, van't Hoff equations	K2	1,2,3,4	N/G
5	Construct Born-Haber cycle	K6	1,2,3,4	N/G
6	Investigate the spontaneity of a process	K4	1,2	L/R/N/G
7	Sketch the phase diagrams of one and two component systems	K3	1,2,4	R/N/G
8	Formulate the rate equations for zero, first and second order reactions	K6	1,2,4	L/R/N/G
9	Discuss the theories of reaction rates	K5	1,2,3,4	L/R/N/G
10	Explain the mechanism of catalysis	K3	1,2,4,6	L/R/N/G

CO No :	Upon completion of PHYSICAL CHEMISTRY-IV course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the behaviour of binary liquid mixtures	K2	1	L/R/N/G
2	Apply distillation techniques for separation of liquid- liquid systems	K2,K3	1,2	L/R/N/G
3	Solve problems based on colligative properties	K3	1,2,3,4	L/R/N/G
4	Explain the mechanism of Buffer action	K2,K3	1,2	R/N/G
5	Relate the variation of molar conductivity with concentration and apply Kohlrausch's law	K4	1,4	R/N/G
6	Determine transport numbers by Hittorf's method and moving boundary method	K2, K3	1,2,4	R/N/G
7	Derive Debye Huckel theory using the concept of ionic atmosphere	K3	1,2,4	N/G
8	Application of Debye Huckel to explain conductivity	K2, K3	1,2,4	N/G
9	Connect the conductance measurements to determine the degree of dissociation of weak electrolytes	K3	1,2,4	R/N/G
10	Apply emf measurements in the determination of solubility product and pH.	K3	1,2,4	L/R/N/G
11	Construct character tables using symmetry, symmetry elements and point groups	K6	1,4	R/N/G

Semester V and VI practical

CO No :	Upon completion of QUALITATIVE INORGANIC ANALYSIS course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Identify various ions present in a given inorganic sample	K3	1,6	G/N

2	Understand the principles of intergroup separation of cations	K2	1,6	G
3	Learn semi micro qualitative analysis for a mixture containing two acid and two basic radicals	K2,K3	1,6	G/N

CO No :	Upon completion of PREPARATION AND BASIC LABORATORY SKILLS course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Develop basic skills in techniques of crystallisation, distillation and solvent extraction	K6	1,6	G/N
2	Learn the chromatographic techniques TLC and column chromatography	K3	6	G/N/R
3	Develop skill in organic preparations	K6	6	G/N
4	Familiarize the technique of quantitative dilution	K2	6	G/N/R/L

CO No :	Upon completion of PHYSICAL CHEMISTRY PRACTICALS course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Determine the composition of a mixture from viscosity measurements.	K3	1,4,6	L/N/R/G
2	Develop skills in calorimetric techniques to obtain heat of neutralization and heat of solution values	K3	1,4,6	L/N/R/G
3	Learn to find the transition temperature of salt hydrates.	K5	1,4,6	L/N/R/G
4	Investigate the effect of electrolytes on Critical Solution Temperature	K5	1,4,6	L/N/R/G
5	Determine the molecular mass of the solute by	K5	1.4,6	L/N/R/G

	Rast method			
6	Predict the rate constant of ester hydrolysis	K5	1,2,3,4,6	L/N/R/G
7	Apply conductometric and potentiometric titrations to determine concentration of analytes	K3	1,2,3,3,6	L/N/R/G
8	Familiarize with spreadsheet programs.	K6	1,2,3,4,6	L/N/R/G
9	Determine the composition of a mixture from viscosity measurements	K5	1,2,3,4,6	L/N/R/G

CO No :	Upon completion of GRAVIMETRIC ANALYSIS course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Quantitative analysis of substances through measurement of mass	K4	3,6	G/N
2	Demonstrate techniques like precipitation and filtration drying and incineration process	K3	3,6	G/N/R

CO No :	Upon completion of Project & Industrial visit , the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Acquire knowledge in literature review.	K2	1	G/N/R/L
2	Identify a research problem.	K2	1,6	G/N
3	Obtain skills to characterise and interpret analytical tools.		1,4,5,6	G/N/R/L
4	Develop an interest in research activities.		1,6	G/N
5	Get expertise in doing novel experiments.		1,2,6	G/N/R/L
6	Extend industry academic - linkage.		6	G/N/R/L

7	Attain knowledge in data analysis and scientific writing		1,6,7	G/N
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PROGRAMME OUTCOME OF MSc CHEMISTRY

PSO No.	Upon completion of M.Sc. CHEMISTRY programme, the students will be able to:	PO No.	Relevance to Local/National/Regional/Global developmental needs
PSO-1	Acquire the depth and breadth of knowledge in the core areas of Inorganic, Organic, Physical and Theoretical Chemistry	1,2,5	G/N
PSO-2	Demonstrate advanced knowledge in the relevant areas of chemistry research such as Computational Chemistry, Spectroscopy, Organic Synthesis, Polymer Chemistry and Nano Chemistry.	1,2,3,5	G/N
PSO-3	Develop critical thinking and analysis skills to solve complex chemical problems such as data analysis, structure and modeling, synthetic logic, spectroscopy and team-based problem solving.	1,2,3,5	G/N/R
PSO-4	Perform accurate quantitative measurements using contemporary chemical instrumentation, interpret experimental results, do calculations based on theoretical understanding and draw valid conclusions.	1,2,3,4,5	G/N/R
PSO-5	Achieve laboratory competence in relating chemical structure to spectroscopic phenomena	1,2,3,5	G/N/R
PSO-6	Acquire a broader understanding of research strategies, scientific thinking and data analysis	1,2,3,4,5	G/N/R
PSO-7	Conduct independent research under limited supervision and communicate the concepts of chemistry, through multimedia and research articles.	1,2,3,5	G/N/R

Semester I

CO No :	Upon completion of INORGANIC CHEMISTRY-I course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Demonstrate the theories of bonding to explain the structure, stability and properties of coordination compounds.	K2	1	G/N
2	Analyze & interpret the electronic spectra & magnetic behavior of complexes.	K4	3	G/N
3	Apply electronic spectra & magnetic moments for structure elucidation of coordination complexes.	K3	3	G/N/R
4	Analyze the kinetics and reaction pathways of complex formation	K4	1,3	G/N
5	Recognize the stereochemistry of coordination compounds.	K4	2,3	G/N
6	Acquire a comprehensive knowledge of coordination chemistry of inner transition compounds	K2	1	G/N

CO No :	Upon completion of ORGANIC CHEMISTRY-I course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Interpret the aromaticity of organic molecules.	K4	1, 3	G/N/R
2	Predict the physiochemical properties of organic molecules based on electron displacement and steric effect.	K3	3	G/N
3	Analyze the reaction mechanism of carbonyl	K4	1	G/N

	compounds.			
4	Acquire a comprehensive knowledge of organic photochemical reactions.	K2	1	G/N/R
5	Develop skills to predict the stereochemistry of organic molecules	K4	3	G/N/R
6	Relate the conformation and reactivity of cyclic, acyclic, fused and bridged bicyclic systems.	K4	1,3	G/N/R

CO No :	Upon completion of THEORETICAL CHEMISTRY-I course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Use mathematical techniques in linear algebra for eigen values and eigen vectors and first and second order differential equations.	K1, K2	1	G/N
2	Solve the model problems in quantum mechanics.	K3, K4	1,3	G/N
3	Explore quantum mechanical operators corresponding to angular momenta.	K5	1,2,3	G/N/R/L
4	Apply Ladder operator method for angular momentum.	K4	3	G/N/R
5	Explain the space quantization of orbital and spin angular momenta.	K2	2	G/N
6	Differentiate the features of symmetry of molecules and crystals.	K2	2,3	G/N/R/L
7	Apply group theory in vibrational, Raman and Electronic Spectroscopy.	K3	3	G/N/R/L
8	Explore new areas of research both in group theory and Quantum mechanics.	K6	8	G/N/R/L

CO No :	Upon completion of PHYSICAL CHEMISTRY-I course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Evaluate the thermodynamic properties (ideal and real) in closed and open systems.	K5	1	L/N/R/G
2	Interpret phase equilibria of three component systems	K4	1	L/N/R/G
3	Apply the kinetic theory to the transport phenomena in gases.	K3	1	N/R//G
4	Compute the absolute value of thermodynamic properties from classical and statistical principles	K5	2,3	L/N/R/G
5	Relate the thermodynamic properties and partition function	K3	1,3	L/N/R/G
6	Explain Bose - Einstein statistics and the behaviour of liquid helium	K4	1,8	N/G
7	Apply thermodynamic principles to irreversible processes and bioenergetics.	K3	2,4,8	N/R/G
8	Formulate the theory of heat capacity of solids	K5	1,3	N/G

Semester II

CO No :	Upon completion of INORGANIC CHEMISTRY-II course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Familiarize the structure of inorganic solids and defects in crystals	K2	1	G/N/R
2	Understand the basic concepts of solid state reactions	K2	2	G/N/R
3	Acquire a comprehensive knowledge about the synthetic techniques of crystal growth	K2	2	G/N
4	Demonstrate the theories of bonding in inorganic solids and concepts of superconductivity	K2	2	G/N

5	Develop skills to correlate structure- composition – properties (magnetic, electrical and optical) in inorganic crystalline solids	K3	3	G/N/R
6	Explain the synthesis, structural and bonding aspects of different kinds of compounds of main group elements	K1, K2	1	G/N
7	Get advanced knowledge about the synthesis, structure bonding aspects and properties of inorganic cages and cluster materials.	K2	1, 2	G

CO No :	Upon completion of ORGANIC CHEMISTRY-II course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Discuss the mechanism of different organic reactions and factors which affect the reaction rate	K2	1,2	G/N/R
2	Recognize the different reaction intermediates in organic reactions.	K2	1	G/N
3	Familiarize with different types of pericyclic reactions in organic chemistry and orbital correlation approaches.	K2	1	G/N/R
4	Highlight the applications of pericyclic reactions in organic synthesis	K3	3	G/N
5	Understand the concept of physical organic chemistry.	K2	1	G/N/R

CO No :	Upon completion THEORETICAL CHEMISTRY-II course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Use mathematical techniques in linear algebra for eigen values and eigen vectors and first and second	K1,K2	1	G/N

	order differential equations.			
2	Solve the model problems in quantum mechanics.	K3,K4	1,3	G/N/R/L
3	Explore quantum mechanical operators corresponding to angular momenta.	K5	1,2,3	G/N/R
4	Apply GAMESS calculations for various computational methods	K4	3	G/N/R/L
5	Explain the different computational methods in determining the structure of molecules.	K2	2	G/N/R/L
6	Differentiate the features of symmetry adapted linear combinations	K2	2,3	G/N
7	Apply group theory in determining the type of hybridization of molecules	K3	3	G/N/R
8	Explore new areas of research both in group theory, computational chemistry and Quantum mechanics.	K6	8	G/N/R/L

CO No :	Upon completion PHYSICAL CHEMISTRY-II course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Study the interaction of electromagnetic radiation with matter.	K2	2,3	L/N/R/G
2	Apply quantum mechanical principles to calculate various energy levels and transitions between these levels in atoms and molecules.	K3	.3	N/G
3	Explain Fourier Transform spectroscopic technique to record IR, PMR and CMR spectrum.	K2	1,2,3,	N/G
4	Translate the second order spectra to first order one.	K3	1,3	N/G
5	Relate structure of organic compounds with spectroscopic data.	K6	1,2,3,8	R/N/G
6	Compute the molecular parameters from spectral data.	K6	1,2,3	R/N/G
7	Investigate the mechanism of the reaction from the ESR spectrum using g values.	K6	1,2,3,4	N/G

8	Investigate the stereochemistry of compounds from NOE effect.	K6	1,2,3,8	R/N/G
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Practicals

CO No :	Upon completion INORGANIC CHEMISTRY PRACTICAL-1 course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the principles of intergroup separation of cations.	K2	1,2	G/N/R
2	Learn semi micro qualitative analysis for a mixture containing common and less common cations	K4	4	G/N/R/L
3	Expertise in the preparation, drying and recrystallisation of inorganic complexes	K3	4,5	G/N/R
4	Accrue the ability to correlate the IR and electronic spectra of various inorganic complexes with their structures	K5	3	G/N/R
5	Develop skills in the spectrophotometric method of estimation of metal ions	K4	4	G/N/R
6	Set up glass wares and apparatus to conduct experiments with minimum or without error	K4	4,5	G/N/R/L

CO No :	Upon completion ORGANIC CHEMISTRY PRACTICAL-1 course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the general methods of separation and purification of organic compounds.	K2	5	L/N/R/G
2	Develop skills for the separation of organic binary mixtures by chemical/solvent separation methods.	K4	5	L/N/R
3	Familiarize with the identification of organic compounds by TLC / paper chromatography.	K2	5	L/N
4	Acquire skills for the separation/ purification of organic mixtures by column chromatography.	K2	5	L/N/R/G

5	Familiarize to draw structure of organic compounds and mechanisms of reactions using chemsketch software.	K2	3	N/R/G
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CO No :	Upon completion PHYSICAL CHEMISTRY PRACTICAL-I course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Analyze the extent of adsorption and verify adsorption isotherms.	K4	4	L/N/R/G
2	Construct and interpret the phase diagrams of binary and tertiary systems.	K4	4	L/N/R/G
3	Apply the distribution law to various solutes in different solvent pairs.	K3	4	N/G
4	Determine the composition using surface tension measurements.	K3	4	N/R/G
5	Compare and apply theoretical approaches in stimulating various scientific problems and calculating properties of molecules	K3	2,4	N/R/G

Semester III

CO No :	Upon completion INORGANIC CHEMISTRY-III course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the structure, bonding aspects and chemical reactions of organometallic compounds	K2	2	G/N
2	Analyse the role of organometallic compounds as catalysts in selected organic reactions	K4	3	G/N/R
3	Acquire a comprehensive knowledge and understanding about the concepts of nuclear chemistry , nuclear reactions and nuclear reactors	K2	2	G/N
4	Recognise the applications of radioisotopes in theoretical, analytical and industrial fields.	K4	3	G/N/R/L

5	Elucidate the structure and functions of some biologically important inorganic transition metal complexes.	K5	3	G/N/R/L
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CO No :	Upon completion ORGANIC CHEMISTRY-III course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the role of protecting groups in organic synthesis.	K2	1	G/N/R
2	Describe the preparations of organometallics and apply in organic synthesis.	K1	1,2	G/N/R
3	Explain the key reactions in organic chemistry including substitution reactions of heterocycles, reactions involving enols and enolates.	K1,K2	3	G/N/R
4	Discuss the role of reagents in organic synthesis	K3	4	G/N
5	Execute retrosynthetic analysis of organic molecules.	K4	5	G/N/R/L
6	Design different approaches towards the synthesis of three, four, five and six membered rings	K5,K6	4	G/N
7	Formulate modern synthetic methods in coupling reactions.	K6	6	G/N/R/L
8	Investigate the scope of metal and non metal based oxidation reactions in organic synthesis.	K5	6	G/N

CO No :	Upon completion PHYSICAL CHEMISTRY-III course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Apply the laws of chemical kinetics in understanding the mechanism of various chemical reactions	K2,K3	1, 3	L/N/R/G

2	Understand free radical and chain reactions leading to explosive reactions	K2,K4	1	N/G
3	Acquire knowledge of heterogeneous catalysis, kinetics of chain reactions, polymerization reactions etc.	K2,K3	1,3	L/N/R/G
4	Explain the techniques to study fast reactions and factors affecting enzyme catalysis	K2,K5	1	N/R/G
5	Familiarize with Oscillating chemical reactions	K2	1,2	N/G
6	Utilize the principles of kinetics in understanding catalytic activity at the surfaces	K3,K4	1,3	N/G
7	Apply adsorption techniques in surface catalyzed reactions	K2,K3	3	N/R/G
8	Apply the principles of photochemistry in studying various effects of transient intermediates	K3	1,3	N/G

CO No :	Upon completion ORGANIC CHEMISTRY-IV course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Elucidate the structure of compounds by analysis and interpretation of UV-visible, chiroptical, vibrational, 1-D and 2-D NMR and Mass spectral data.	K3,K4	2, 3	G/N/R
2	Interpret UV-Vis, IR and NMR spectra	K3,K4	2,3,4	G/N
3	Gain advanced knowledge in stereochemistry of compounds.	K2,K4	2,3	G/N/R/L
4	Acquire knowledge in the interpretation of 2-D NMR, COSY, HOMOCOSY, HETROCOSY.	K4,K5	1, 2	G/N/R
5	Predict the molecular mass of a compound by analysing the mass spectrum.	K4	2,3	G/N

Semester IV

CO	Upon completion Elective-01-ADVANCED INORGANIC CHEMISTRY course, the students	Knowledge	PSO	Relevance to Local/
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No :	will be able to	Level	No :	National/ Regional/ Global developmental needs
1	Apply the principles of group theory in explaining the bonding & electronic spectra of coordination compounds.	K3	3,4	G
2	Develop a skill to use inorganic spectroscopic tools for the structure elucidation of coordination compounds.	K4	4	G/N/R
3	Acquire a sound knowledge about the photochemistry of inorganic complexes.	K2	2	G/N/R
4	Investigate the importance of inorganic complexes in photo chemical applications.	K4	2	G/N/R/L
5	Develop a thorough knowledge about the synthesis, characterisation and interdisciplinary applications of nano structured materials.	K2	2	G/N/R/L
6	Gain an advanced knowledge about the chemistry and applications of some industrially important materials	K2	2	G/N/R

CO No :	Upon completion Elective-02-ADVANCED ORGANIC CHEMISTRY course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the applications of important medicines and the need of drug designing..	K2	1	G/N/R/L
2	Discuss the importance of research methodology in chemistry.	K1,K2	1,2	G/N
3	Recognize the alternatives to organic syntheses like green, ultrasound and microwave.	K4	7	G/N/R/L
4	Explain the methods of stereoselective transformations in organic synthesis	K2	3,4	G/N
5	Describe the synthesis and structure	K2,K3	5	G/N

	determination of natural products and biomolecules			
6	Apply the importance of molecular recognition in supramolecular chemistry.	K3	6	G/N
7	Investigate the scope of conducting polymers, hyperbranched polymers and dendrimers in medical applications.	K5	4,5	G/N

CO No :	Upon completion Elective-03-ADVANCED PHYSICAL CHEMISTRY course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Analyse the type and behaviour of crystal structure in solids.	K2,K4	1, 2	L/N/R/G
2	Apply theories in electrochemistry to analyse electrode kinetics.	K3,K4	1,3	L/N/R/G
3	Acquire knowledge of Debye- Huckel theory, Debye- Huckel- Onsager equation, Debye Huckel Limiting Law etc.	K2,K3	1,3	N/R/G
4	Explain the working of fuel cells	K5	1	N/R/G
5	Apply the spectroscopic and thermal methods of analysis in instrumentation.	K2,K3	1, 3	L/N/R/G
6	Acquaint with the advanced techniques in surface characterization and electro analytical techniques.	K2,K4	2, 3	N/R/G

Semester III & IV Practical

CO No :	Upon completion INORGANIC CHEMISTRY PRACTICAL-II course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the principles of volumetric and	K2	4	G/N/R/L

	gravimetric analysis			
2	Develop skills in volumetric and gravimetric analysis for the separation and estimation of cations from a solution containing binary mixture of cations	K3	4	G/N/R/L
3	Acquire skills to analyse some common ores and alloys	K4	4,5	G/N/R/L

CO No :	Upon completion ORGANIC CHEMISTRY PRACTICAL-II course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Understand the principles and techniques involving Preparation of compounds by two stages.	K2	1	G/N
2	Expertise in the Preparation Involving Green Alternatives of Chemical Methods	K5	7	G/N/R/L
3	Understand the principles of Microwave assisted Organic Synthesis	K2	1	G/N/R/L
4	Predict and interpret FTIR, ^1H and ^{13}C NMR spectra of the synthesized products	K3	5	G/N/R
5	Relate the IR and NMR spectra of various organic compounds with their structures	K4	7	G/N
6	Set up glass wares and apparatus to conduct experiments with minimum or without error.	K6	5	R/L

CO No :	Upon completion PHYSICAL CHEMISTRY PRACTICAL-II course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Study Kendall's equation by viscosity measurements	K3	1,4	G

2	Evaluate the concentrations of acids and sugar solutions, and to determine rate constant of inversion of cane sugar in the presence of HCl by polarimetry	K5	1,4	L/N/R/G
3	Evaluate the concentrations and molar refractions of liquids and complexes using refractive index measurements	K5	1,4	N/R/G
4	Compare the viscosities of various liquids and to determine the composition of liquid mixtures	K4	1,4	L/N/R/G
5	Evaluate the rate constant of first and second order reactions.	K5	1,4	N/G
6	Quantify acids, mixture of acids, using conductivity measurements experiments and to verify Onsager Equation.	K5	1,4	N/G
7	Quantify acids, mixture of acids by potentiometric titrations.	K5	1,4	N/G

CO No :	Upon completion PROJECT/DISSERTATION course, the students will be able to	Knowledge Level	PSO No :	Relevance to Local/ National/ Regional/ Global developmental needs
1	Acquire a knowledge in literature review	K2	5	G/N/R
2	Identify a research problem	K3	6	G/N
3	Obtain skills in the characterization using analytical tools and data interpretation	K5	5	G/N/R
4	Gain knowledge about the presentation of reference material	K5	6	G/N/R/L
5	Get expertise in doing novel experiments.	K6	4	G/N/R/L
6	Develop industry-academia linkage	K3	8	G/N/R/L
7	Attain knowledge in data analysis and scientific writing.	K6	6	G/N