

## Postgraduate Course Outcomes - MA/M.Com./M. Sc

### MA ENGLISH LANGUAGE AND LITERATURE

Course code	Course title	Course outcomes
<b>SEMESTER I</b>		
<b>EL 211</b>	Chaucer to The Elizabethan Age	<p>CO 1: display an awareness of the Historical events which shaped the Renaissance Period and literature</p> <p>CO 2: Identify and explain the formal and literary features of each genre and text</p> <p>CO 3: Analyse and explain the similarities and differences between various types of drama</p> <p>CO 4: To learn about the origin and development of English Poetry and the contemporary critical responses on the period</p>
<b>EL 212</b>	Shakespeare Studies	<p>CO 1: Evaluate the significance of the socio-political events which shaped the perspective of The Elizabethan Age.</p> <p>CO 2: Relate the texts selected for study to the genre, sub-genre.</p> <p>CO 3: Identify discourses addressed in the plays and critically evaluate them</p> <p>CO 4: Attempt critical reviews of Shakespearean plays and trace the evolution of the western theatre tradition</p>
<b>EL 213</b>	The Augustan Age	<p>CO 1: Gain a comprehensive understanding of Puritanism and Restoration.</p> <p>CO 2: Display an awareness of a neo classicist features.</p> <p>CO 3: be able to assess critically the conflicting trends in the literature of the age.</p> <p>CO 4: Acquire an understanding of the emergence and popularity of prose and novel</p>

<b>EL 214</b>	Romantics and Victorians	<p>CO 1: Students will learn about the age of Romantics and its revival, the Victorian era, its theoretical and ideological frameworks</p> <p>CO 2: They will be able to relate the texts selected for study to the genres they belong to.</p> <p>CO 3: Display an awareness of the contributions of the poets, novelists and prose writers.</p> <p>CO 4: Understand the social and literary changes.</p> <p>CO 5: Evaluate the implications of the critical responses of the period</p>
<b>SEMESTER II</b>		
<b>EL 221</b>	From Modernism to Present	<p>CO 1: To demonstrate an understanding of how the age affected the literature.</p> <p>CO 2: About the major movements that influence literature CO 3: To analyze critically and explain the features of modernism</p>
<b>EL 222</b>	Indian Writing in English	<p>CO 1: The students will display an in-depth awareness of the major historical and sociocultural events</p> <p>CO 2: They will be able to analyze the impact of socio cultural and political events on the texts selected for study CO 3: They will be equipped to evaluate the contributions of major Indian English writers</p> <p>CO 4: The knowledge gathered will help them develop a literary sensibility and an emotional response to literary texts.</p>
<b>EL 223</b>	American Literature	<p>CO 1: Students will gain knowledge about the socio-political factors that shaped the American Literary scene</p> <p>CO 2: They will be able to analytically explore works in relation to Historical and Cultural contexts</p> <p>CO 3: As a result of the awareness regarding American Experience and Character, they become competent to critically examine the same as articulated in Literature.</p>
<b>EL 224</b>	Critical Studies	<p>CO 1: The course will sharpen their analytical and critical faculties, and give the students an idea of the evolution of critical thinking in Europe and India</p>

		<p>CO 2: They will be able to understand the function of language in literary and cultural phenomenon</p> <p>CO 3: They will gain an insight into the interconnected nature of the major schools of thought</p>
<b>SEMESTER III</b>		
<b>EL 231</b>	Linguistics and Structure of the English Language	<p>CO 1: The students will develop an awareness of the basic nature, branches and history of linguistics and developments of modern grammar</p> <p>CO 2: They will be able to Analyse language units based on their phonological, morphological and syntactical levels.</p>
<b>EL 232</b>	Critical Studies II	<p>CO 1: The course will help to sharpen the analytical and critical faculties of students and give them an idea of the evolution of critical thinking in Europe and India</p> <p>CO 2: They will also gain an insight into the interconnected nature of the major schools of thought</p>
<b>EL 233_1</b>	European Drama	<p>CO 1: The students will be able to trace the conditions that facilitated the origin and evolution of drama in Europe.</p> <p>CO 2: They will gain a comprehensive awareness of the aesthetic and socio moral principles of dramaturgy in Europe. And the defining aspects of major theatre movements in post-world war era in Europe.</p>
<b>EL 234_2</b>	African and Caribbean Literature	<p>CO 1: The students will be acquainted with the different genres from African and Caribbean literature and the historical and cultural context of literary works</p> <p>CO 2: They will understand the impact of colonialism, race, class, ethnicity and gender and also learn to appreciate the diversity of literary voices from Africa and the Caribbean.</p>
<b>SEMESTER IV</b>		
<b>EL 241</b>	English Language Teaching	<p>CO 1: The students would acquire knowledge of the historical and current theories in ELT</p> <p>CO 2: They will be able to assess critically the teaching materials and evaluation procedures.</p>

<b>EL 242</b>	Cultural Studies	<p>CO 1: The students will be able to formulate and defend a position within a theoretical framework</p> <p>CO 2: They will gain and articulate knowledge of the core concepts, central figures and different theoretical frameworks</p> <p>CO 3: They will have the ability to critically examine social cultural ethical and political issues from multiple perspectives and conduct analyses that address the intersections of race ethnicity and nationality</p>
<b>EL 243.1</b>	Comparative Literature	<p>CO 1: The students will become familiar with the concepts and practices of theatre.</p> <p>CO 2: They will learn the basics, history, genres and aesthetic theories of theatre studies and the social, cultural and political functions.</p> <p>CO 3: Their aptitude and skills in theatre and performance studies will be enhanced</p> <p>CO 4: They will gain the theoretical and practical expertise to be good practitioners of theatre arts.</p> <p>CO 5: They will be able to participate creatively in theatrical activities as part of one's social commitment and as means of self-realization.</p> <p>CO 6: They will also be able to involve in critical discourses of an interdisciplinary nature</p>
<b>EL 244.5</b>	Theorising Sexuality	<p>CO 1: The students will be able to demonstrate knowledge of at least a few languages and literatures with few native speakers and readers</p> <p>CO 2: They will have a basic knowledge about the 8th schedule of the Indian Constitution</p> <p>CO 3: They will gain an understanding of the major landmarks and trends in a few of India's major literatures and analyse critically some of major thematic concerns in these literatures</p>

<b>EL 246</b>	Project and Project-based Viva Voce	CO 1: Familiarize the students to develop research aptitude and skills CO 2: Enable students to develop a comprehensive knowledge on academic writing. CO3: Impart the skills essential for analysing research issues CO 4: Enable the students to conduct research in future.
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### MA MALAYALAM

Course code	Course title	Course outcomes
<b>SEMESTER I</b>		
<b>ML 211</b>	Pracheenasahityam	CO 1: Ability to analyse and appreciate ancient Malayalam poetry and prose. CO 2: Understand the characteristics, genres and history of the ancient poetry of Malayalam. CO 3: Understand the characteristics of oral tradition of Malayalam literature. CO 4: Ability to understand the cultural blend in language and literature in Malayalam.
<b>ML 212</b>	Madhykala sahyam	CO 1: Ability to analyse and appreciate medieval poetry. CO 2: Understand the characteristics and history of the medieval Malayalam poetry. CO 3: Understand the characteristics of Bhakti movement and the influence on medieval Malayalam literature. CO 4: Understand the evolution of poetical language from ancient to medieval period.
<b>ML 213</b>	Kerala Culture	CO 1: Provides awareness on cultural background and the cultural changes of Kerala. CO 2: Enhances the level of National integrity and National values. CO 3: Helps to develop a cultural view to study the cultural and political aspects of language and art forms of Kerala. CO 4: Ability to analyse the literary texts as cultural texts.

		CO 5: Ability to understand the cultural blend and the development of a modern society in Kerala.
<b>ML 214</b>	Malayala vyakaranam	CO 1: Students gain a good understanding of the history and modern Malayalam Grammar. CO 2: Understand the history and development of Malayalam language. CO 3: Provides awareness on dravida bhasha shastram. CO 4: Understand the contribution of foreigners to the study of Malayalam.
<b>SEMESTER II</b>		
<b>ML 221</b>	Adhunika sahityamGadyam	CO 1: Understand the characteristics of Malayalam Prose literature, esp. in modern period. CO 2: Provides awareness on major writers and their works of Malayalam prose literature. CO 3: Ability to analyse and appreciate prose literature.
<b>ML 222</b>	Adhunika sahityam-Padyam	CO 1: Understand the characteristics of Malayalam poetry, esp. in modern period. CO 2: Provides awareness on major works of Malayalam poetry CO 3: Ability to analyse and appreciate modern poetry
<b>ML 223</b>	Bharatheeya kavyameemamsa	CO 1: Provides awareness on major works of Indian Aesthetics. CO 2: Awareness of the historical and critical practices from classical period to present. CO 3: Awareness of significant concepts on the development of critical thought. CO 4: Awareness on the scope and relevance of Indian aesthetic concepts into contemporary literature. CO 5: Analyse and appreciate texts critically through Indian way.
<b>ML 224</b>	Sahitya MeemamsaWestern	CO 1: Provides awareness on major works of Western Literary theory. CO 2: Awareness of the historical and critical practices from classical period to present. CO 3: Awareness of significant concepts on the development of critical thought

		CO 4: Developed a critical perspective and capacity to compare various Western critical schools. CO 5: Analyse and appreciate texts critically.
<b>SEMESTER III</b>		
<b>ML 231</b>	Samakalika sahityam-Gadyam	CO 1: Understand the characteristics of contemporary Malayalam prose literature. CO 2: Provides awareness on major writers and their works of contemporary Malayalam prose literature. CO 3: Ability to analyse and appreciate prose literature
<b>ML 232</b>	Sahitya charitra vijneyam	CO 1: Understand the significance of historical and philosophical aspects of writing the literature. CO 2: understand how to historicize the text and how to textualize the history. CO 3: Critical practices on concept of “complete history”. CO 4: Understand the theoretical concepts and history of Literary historiography.
<b>ML 233</b>	Classical Sanskrit Literature and Translation, Drama, Poetry and Translation	CO 01: Familiarize the dramatic style of famous dramatistbhavabhuthi CO 02: Understand the influence of translation on literature CO 03: Understand the work of vallathol CO 04: Practice translations
<b>ML 234</b>	Malayalavimarsanam	CO 1: Provides awareness on the history and major works of Malayala vimarsanam. CO 2: Awareness of the critical practices from classical period to present in the tradition of Malayala vimarsanam. CO 3: Awareness of significant concepts on the development of critical thought. CO 4: Develops a critical perspective and capacity to compare various critical schools in the tradition of malayala vimarsanam. CO 5: Provides awareness on different branches and theoretical influences of Malayalam criticism.
<b>SEMESTER IV</b>		

<b>ML 241</b>	Samakalika sahityam- Padyam	CO 1: Understand the characteristics of contemporary Malayalam Poetry. CO 2: Provides awareness on major works of contemporary Poetry. CO 3: Ability to analyze and appreciate modern poetry.
<b>ML 242</b>	Classical Sanskrit literature and poetic types lyric and definition of poetic Types lyric and definition of poetic types Sanskrit	CO1: Understand the poetic types of sandesa kavya CO2: Understand the definition of kavyas CO3: Understand the champu kavyas CO4: Recognize the style of lyrics of kalidasa
<b>ML 243</b>	Modern Linguistics	CO 1: Develop an awareness of the basic nature, branches and history of linguistics. CO 2: Analyze language units based on their phonological, morphological and syntactical levels. CO 3: Familiarize the students with history and developments of modern grammar.
<b>ML 244</b>	Comparative Literature	CO 1: Comprehend the cultural milieu of various regions. CO 2: Internalizes a nationalist fervor CO 3: Propagate the and soulfulness in the discourse of humanity
	Project and Viva Voce	CO 1: New ideas and perspectives are formed through thinking and investigative reading CO 2: Achieving comparative and analytical skills through literary approach CO 3: Self awareness to form original thinking and world view CO 5: Acquiring skills to publish papers in research journals



## MA HINDI

Course code	Course title	Course outcomes
<b>SEMESTER I</b>		
<b>HL 211</b>	Ancient Poetry: Early and Riti Periods	CO 1: To introduce Prithviraj Raso (Chandabardai) CO 2: Identify the difference between Virkaavya and Ritikavya. CO 3: To familiarize other poets like Vidyapati, Bhushan, and Ghananand. CO 4: To analyse the salient features of Virkaavya and Ritikavya.
<b>HL 212</b>	Prose: Novel and Short stories	CO 3: To introduce the Novel Sevasadan. CO 2: To introduce other three novel of the later periods representing different schools of novelists. CO 3: To familiarize different trends in Short stories. CO 4: To Analyse the thoughts of writers in different periods.
<b>HL 213</b>	History of Hindi Literature Early and Medieval Periods.	CO 1: To introduce Origin of Hindi Literature. CO 2: To understand the royal patronage of Hindi Literature. CO 3: To analyse the socio-cultural impact of medieval Hindi Poetry. CO 4: To understand Bhakti Movement.
<b>HL 214</b>	Indian and Western Literary Thoughts.	CO 1: To introduce the definition and theories of poetry. CO 2: To analyse the classification of poetry. CO 3: To introduce the theories of Aesthetic pleasure and different schools of literary theory. CO 4: To understand the schools of Alankara, Dhvani, Vakrokthi, Riti and Auchithya.
<b>SEMESTER II</b>		
<b>HL 221</b>	Medieval Poetry: Bhakti Period	CO1: To introduce Bhakti Kavya like Kabir, Soor, and Tulsi. CO 2: To introduce Premakhyana.

		CO 3: To analyse the difference in various poets of Bhakthi Period. CO 4: To understand sagun bhakthi and nirgun bhakthi
<b>HL 222</b>	Linguistics and History of Hindi Language	CO 1: To understand the development of Hindi Language. CO 2: To introduce Geographical development of Dialects. CO 3: To introduce Phonetics articulatory, acoustic and auditory CO 4: To understand Phonology, Morphology and Semantics
<b>HL 223</b>	History of Hindi Literature: Modern Period	CO 1: To introduce Bhartendu Yug. CO 2: To understand the development of Romantic Movement. CO 3: To understand the origin and development of Hindi Criticism. CO 4: To analyze the history of Hindi Literature in non-Hindi areas and abroad Countries
<b>HL 224</b>	Functional Hindi	CO 1: To introduce different forms of Hindi. CO 2: To understand Hindi as an Official Language. CO 3: To introduce Technical Terminology in Hindi. CO 4: To know the difference between common language and functional language.
<b>SEMESTER III</b>		
<b>HL 231</b>	Modern Poetry up to Pragativad	CO 1: To understand the poems like Saketh and Kamayani. CO 2: To understand Chayavadi Poems. CO 3: To analyze the salient features of Pragativadi poem. CO 4: To analyze the difference between Mahakavya and Khandakavya
<b>HL 232</b>	Prose: Essay and other prose forms	CO 1: To introduce the Essays of Prominent Writers. CO 2: To familiarize different prose forms. CO 3: To analyse the difference between travelogue, memoir, sketches, interviews, diary etc CO 4: To understand essays and prose forms.
<b>HL 233</b>	Indian Literature	CO 1: To understand the nature and scope of Indian Literature.

		<p>CO 2: To introduce comparative study.</p> <p>CO 3: To analyze the Social stratification reflected on Indian Literature.</p> <p>CO 4: To familiarize Comparative studies of Hindi and Indian Literature- trends and theme</p>
<b>HL 234</b>	Special Author: Premchand	<p>CO 1: To introduce the social, political and cultural situation in which the author lived and worked.</p> <p>CO 2: To familiarize the life of author, main incidents of his life having bearing on his literary creativity.</p> <p>CO 3: To understand the chronology of his work.</p> <p>CO 4: Analyze his main works.</p>
<b>HL234a</b>	Classical sanskrit literature and sanskrit Prose poetry and translation	<p>CO1: Understand the different types of poetry works in sanskrit</p> <p>CO2: Uunderstand the works of banabhatta</p> <p>CO3: Understand historical kavyas in sanskrit</p> <p>CO4: Understand the mahakavya of magha</p>
<b>SEMESTER IV</b>		
<b>HL 241</b>	Modern Poetry Since Prayogvad	<p>CO 1: To understand the poems of Prayogvad. CO 2: To understand the poems written by Keralites.</p> <p>CO 3: To analyze the trends of Prayogvad.</p> <p>CO 4: To enrich the knowledge of Prayogvad</p>
<b>HL 242</b>	Drama & One Act Plays	<p>CO 1: To understand the Origin and development of Drama.</p> <p>CO 2: To analyze One drama of Jayasankar Prasad and two Dramas of later periods.</p> <p>CO 3: To introduce one act plays. CO 4: To analyze the difference between Drama &amp; One Act Plays.</p>
<b>HL 243</b>	Translation and structural Grammar	<p>CO 1: To understand the qualities of good translator and good translation.</p> <p>CO 2: To analyze the need of translation.</p> <p>CO 3: To familiarize the process of translation.</p> <p>CO 4: Understand the problems of style and diction.</p>

<b>HL 244</b>	South Indian Literature with special reference to Kerala	<p>CO 1: Understand the origin and development of Hindi Literature of South India.</p> <p>CO 2: To familiarize Hindi literature in Kerala - writers and their works.</p> <p>CO 3: To analyze the contributions of various Hindi Prachar kendras. CO 4: To introduce the translated works from Malayalam to Hindi.</p> <p>CO 5: To familiarize Hindi Journalism in Kerala</p>
<b>HL244a</b>	Classical Sanskrit Literature and Poetic Types Drama and Definition of Poetics types	<p>CO1: Understand sanskrit poetics in general</p> <p>CO2: Understand sanskrit literary theories</p> <p>CO3: Develop creativity in poetry</p> <p>CO4: Correlate the present dramatic style with old classic dramas</p> <p>CO5: Understand the principles of kavya theories in sanskrit</p>
<b>HL 245</b>	Dissertation & viva voce	<p>CO 1: It will familiarize the students to develop research aptitude and skills</p> <p>CO 2: Enable students to develop a comprehensive knowledge on academic writing.</p> <p>CO3: This would impart the skills essential for analysing research issues</p> <p>CO 4: Enable the students to conduct research in future.</p>

## MA ECONOMICS

Course code	Course title	Course outcomes
<b>SEMESTER I</b>		
<b>EC 211</b>	Micro Economics I	<p>CO 1: Enable the students to understand the basic principles of Economics</p> <p>CO 2: The students will get a deep understanding of the working of different market structures in the world.</p> <p>CO 3: The students could develop their knowledge in the application of game theory.</p> <p>CO 4: To develop a conceptual foundation on Managerial and Behavioural Theories of the Firm</p>
<b>EC 212</b>	Economics of Growth and Development	<p>CO 1: It connects students to academic concerns, policies and practical solutions relevant for the progression of all economies</p> <p>CO 2: It familiarizes students with the conceptual routes, theoretical dynamics and practical strategies of growth and development</p> <p>CO 3: This course would orient them toward major themes of development, lead them toward more methodical probes.</p> <p>CO 4: Equip the students with adequate analytical knowledge</p>
<b>EC 213</b>	Indian Economic Policy - I	<p>CO 1: The students will be able to understand the various issues of the Indian Economy with a policy perspective.</p> <p>CO 2: The students will also be able to get deep knowledge of structural reforms in the Indian economy</p> <p>CO 3: It provides an exposition to the effect of demonetization in the economy.</p> <p>CO 4: The students will be able to analyze and criticize the recent policy changes in the field of trade, foreign exchange markets, agriculture, industry and services-related aspects.</p>
<b>EC 214</b>	Quantitative Methods for Economics	<p>CO 1: It will provide the students an insight into the importance of quantitative methods in Economics.</p> <p>CO 2: Enable students to introduce and apply quantitative techniques in finding solutions to economic problems.</p>

		<p>CO 3: It will help students to inculcate analytical ability in finding solutions to mathematically formulated economic problems.</p> <p>CO 4: Enable them to analyze various macro-economic problems in the society</p>
<b>SEMESTER II</b>		
<b>EC 221</b>	Micro Economics – II	<p>CO 1: Enable the students to get an insight into the importance and developments in the areas of theories of distribution in Economics.</p> <p>CO 2: The students will be able to understand the significance of general equilibrium and welfare economics in economic analysis</p> <p>CO 3: To impart an idea regarding the uncertainty and informational asymmetry</p> <p>CO 4: To equip the students to understand emerging importance of behavioural economics</p>
<b>EC 222</b>	Economics of Social Sector and Environment	<p>CO 1: Enable the students to understand and apply the key economic concepts in the context of social sectors like education, environment and healthcare</p> <p>CO 2: The students will be able to understand how economic factors contribute to the development and implementation of educational policies</p> <p>CO 3: They could identify the major theories governing the development of human resources, school improvement and development</p> <p>CO 4: To understand the key environmental issues around the globe</p>
<b>EC 223</b>	Indian Economic Policy - II	<p>CO 1: The students will familiarize with the basic concepts of economics and enable them for further learning in Indian and Kerala Economy</p> <p>CO 2: The students will get knowledge about the financial sector developments in India</p> <p>CO 3: It will create an enthusiasm among students, incorporating various concepts and issues in Indian economy.</p>

		CO 4: To make the students aware of the need for reforms in Indian Economy
<b>EC 224</b>	Econometrics and Research Methodology	<p>CO 1: It will create an understanding among the students on basic econometric methodology</p> <p>CO 2: It will equip the students in applying economic theories to real economic data by means of empirical models</p> <p>CO 3: To enable the students to undertake univariate analysis and regression analysis in economic research</p> <p>CO 4: the students will get a comprehensive idea on the process of doing research in economics.</p>
<b>SEMESTER III</b>		
<b>EC 231</b>	Macro Economics – I	<p>CO 1: The student will familiarize with the development of macroeconomics after Keynesian revolution including Neo-classical and Keynesian synthesis.</p> <p>CO 2: The students will enable to get the idea of behaviour foundations of macroeconomics, theoretical foundations of demand and supply of money and macroeconomic model in an open economy context.</p> <p>CO 3: To make the students aware about the structural underpinnings of theoretical development of macroeconomic thoughts and their application.</p> <p>CO 4: To create consciousness among students about the recent crisis in global capitalism</p>
<b>EC232</b>	International Economics I	<p>CO 1: Introduces the main theoretical tools and policies, that are central to the study of international trade.</p> <p>CO 2: Emphasis on application to the trade flows, trading blocks and international macroeconomic events that characterize the global economy today.</p> <p>CO 3: Develop ability to use economic analysis to reach a deeper understanding of international trade.</p> <p>CO 4: Provides formative element for those who intent to develop carriers in international business and management.</p>

<b>EC 233</b>	Public Economics	CO 1: The students will be able to understand the regulatory and developmental responsibilities of government in a democratic country like India CO 2: Enable students to cover the theoretical and empirical dimensions of public goods and public choice CO 3: Get knowledge about fiscal instruments and fiscal federalism with special reference to Indian context CO 4: Enable the students to impart knowledge about the present fiscal management issues of India.
<b>Optional I</b>  <b>EC 201</b>	Agricultural Economics	CO 1: To develop knowledge and understanding of basic principles and practice of agricultural economics. CO 2: The students can acquire knowledge and skills required to analyse the agricultural economic issues for efficient use of scarce resources in agricultural sector. CO 3: It provides knowledge regarding agricultural production and marketing.
<b>EC 203</b>	Labour Economics	CO 1: To develop abilities in understanding the functioning of labour markets. CO 2: Introduces the students the economics of labour markets through a blend of theoretical and empirical analysis CO 3: The course provides an idea about different aspects of the labour market. CO 4: Gives an idea about labour organizations, labour relations and legislations, wage and employment theory, collective bargaining theory, social security and welfare measures.
<b>SEMESTER IV</b>		
<b>EC 241</b>	Macro Economics – II	CO 1: The students will be able to get an understanding about the theoretical development of the macroeconomic issues of inflation, unemployment and business fluctuations CO 2: Enable students to have a basic understanding on the development of macroeconomics after Keynesian revolution, divided into classical school and Keynesian school.



		<p>CO 3: The students should be able to keep abreast with the latest development of macroeconomics.</p> <p>CO 4: Enable the students to impart knowledge about the impacts of various macroeconomic policies in the society</p>
<b>EC 242</b>	International Economics – II	<p>CO 1: It will familiarize the students with the theories of international finance flows and determination of interest exchange rates in interconnected economies.</p> <p>CO 2: Enable students to develop a comprehensive knowledge on macroeconomic policies available to the government, and the nature of financial crises</p> <p>CO3: It will provide a framework for consistent reasoning about international flows of goods, factors of production, and financial assets</p> <p>CO 4: Enable the students to impart knowledge about the trade policy and monetary policy in open economy</p>
<b>EC 243</b>	Financial Securities Market Analysis	<p>CO 1: It will provide comprehensive study of the significance of Securities Market in modern financial system</p> <p>CO 2: Enable students to develop a comprehensive knowledge on efficient securities markets theory in finance, bond pricing, price-earnings models of share valuation</p> <p>CO3: This would impart the skills essential for understanding the top-down approach to investment decisions.</p> <p>CO 4: Enable the student to understand modern finance theory balanced with a consideration of new developments in the discipline</p>

<b>Optional II EC 2010</b>	Industrial Economics	CO 1: It is designed to use theoretical models to understand industries and regulatory decision making. CO 2: It provides knowledge to the students on the basic issues in the industrial development of India. CO 3: Students can acquire fair knowledge of international experience on industrial progress. CO 4: Provide an understanding on the importance of industrial finance in India.
<b>EC 2011</b>	Welfare Economics	CO1: Evaluates the significance of economic events and issues. CO2: Includes branches of economics such as public finance, cost-benefit analysis and economics of Government policy. CO3: Provides knowledge regarding various welfare criteria.
<b>EC 244</b>	Dissertation and Viva Voce	CO 1: It will familiarize the students to develop research aptitude and skills CO 2: Enable students to develop a comprehensive knowledge on academic writing. CO3: This would impart the skills essential for analysing research issues CO 4: Enable the students to conduct research in future.

### MA HISTORY

Course code	Course title	Course outcomes
<b>SEMESTER I</b>		
<b>HY 211</b>	Historical Method – I	CO 1: To introduce the basic tools and techniques of research as distinguished from methodology. CO 2: To impart knowledge about the different sources and its importance. CO3. To make the study of history dispassionate and impartial
<b>HY 212</b>	Indian History - I	CO 1: To introduce various sources and aspects of ancient history of the Indian Subcontinent. CO 2: To unravel the evolution of Indian civilization.

		CO 3: To understand the genesis of Vedic and heterodox religions, state and early social formation.
<b>HY 213</b>	Kerala History – I	CO 1: To introduce the basic tools and techniques of research as distinguished from methodology in the context of Kerala CO 2: To impart knowledge about the different sources and its importance pertaining to the History of Kerala. CO 3: To make the study of history dispassionate and impartial.
<b>HY 214 B</b>	Ancient Greece and Rome	CO 1: To understand and analyse the basic features and geographical features of Greece and Rome CO 2: To provide the students conceptual insights into the transitional processes of early societies
<b>SEMESTER II</b>		
<b>HY 211</b>	Historical Method – II	CO 1: To analyze the different stages of historical research. CO 2: To understand the methods of collection of data and analysis CO 3: To familiarize the students how to write History
<b>HY 222</b>	Indian History – II	CO 1: To unravel the History of India from the medieval period to the pre-modern times. CO 2: To understand the causative factors, course and impact of the external interventions.
<b>HY 223</b>	Kerala History – II	CO 1: To discuss the nature of Kulasekhara state CO 2: To provide knowledge regarding the society, institutions, political process and culture of the medieval period. CO 3: To understand the transitional phases in social formation
<b>HY 224 C</b>	History of Medieval Europe	CO 1: To analyse how underlying forces and movements shape events and then to looking at how abstract, impersonal forces shape history CO 2: To interpret events in the past and then to examining disputes over the nature and extent of the underlying forces
<b>SEMESTER III</b>		
<b>HY 231</b>	Issues in Historiography	CO 1: To familiarize various schools of thought in Historiography CO 2: To understand approaches to History CO 3: To know recent trends and problems in Historiography

<b>HY 232</b>	Indian History- III	CO 1: To furnish the nature and method of colonial intervention. CO 2: To expose the factors leading to the emergence of national movement.
<b>HY 233</b>	Kerala History –III	CO 1: To understand the process of colonial expansion and consolidation in Kerala CO 2: To explain the genesis and growth of resistance against colonialism CO 3: To trace the rise and spread of socio-economic changes CO 4: To explore the beginning of nationalism in Malabar. CO 5: To estimate the political awakening in Travancore and Cochin.
<b>HY234 A</b>	Modern Revolutions - English, American and French	CO 1: To enlighten the students on the pathways of revolutions that have brought structural changes in different societies in time and space. CO 2: To investigate into the agencies conditions that made revolutions a reality in different political systems. CO 3: The students will be able to locate, compare and contrast the revolutions in terms of ideology, nature and strategies.
<b>SEMESTER IV</b>		
<b>HY 241</b>	Indian Historiography	CO 1: To trace the evolution of Indian historiography. CO 2: To understand the paradigm shift in Indian historiography. CO 3: To emphasize the scope and importance of Indian historiography in the realm of main stream historiography
<b>HY 242</b>	Indian History – IV	CO 1: To understand the process of nation in the making „. CO 2: To familiarize the historical developments that occurred in India since Independence. CO 3: To understand the contemporary issues.
<b>HY 243</b>	Kerala History –IV	CO 1: To introduce contemporary debates on selected issues CO 2: To review the problems and prospects of Kerala Economy, Education and Health. CO 3: To explore the challenges of women, Dalit and other marginalized sections.

		CO 4: To attempt a critical assessment of Kerala Model of Development
<b>HY 244C</b>	Twentieth Century Revolutions	CO 1: The students will be able to apply certain theoretical models for the analysis of revolutions in history CO 2: To trace historic linkages between contemporary society and the revolutionary past.
	Project	CO 1: It will familiarize the students to develop research aptitude and skills CO 2: Enable students to develop a comprehensive knowledge on academic writing. CO3: This would impart the skills essential for analysing research issues CO 4: Enable the students to conduct research in future.

### MA POLITICAL SCIENCE

Course code	Course title	Course outcomes
<b>SEMESTER I</b>		
<b>PS 511</b>	Modern Western Political Thought	CO1. To understand the essential background of Modern Western Political Thought and its origin in the Enlightenment and development through modernity with special focus on contributions of Machiavelli in conceptualising realism and Secularism in political sphere. CO2. To provide an understanding and evaluation of methodology, human nature, nature of state and Government, liberalism, democracy etc through the prism of the Social Contract theories. CO3. To encourage a comparative study of the experiment in Liberal Government in England with particular reference to the philosophy of the Utilitarians.

		<p>CO4. To lead the students in an investigative study of the conservative backlash to the philosophy of the liberals with specific focus on the German Idealist philosophers. Emmanuel Kant and G. W. H. Hegel.</p> <p>CO5. To critically evaluate the ideology of Marxism, Marxist thinkers and their major ideals. Enables the students to think about its relevance and possibilities in the cotemporary world.</p> <p>CO6. To understand the decision making frame work of the state and also how Power and influence are distributed in the political process.</p>
<b>PS 512</b>	State And Society In Kerala	<p>CO1: To understand the evolution and emergence of the present-day Kerala society.</p> <p>CO2: To develop a historical understanding of significant social movements that led to the making of contemporary Kerala</p> <p>CO3: To develop a historical understanding of political movements of Kerala</p> <p>CO4: To prompt the students to explore the diverse debates on the development trajectory of Kerala</p> <p>CO5: To analyse the electoral Process in Kerala</p> <p>CO6: To evaluate various contemporary issues of Kerala Society and Politics</p>
<b>PS 513</b>	Indian Government And Politics	<p>CO1. Understand the Constituent Assembly and its composition and the nature of Constituent assembly Debates</p> <p>CO2. To Examine the Philosophy of the Constitution by Special Emphasizing on the Preamble, Fundamental Rights and Directive Principles of State Policy</p> <p>CO3. Evaluate the institutional Framework with a Particular Emphasis on the structure and functions of Legislature, Executive and Judiciary.</p>

		<p>CO4. Analyze the Federal dynamics in India and the issues in Centre-State relations.</p> <p>CO5. Evaluate the decentralized planning in India with special focus on 73rd and 74th amendment</p> <p>CO6. Analyse the electoral process in India and also the determinants of voting behavior and Anti-defection Law.</p>
<b>PS 544.4 Sem 1</b>	Political theory: marxian tradition	<p>CO1.To leads the students in an investigative study of the philosophy of Marx and Engels:</p> <p>CO2. To understand revolutionary Marxian thinkers with particular reference to Lenin and Mao.</p> <p>CO3.To understand and illustrate Euro Communism with special focus on Gyorgy Lukacs and Antonio Gramsci</p> <p>CO4. To understand Marxist theories of state.</p> <p>CO5 To encourage the students critically analyse key ideas of Herbert Marcuse and jurgen Habermas</p> <p>CO6.To understands and analyse contemporary Marxian thought.</p>
<b>PS 514.1</b>	Un and world peace	<p>CO1. Understand the evolution of International Organisation, its structure &amp; functioning</p> <p>CO2. Analyse peace keeping operations under UN with special focus on Kosovo, Kashmir and Ukraine</p> <p>CO3. Understand the necessity of maintaining international peace and security and peaceful settlement of disputes under UN charter.</p> <p>CO4. Evaluate how UN address the social development issues</p> <p>CO5. Examine the role of UN in the protection of Human Rights with particular reference on UDHR .Also analyse other UN organizations and international criminal Court</p> <p>CO6. Analyse the need for restructuring of UN with special focus on India's admission to UN Security Council.</p>
<b>PS 514.2</b>	Public policy analysis	<p>CO1. Understand the concept of Public Policy Analysis CO2. Explain the Approaches of Public Policy Analysis</p>

		<p>CO3. Examine the theories and process of Public Policy Making</p> <p>CO4. Examine the Theories and Process of implementation and evaluation in Public Policy Making</p> <p>CO5. Analyse the major actors in Public Policy Making</p> <p>CO6. Understand the major Public Policies in Indian Society</p>
<b>SEMESTER II</b>		
<b>PS 521</b>	Comparative politics	<p>CO1: Understand the evolution, scope and various theories of studying politics in a comparative framework.</p> <p>CO2: Understand and analyze the impact of colonialism, the anticolonial struggles and the process of decolonization.</p> <p>CO3: Analyze the debates on state theories in capitalist, socialist and post-colonial and globalized state.</p> <p>CO4: Develop a critical perspective on the major types of the political regimes in a broader Democratic and non-Democratic regime. CO5: Understand and compare the federal process and federal-state relations in a comparative perspective. CO6: Develop a thorough understanding on political process and influential actors in decision making.</p>
<b>PS 522</b>	Theories and concepts of public administration	<p>CO1: Understand and observe the evolution and ongoing debates to the discipline of Public Administration</p> <p>CO2: Survey and discuss the paradigm shift in the field of public administration</p> <p>CO3: Introduce and evaluate various classical and neo-classical theories of Public Administration</p> <p>CO4: Introduce and evaluate various modern theories of Public Administration</p> <p>CO5: Compare and estimate the changing nature and challenges to the study of Comparative and Development Administration</p> <p>CO6: Develop an understanding about the Contemporary discourses in Public Administration</p>



<b>PS 523</b>	Theories and concepts in international politics	<p>CO1: Explain the evolution of contemporary state system</p> <p>CO2: Infer the importance of theory in international politics</p> <p>CO3: Explain and outline Decision making Theory-System Theory and Game Theory.</p> <p>CO4: Exemplify and outline Realism- Neo-realism- Liberalism- Neo-liberalism, Indian and Chinese Traditions-Kautilya and Sun Tsu, Marxism- NeoMarxism-Functionalism-Post-modernism- Constructivism -English and European Schools of Thought in international relations</p> <p>CO5: Explain and critique Non-State Actors and Global Civil Society</p> <p>CO6: Design a theoretical model for peaceful resolution of conflicts</p>
<b>PS 524.2</b>	Contemporary west asian politics	<p>CO1: Understand the diversities in West Asia like Politics, Culture ideology, nature of states etc.</p> <p>CO2: Analyse the importance of West Asian Politics in the contemporary world.</p> <p>CO3: Understand the major conflicts, movements, and the contemporary questions in West Asia</p> <p>CO4: Understand the role of regional organizations in West Asia.</p> <p>CO5: Evaluate the relations between India and the West Asian states.</p> <p>CO6: Analyse the role of major powers in West Asia, particularly the United States, Russia, and China, with a focus on oil politics.</p>
<b>PS 524.3</b>	Gender and politics	<p>CO1: Understand the major concepts related to Gender</p> <p>CO2: Develop an understanding of the various streams of Feminism</p> <p>CO3: Analyse the various theories on gender and evaluate how gender identities are constructed</p>

		<p>CO4: Familiarize various concepts on gender and development and gender analysis indices</p> <p>CO5: Understand the major recommendations made for women's political participation at global level and evaluate as to how gender politics work in Indian context</p> <p>CO6: Analyse the various gender roles in Public sphere</p>
<b>PS 524.4</b>	Theories of democracy	<p>CO1: Understand and observe the evolution of the concept of Democracy</p> <p>CO2: Introduce and evaluate various theories of Democracy</p> <p>CO3: To understand how democracy is justified from a variety of normative standpoints</p> <p>CO4: Identify the global perspectives of Democracy</p> <p>CO5: Compare and estimate the changing nature and challenges to the study of Democracy</p> <p>CO6: Develop an understanding of different types of Democracy</p>
<b>SEMESTER III</b>		
<b>PS 531</b>	Research methodology	<p>CO1: Understand the philosophy of social science CO2. Understand and illustrate knowledge about basics of research methodology</p> <p>CO3: Learn and apply various research designs</p> <p>CO4: Understand and apply the sampling types and techniques</p> <p>CO5: Understand and apply statistical tools and techniques of data collection CO6. Understand ethical issues in research</p>
<b>PS 532</b>	Contemporary political theory	<p>CO1: To understand the significance of Contemporary Political Theory with the conceptual understanding of key concepts in contemporary perspective.</p> <p>CO2: To understand the ideals of Liberty and Justice and the discussion of its importance in modern society.</p> <p>CO3: To analyse the changing theoretical understanding about the nature and role of State and Civil Society.</p> <p>CO4: To critically understand two different frameworks of Communitarianism and Libertarianism, and their</p>

		<p>perceptual difference in the conceptions of self, common good, freedom, right to property, entitlement etc.</p> <p>CO5; To understand the neo-Marxist explanations of the state of society under capitalism: totalitarianism in the form of consumerist and technological capitalism and also the popular culture in the capitalist society.</p> <p>CO6; To understand the post - Marxist perception on radical democracy.</p>
<b>PS 533</b>	Issues in indian politics	<p>CO1: Analyse the Dialectics of Caste, Class and Gender Politics in India</p> <p>CO2: Understand and Analyse the Changing Nature of Party System in India with Special Reference to Major Political Parties in the Country</p> <p>CO3: Analyse the Dynamics of Electoral Politics in India</p> <p>CO4: Understand Various Debates on Growth of Hindutva, Communalism, Migration, Maoism, Populism, Agrarian Crisis</p> <p>CO5: Analyse India's Development and Neo-liberal experience</p> <p>CO6: Evaluate the Role Played by Various Civil Society Movements.</p>
<b>PS 534.1</b>	Human rights in india	<p>CO1: Understand the evolution of the idea of Human rights and analyse different approaches to Human rights</p> <p>CO2: Analyse the relevant provisions of UDHR and international covenants</p> <p>CO3: Understand human rights protection provisions from the vantage point of Indian Constitution</p> <p>CO4: Explore various state actors and instrumentalities for the Protection of Human Rights</p> <p>CO5: Explore various non-state actors for the protection of human right and create awareness on human rights violations among marginalized groups and protective measures.</p>

		CO6: Analyse the relations of human security and human rights and goals to achieve sustainable development in the present society.
<b>PS 534.3</b>	India's foreign policy	CO1: Explain the determinants, Shifts, purpose, challenges of IFP CO2: Describe major events and incidents of IFP CO3: Interpret and critique India's Foreign Policy Strategies CO4: Describe the agencies responsible for making India's foreign policy CO5: Describe and Critique India's defence and nuclear policy CO6: Explain and critique India's relationship with USA, China, Russia, Pakistan and Neighbours CO7: Outline and Critique India as an emerging power in world politics. CO8: Outline and critique India's relations with BRICS, SAARC, West Asea and South East
<b>PS 534.4</b>	Decentralized governance in india	CO1: Introduce and analyze the concept and dimensions of decentralization and governance CO2: Understand and observe the history and legislations of decentralization in India from pre independence to the passage of 73rd and 74th amendment Act CO3: Comprehend and describe the constitutional and political framework of urbanization and Participatory Resource Mapping in India CO4: Comprehend and describe the constitutional and political framework of decentralization and Participatory Resource Mapping in India CO5: Evaluate the performance of grassroots mobilization in the decentralized governance of India CO6: Interact with the different stakeholders in the local Government Institutions and review the performance of diverse activities
<b>SEMESTER IV</b>		

<b>PS 543</b>	Modern indian political thought	<p>CO1: Understand the philosophical and political roots of modern Indian political thought and evaluate the contribution of modern Indian thinkers to political theorizing</p> <p>CO2: Identify and analyse the liberal political tradition of India</p> <p>CO3: Develop an outlook on the different aspects of political concepts and philosophies associated with state, parliamentary democracy, secularism and nationalism.</p> <p>CO4: Examine the development and significance of socialist and Marxist political thought in modern India</p> <p>CO5: Critically engage with the contemporary socio-political issues in the light of the basic concepts of freedom, equality, social justice and socialism</p> <p>CO6: Comprehend the recent trends in Indian political thought and assess the significance of liberal and socialist political philosophy in the present era.</p>
<b>PS 541</b>	Environment, development and politics	<p>CO1: Understand the inter Relationship between environment and human beings.</p> <p>CO2 Analyse environmental theories in an inter disciplinary Perspective .</p> <p>CO3 : Evaluate environmental governance at national and international levels .</p> <p>CO4 : Critique the Politics associated with Global Commons.</p> <p>CO5 : Critical evaluation of environment and development debates in India.</p> <p>CO6 : Acquire Knowledge about environmental conservation in India.</p>
<b>PS 542</b>	Issues in international politics	<p>CO1: Explain the new world order in the context of post-cold war and crisis of globalization and the global pandemic</p> <p>CO2: Examine Chinese challenge to US hegemony and its impact on world order</p> <p>CO3: Outline the role of UN, Breton Wood Institutions, AIIB, BRICS, EU, ASEAN-NATO and SCO in global governance</p>

		<p>CO4: Critique rises of nationalism in USA, Britain and India and issues of black ethnicity in USA</p> <p>CO5 Explain and Critique International Terrorism –Refugees-Environment – world pandemics</p> <p>CO6: Explain and critique the impact of US intervention in Afghanistan and Iraq</p> <p>CO7: Outline and critique Nuclear Proliferation, Democratic Movements in the Arab World.</p>
<b>PS 544.3</b>	Politics of south asia	<p>CO1: Understand the trans-boundary politics in South Asia and its multiple impacts.</p> <p>CO2: Estimate the politics of ethnicity in South Asia.</p> <p>CO3: Evaluate the trajectory of democracy and authoritarianism.</p> <p>CO4: Analyze the political economy of development in South Asia.</p> <p>CO5: Evaluate the linkage between South Asia and the world</p> <p>CO6: Estimate the success and failures of regional economic cooperation.</p>
<b>PS 544.1</b>	New social movements	<p>CO1: Understand the evolution of New Social Movements and their significance in contemporary politics.</p> <p>CO2: Develop a historical understanding of the theories of new social movements.</p> <p>CO3: Analyse the significance of New Social Movements in a democratic society</p> <p>CO4: Explore global-level new social movements in the era of globalization</p> <p>CO5: Analyse various new social movements in India</p> <p>CO6: Analyse various new social movements in Kerala related to land, livelihood, Identity and quality of life</p>
<b>544.2</b>	Indian Administration	<p>CO1: Understanding the changing trends of Indian administration from pre-independence to post-independence phase</p> <p>CO2: Delineate the phase the legal framework of Indian federalism and evaluate the unequal federal relations.</p>

		<p>CO3: Compare and discuss the functions of state level administrative institutions.</p> <p>CO4: Compare and discuss the role and functions of rural local democratic decentralized institutions at the grassroots level.</p> <p>CO5: Trace and analyse the major issues in Indian administration</p> <p>CO6: Develop an understanding about the changing pattern of central-state financial relations</p>
<b>PS 545</b>	Dissertation/Viva voce	<p>CO1: Familiarize the students to develop research aptitude and skills</p> <p>CO2: Enable students to develop a comprehensive knowledge on academic writing.</p> <p>CO3: Impart the skills essential for analysing research issues</p> <p>CO4: Enable the students to conduct research in future.</p>

### M.SC MATHEMATICS

Course code	Course title	Course outcomes
<b>SEMESTER I</b>		
<b>MM211</b>	Linear Algebra	<p>CO1: Demonstrate understanding of concepts in linear algebra, relating to vector spaces, linear transformations, eigenvalues, eigenvectors and diagonalisation.</p> <p>CO2: Understanding concepts related to linear transformations</p> <p>CO3: Appreciate the importance of diagonalisation of linear operators</p> <p>CO4: Finding minimal polynomials and Jordan form of linear operators</p> <p>CO5: Understanding the concept of change of basis</p>

		CO6: Understanding the ideas like trace and determinant of a linear operator.
<b>MM212</b>	Real Analysis I	<p>CO1: Demonstrate understanding of the basic concepts of bounded variation, total variation, functions of bounded variation, rectifiable paths, arc lengths and equivalence of paths.</p> <p>CO2: Demonstrate familiarity with the Riemann-Stieltjes Integrals, Riemann condition, sufficient condition for the existence of Riemann-Stieltjes integrals.</p> <p>CO3: Demonstrate an understanding of the concepts of sequence of functions.</p> <p>CO4: Demonstrate an understanding of the concepts of multivariable differential calculus.</p> <p>CO5: Demonstrate an understanding of the concepts of implicit functions and extremum problems.</p>
<b>MM213</b>	Differential Equation	<p>CO1: Understand that physical systems can be described by differential equations.</p> <p>CO2: Understand the practical importance of solving differential equations.</p> <p>CO3: Solving second order differential equations.</p> <p>CO4: Appreciate the importance of establishing the existence and uniqueness of solutions.</p> <p>5. Recognise an appropriate solution method for a given problem.</p> <p>6. Classify differential equations.</p>
<b>MM214</b>	Topology I	<p>CO1: Demonstrate an understanding of the concepts of metric spaces and topological spaces, and their role in mathematics.</p> <p>CO2: Demonstrate familiarity with a range of examples of these structures.</p> <p>CO3: Prove basic results about completeness, compactness, connectedness.</p>
<b>SEMESTER II</b>		



<b>MM221</b>	Abstract Algebra	<p>CO1: Demonstrate understanding of the idea of a group and examples of these structures in mathematics.</p> <p>CO2: Appreciate and be able to prove the basic results of group theory and ring theory.</p> <p>CO3: Understand and be able to apply the fundamental theorem of finite abelian groups.</p> <p>CO4: Understand Sylow's theorems and be able to apply them to prove elementary results about finite groups</p> <p>CO5: Understanding the concept of homomorphism and isomorphism</p> <p>CO6: Appreciate the importance of ideals and construction of quotient rings</p> <p>CO7: Appreciate the significance of unique factorization in rings and integral domain.</p> <p>CO8: Understanding the concept of Unique factorization domains and Euclidean domains</p> <p>CO9: Understanding the basic concepts in field theory and prove fundamental theorem of field theory.</p> <p>CO10: Historical discussion of development of field theory.</p>
<b>MM222</b>	Real Analysis II	<p>CO1: Describe the properties of Lebesgue outer measure ,measurable functions and Lebesgue measurability .</p> <p>CO2: Prove the basic results of measure theory and integration theory.</p> <p>CO3: Describe the properties of abstract measure spaces ,completion of measure .</p> <p>CO4: Demonstrate understanding of the <math>L_p</math> Spaces ,convex functions and different inequalities and completeness of <math>L_p</math> Spaces .</p> <p>CO5: Demonstrate understanding of the statements of the main results on convergence in Measure and signed measure.</p>

		<p>CO6: Apply the theory of the course to solve a variety of problems at an appropriate level of difficulty.</p> <p>CO7: Demonstrate skills in communicating mathematics orally and in writing</p>
<b>MM223</b>	Topology I I	<p>CO1: Demonstrate an understanding of the concepts of product and Quotient spaces.</p> <p>CO2: Understanding Separation Axioms</p> <p>CO3: Understanding convergence and study Tychonoff's Theorem.</p> <p>CO4: Demonstrate familiarity with a range of examples of these structures.</p> <p>CO5: Prove basic results in Algebraic Topology</p> <p>CO6: Apply the theory in the course to solve a variety of problems at an appropriate level of difficulty.</p> <p>CO7: Demonstrate skills in communicating mathematics orally and in writing.</p>
<b>MM224</b>	Scientific Programming with Python	<p>CO1: The course is aimed to give an introduction to mathematical computing, with Python as tool for computation.</p> <p>CO2: The students gain ability to write programs to solve the problems given in the sections .</p> <p>CO3: Introduce a powerful way to present numerical data: by drawing graphs with Python</p> <p>CO4: . Here we discuss Algebra and Symbolic Math with SymPy and Solving Calculus Problems</p>
<b>SEMESTER III</b>		
<b>MM231</b>	Complex Analysis I	<p>CO1: Demonstrate understanding of the basic concepts underlying complex analysis.</p> <p>CO2: Demonstrate familiarity with a range of examples of these concepts.</p>

		<p>CO3: Prove basic results in complex analysis.</p> <p>CO4: Apply the methods of complex analysis to evaluate definite integrals and infinite series.</p> <p>CO5: Demonstrate understanding and appreciation of deeper aspects of complex analysis such as the Open Mapping theorem, Cauchy- Goursat Theorem, Argument Principle.</p>
<b>MM232</b>	Functional Analysis I	<p>CO1: Understand Normed spaces and continuity of linear maps</p> <p>CO2: Be able to state and prove Hahn Banach theorems and learn about the very important space of Banach space.</p> <p>CO3: Understand the concept of Uniform boundedness principle and be able to prove open mapping theorems.</p> <p>CO4: Learn the concept of spectrum of a bounded operator and study bounded inverse theorem.</p> <p>CO5: Finally, study the weak convergence and compact linear maps.</p>
<b>MM233</b>	Elective I-Operations Research	<p>CO1: Formulate a given simplified description of a suitable real- world problem as a linear programming model in general, standard and canonical forms.</p> <p>CO2: Understand the formulation of Linear Programming models, graphical solution of linear programs in two variables, solution of linear programming problem using different Methods like simplex method, Big M method, Two phase method etc.</p> <p>CO: Understand variety of problems such as Assignment problem, Transportation Problem using Linear programming and Project Management using techniques like PERT and CPM.</p>

		CO4: Know about Kuhn Tucker theory , Nonlinear programming and Dynamic Programming.
<b>MM234</b>	Elective II Graph Theory	<p>CO1: To understand and apply the fundamental concepts in graph theory .</p> <p>CO2: Demonstrate familiarity with a range of examples of these concepts and to apply graph theory based tools in solving practical problems</p> <p>CO3: To Introduce the notion of isomorphism in graphs and study automorphism groups of graphs.</p> <p>CO4: To understand concept like strong diagraphs, Tournaments, matching and Factorization and to appreciate the importance of the famous “ Four colour problem” and Ramsey number</p>
<b>SEMESTER IV</b>		
<b>MM241</b>	Complex Analysis I I	<p>CO1: Demonstrate understanding analytic functions, Reimann Zeta Functions</p> <p>CO2: Demonstrate familiarity with a range of examples of these concepts.</p> <p>CO3: Study concepts of Compactness and Convergence of analytic functions.</p> <p>CO4: Apply the methods of complex analysis to evaluate definite integrals and infinite series.</p> <p>CO5: Demonstrate understanding and appreciation of deeper aspects of complex analysis such as the Riemann Mapping theorem, Schwarz Reflection, Runge’s Theorem, Hadamard factorization Theorem.</p>

<b>MM242</b>	Functional Analysis I I	<p>CO1: Understand properties of Hilbert spaces and their bounded linear operators; know how to apply these properties;</p> <p>CO2: Be able to identify and work on key examples involving Hilbert space analysis;</p> <p>CO3: Understand the concept of the spectrum of an operator, and compute the spectrum of specific examples;</p> <p>CO4: Be able to state and prove the spectral theorem for compact and for self-adjoint operators.</p>
<b>MM243</b>	Elective III- Integral Equations And Calculus of Variation	<p>CO1: Understand the concept of Integral Equations, different Types of Integral Equations and those with Separable Kernels.</p> <p>CO2: Appreciate the Classical Fredholm Theory and demonstrate the method of Successive approximations.</p> <p>CO3: Employ methods related to these concepts in a variety of applications of Differential Equations.</p> <p>CO4: Demonstrate understanding of and proficiency with introductory concepts in Calculus of Variations relating to Euler's Equations, Variational Derivative, Invariance etc.</p>
<b>MM244</b>	Elective IV Analytic Number theory	<p>CO1: To understand and apply the fundamental concepts in number theory</p> <p>CO2: Demonstrate familiarity with a range of examples of these concepts and to apply number theory based tools in solving practical problems</p> <p>CO3: To Introduce the notion of arithmetical function and Dirichlet multiplication.</p> <p>CO4: Understand Chinese Remainder Theorem and its applications.</p> <p>CO5: Introduce Primitive roots, Existence and number of primitive roots.</p>
<b>MM245</b>	Project	<p>CO1: Appreciate the way pure mathematics is built on rigorous arguments.</p>

		<p>CO2: Demonstrate familiarity with research in an area of mathematics.</p> <p>CO3: Demonstrate skills in interpreting and critically evaluating literature related to a current area of research in mathematics.</p> <p>CO4: Demonstrate skills in communicating mathematical research to an audience, both in written form and orally.</p>
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### M.SC. PHYSICS

Course code	Course title	Course outcomes
<b>SEMESTER I</b>		
<b>PH 211</b>	Classical Mechanics	<p>CO1: Students are able to learn the concepts of Lagrangian and Hamiltonian mechanics and use them to solve problems in mechanics. Able to learn concepts of generating functions, Poisson brackets Hamilton Jacobi equations and action angle variables.</p> <p>CO2: To equip the students to deal with central force problem and analyzing Kepler's laws.</p> <p>CO3: To inculcate the students, the concepts of special and general theory of relativity and related problems.</p> <p>CO4: To acquaint the students about the theory of small oscillations and Euler's equations of motions of rigid bodies.</p> <p>CO5: To analyze nonlinear dynamical systems and to explain the concepts of classical chaos.</p>
<b>PH 212</b>	Mathematical Physics	<p>CO1: To apply and analyze the various vector and matrix operations and to perform complex analysis for solving physical problems.</p> <p>CO2: To demonstrate and utilize the concepts of Fourier series and its transforms.</p>

		<p>CO3: To explain and differentiate different probabilistic distributions.</p> <p>CO4: To apply partial differential equations and special functions for solving mathematical problems.</p> <p>CO5: To illustrate and apply concepts of group theoretical operations and tensors.</p>
<b>PH 213</b>	Basic Electronics	<p>CO1: To equip the students design and analyze different analogue and digital circuits.</p> <p>CO2: To summarize the knowledge of basic arithmetic and data processing circuits and memory devices.</p> <p>CO3: To equip the students to explain various components in optical communications systems and microwave devices.</p> <p>CO4: To measure and analyze the different electronic signals.</p>
<b>PH 251</b>	General Physics Practicals	<p>CO 1: Develop experimental skills through different general physics experiments, those theoretical concepts are already studied.</p> <p>CO 2: Improve the data analysis, mathematical and graphical skills with the experiments</p>
<b>PH 252</b>	Electronics & Computer Science Practicals	<p>CO 1: Prepare the students to design and construct various electronic experiments</p> <p>CO 2: Practice C++ and Python program and apply the knowledge in physics related problems using C++ and Python program</p>
	SEM II	
<b>PH 221</b>	Modern Optics & Electromagnetic theory	<p>CO1: To demonstrate the linear and nonlinear optical phenomena.</p> <p>CO2: To explain and discuss propagation of electromagnetic waves through different media.</p> <p>CO3: To restate formulations and relativistic effects in electrodynamics.</p> <p>CO4: To analyse the propagation of electromagnetic waves through waveguides.</p> <p>CO5: To use radiation theory in developing different antennas.</p>
<b>PH 222</b>	Thermodynamics, Statistical Physics &	<p>CO1: To explain the basic thermodynamic relations, Maxwell's equations and its consequences.</p>

	Basic Quantum Mechanics	CO2: To equip the students to demonstrate and apply classical and quantum statistics in different physical phenomena. CO3: To distinguish the different phase transitions using Ising model. (Outline and apply foundations of quantum mechanics.
<b>PH 223</b>	Computer Science & Numerical Techniques	CO1: To summarize computer hardware and its operating systems CO2: Explain internal architecture of microprocessors 8085 and create assembly language programming. CO3: To develop and compile programs in python and C++. CO4: Apply numerical methods to solve physical problems.
<b>PH 251</b>	General Physics Practicals	CO1: To measure and analyze various physical quantities. CO2: To calculate error in various general physics experiments. CO3: To develop experimental skills
<b>PH 252</b>	Electronics & Computer Science Practicals	CO1: To design and construct various electronic circuits and its validation. CO2: To calculate error in various electronics experiments. CO3: To develop experimental and programming skills
<b>SEMESTER III</b>		
<b>PH 231</b>	Advanced Quantum Mechanics	CO1: To extend the use of approximation methods viz variation, WKB, time dependent and time independent perturbations. CO2: To summarize different types of symmetry, conservation laws and quantum theory of scattering. CO2: To distinguish different approximation methods, to study the structure and properties of many electron systems. CO3: To compute eigen values of angular momentum and evaluation of CG coefficients. CO4: Infer the requirements of relativistic quantum mechanics.
<b>PH 232</b>	Atomic and Molecular Spectroscopy	CO1: Explain different symmetry operations and deduction of molecular structure. CO2: Distinguish and classify the different spectra shown by atoms and molecules CO3: Illustrate the various spectroscopic experimental techniques.



<b>PH 233 X</b>	Special Paper I advanced electronics -1	CO1: To summarize various techniques of digital and analog communication systems. CO2: Generalize the idea of information theory CO3: Illustrate various techniques for digital signal processing based Fourier and Z transform of communication systems
<b>PH 261</b>	Advanced Physics Practicals	CO1: To measure and analyze various physical quantities. CO2: To calculate error in various advanced physics experiments. CO3: To develop experimental skills CO4: To analyze and point out results of experimental data.
<b>PH 262</b>	Advanced Electronics Practicals	CO1: To design and construct various electronic circuits and its validation. CO2: To calculate error in various electronics experiments. CO3: To develop and test assembly language programs using microprocessors.
	SEM IV	
<b>PH 241</b>	Condensed Matter Physics	CO1: Discuss crystal physics, lattice vibrations, models of thermal properties and band theory of solids. CO2: Explain the theoretical concepts of semiconductors, dielectric, magnetic and superconducting materials. CO3: To describe the synthesis and characterization techniques of nanomaterials. CO4: To apply the concepts in condensed matter physics to meet the challenges.
<b>PH 242</b>	Nuclear & Particle Physics	CO1: To describe and analyze nuclear structure, models and reactions. CO2: To illustrate the mechanisms of nuclear fission and fusion reactions. CO3: Discuss various nuclear detectors and particle accelerators. CO4: To classify elementary particles and discuss their interactions.
<b>PH 243 X</b>	Special Paper IIAdvanced electronics -II	CO1: Demonstrate microprocessor architecture, programing and interfacing devices.

		CO2: Outline the basic concepts of embedded systems, artificial intelligence and neural networks. CO3: Illustrate fundamental data communications codes, radar and satellite communication systems.
<b>PH 261</b>	Advanced Physics Practicals	CO1: To measure and analyze various physical quantities. CO2: To calculate error in various advanced physics experiments. CO3: To develop experimental skills CO4: To analyze and point out results of experimental data.
<b>PH 262</b>	Advanced Electronics Practicals	CO1: To design and construct various electronic circuits and its validation. CO2: To calculate errors in various electronics experiments. CO3: To develop and test assembly language programs using microprocessors.
<b>PH 201</b>	Project	CO 1: Develop skills in working and experimenting a research topic of current interest in Experimental, Computational or Theoretical Physics.
<b>PH 202</b>	Viva Voce	CO 1: Improve the presentation skills CO 2: Help the students to appear confidently for an interview

### M.SC CHEMISTRY

Course code	Course title	Course outcomes
<b>SEMESTER I</b>		
<b>CH 211</b>	Inorganic Chemistry I	CO 1: The students should be able to identify the structure and bonding of selected transition metal complexes, interpret their electronic spectrum and explain various electronic transitions.  CO 2: To understand the basic concepts of analytic chemistry, interpret TG, DTA and DSC curves, know the basic instrumentation and working principles,

		<p>CO 3: To understand the basic concept of symmetry, hybridisation and point groups</p> <p>CO 4: To learn the structure and properties of various halogen and interhalogen compounds and their applications</p> <p>CO 5: To learn the chemical processes occurring in the various environmental segments, effect of certain pollutants to air, water and soil</p>
<b>CH 212</b>	Organic Chemistry I	<p>CO 1: Students should be able to predict the stereochemistry of various compounds, to name complex chemical compounds, to do conformational analysis and to assign the configuration of molecules</p> <p>CO 2: The learners will understand the basics about electron displacement effects and apply the underlying principles to predict the acidity, basicity and reactivity of organic compounds, to predict the stability and reactivity of various intermediates,</p> <p>CO 3: To know the fundamentals of organic reaction mechanisms and to alter the conditions of reactions to get desired products with improved yields and to predict the formation of specific products,</p> <p>CO 4: To understand how certain specific reagents induce functional group transformations.</p>
<b>CH 213</b>	Physical Chemistry I	<p>CO 1: The learners should be able to solve elementary problems in quantum chemistry, predict term symbols</p> <p>CO 2: Use Langmuir and Freundlich isotherms to predict adsorption, thermodynamics of adsorption and understand catalysis in detail</p> <p>CO 3: Understand and derive basic thermodynamic relations, predict the feasibility of reactions, solve mathematical</p>

		<p>problems, learn the laws of thermodynamics and their applications</p> <p>CO 4: Students will know how to derive rate equations for various reactions, basic principles underlying photochemical processes and linear free energy relationship</p> <p>CO 5: Learners will gain in depth knowledge on gaseous and liquid state of matter.</p>
<b>CH 214</b>	Inorganic Practicals I	CO 1: Identifications of individual components from a mixture of rare earths, quantitative determination of transition metal ions using volumetric and colorimetric estimations
<b>CH 215</b>	Organic Practicals I	CO 1: separation of mixtures of organic compounds, determination of the purity using chromatographic techniques, multistage preparation of various organic compounds
<b>CH216</b>	Physical Practicals I	CO 1: Determining the kinetics of ester hydrolysis, determination of molecular weight of different compounds, predicting the composition of three component systems
<b>SEMESTER II</b>		
<b>CH 221</b>	Inorganic Chemistry II	<p>CO 1: The learners will know details on the structure, preparation and bonding properties of various sulphur, nitrogen, phosphorous and boron compounds,</p> <p>CO 2: In depth knowledge in the field of coordination chemistry, students will be able to understand and predict the spectral properties of various compounds, know the term symbols</p> <p>CO 3: Learners will get a thorough understanding on crystal systems, how unit cells are arranged</p>

		<p>CO 4: Learners will apply the basic knowledge in coordination chemistry to lanthanides and actinides, predict their spectra properties</p> <p>CO 5: The students will get an in-depth knowledge on the structure of solids, superconductivity, photovoltaic effect, etc.</p>
<b>CH 222</b>	Organic Chemistry II	<p>CO 1: the learners will use Hammett equation to predict the reactivity of various substrates and learn how to determine the mechanism of organic reactions.</p> <p>CO 2: The basic mechanistic principles learned in the previous semester will be exploited to understand and predict the paths of various rearrangements.</p> <p>CO 3: Learn the basic aspects of pericyclic reactions and to predict the feasibility and stereochemistry of various reactions, understand and predict whether a molecule is aromatic or antiaromatic. CO 4: learners will get an in-depth knowledge in organic photochemistry and the various processes accompanying photosynthesis and vision.</p> <p>CO 5: the students will know how to reach to the structure of various complex natural products in a stepwise manner and how to use existing methods to lead to the final structure</p>
<b>CH 223</b>	Physical Chemistry II	<p>CO 1: The basic concept of quantum chemistry learned in the previous semester is applied on more complex systems, the learners will understand and derive quantum mechanics of hydrogen like systems.</p> <p>CO 2: Students will gain a thorough knowledge on the concepts of various spectroscopy there by enabling them to use this for further applicational level problems. CO 3: Students</p>

		<p>will get familiarised with irreversible thermodynamics, phase rule and how this can be applied for the purification of metals and alloys</p> <p>CO 4: Learners will get conceptual idea about ensembles and various statistical approaches</p> <p>CO 5: Students will learn the concepts used in electrochemistry, how a cell can be created and what are the underlying theoretical aspects.</p>
<b>CH 214</b>	Inorganic Practicals I	CO 1: Identifications of individual components from a mixture of rare earths, quantitative determination of transition metal ions using volumetric and colorimetric estimations
<b>CH 215</b>	Organic Practicals I	CO 1: separation of mixtures of organic compounds, determination of the purity using chromatographic techniques, multistage preparation of various organic compounds
<b>CH 216</b>	Physical Practicals I	CO 1: Determining the kinetics of ester hydrolysis, determination of molecular weight of different compounds, predicting the composition of three component systems
<b>SEMESTER III</b>		
<b>CH 231</b>	Inorganic Chemistry III	<p>CO 1: Students will learn about structure and bonding properties of various organometallic compounds, the mechanism of catalysis using such compounds and the various steps in the catalytic reactions</p> <p>CO 2: Learners will now understand advanced coordination chemistry, how to predict the stability of metal complexes and explain inorganic reaction mechanism</p> <p>CO 3: The learners will understand the various ways in which enzymes utilise metal ions to perform its functions, how a cell works and different transport phenomena.</p>

		<p>CO 4: Learners will understand basic principles of spectroscopy and apply this knowledge in predicting the spectral behaviours of various inorganic compounds</p> <p>CO 5: Learners will understand how a nuclear reaction happens, the various methods to determine radioactivity and the principles of radioactive equilibria.</p>
<b>CH 232</b>	Organic Chemistry III	<p>CO 1: The learners will get a thorough understanding on various spectroscopic techniques used in organic chemistry, how electronic transition happens, and how can we predict the fragmentation pattern in mass spectra</p> <p>CO 2: Theoretical aspects of nmr spectroscopy and its applications to predict the structure of various complex organic compounds</p> <p>CO 3: Various carbon-carbon bond forming reactions will be learned and these will be used in predicting the reaction conditions and product formation of various reactions</p> <p>CO 4: The students will now be able to design efficient strategies to synthesise complex molecules using disconnection approach and retrosynthetic analysis and to perform various organic synthesis using protection and deprotection strategies</p> <p>CO 5: The learners will understand various techniques used in the separation of mixtures of compounds</p>
<b>CH 233</b>	Physical Chemistry III	<p>CO 1: The students will learn how to approach molecules based on various theories like Born - Oppenheimer approximation</p> <p>CO 2: Understand computational chemistry,</p>

		<p>CO 3: Students will understand advanced spectroscopic techniques</p> <p>CO 4: Students will gain an in-depth knowledge in the concepts of statistical mechanics,</p> <p>CO 5: The learners will know the principles and applications of various electroanalytical and spectrophotometric methods like electrogravimetry, conductometry, coulometry, etc.</p>
<b>CH 234</b>	Inorganic Practicals II	CO 1: The student will utilise his knowledge on analytical chemistry for quantitative separation of inorganic mixtures employing volume
<b>CH 235</b>	Organic Practicals II	CO 1: The student will utilise his knowledge in organic chemistry to do multi step preparations and estimate glucose, paracetamol
<b>CH 236</b>	Physical Practicals II	<p>CO 1: The student will do conductometry for the determination of strength of acids and bases, to determine order of reactions</p> <p>CO 2: To carry out potentiometric and spectrophotometric titrations</p> <p>CO 3: Find out surface tension using Stalagmometric method</p>
<b>SEMESTER IV</b>		
<b>CH 241</b>	Chemistry of Advanced Materials	<p>CO 1: Students will know how to synthesise nano materials using various methods and how to control the size of these materials</p> <p>CO 2: Learners will be exposed to the working principles of various instruments used for the characterisation of the nanomaterials</p> <p>CO 3: Students will understand the various techniques used for polymerisations and can utilise this knowledge to synthesise polymers of a desired molecular weight distribution.</p>



		<p>CO 4: Students will learn about synthesis and characterisation of various conducting polymers and how these can be applied in various fields of science</p> <p>CO 5: Learners will understand the basic concepts of photochromism and mechanochromism</p>
<b>CH 242.2</b>	Organic Chemistry IV	<p>CO 1: The learners will utilise the knowledge gained for using various organometallic reagents to bring about a desired organic conversion.</p> <p>CO 2: The student will understand the concept of various non covalent interaction and how these interactions can be exploited for molecular recognition</p> <p>CO 3: The learners will utilise the concepts of linear free energy relationship in the development of lead compounds for drug delivery applications.</p> <p>CO 4: The learners will be able to understand how to do protein sequencing and how stereoregular polymers can be synthesised</p> <p>CO 5: The student will utilise his/her knowledge on green chemistry to reduce, recycle and reuse chemicals, implement various green strategies for organic synthesis</p>
<b>CH 234</b>	Inorganic Practicals II	<p>CO 1: The student will utilise his knowledge on analytical chemistry for quantitative separation of inorganic mixtures employing volume</p>
<b>CH 235</b>	Organic Practicals II	<p>CO 1: The student will utilise his knowledge in organic chemistry to do multi step preparations and estimate glucose, paracetamol</p>
<b>CH 236</b>	Physical Practicals II	<p>CO 1: The student will do conductometry for the determination of strength of acids and bases, to determine order of reactions</p>

		CO 2: To carry out potentiometric and spectrophotometric titrations CO 3: Find out surface tension using Stalagmometric method
<b>CH 243(a)</b>	Dissertation	CO 1: The student will use the knowledge gained to carry out project work in the college as well as other research institutions. This training will enable them to develop research aptitude and lure themselves towards research.
<b>CH 243(b)</b>	Visit to R & D Centre	CO 1: Visit to industries will enable the students to compare the laboratory environment with the industry
	Comprehensive viva-voce	CO 1: The students will be evaluated based on their performance

### M.SC ANALYTICAL CHEMISTRY

Course code	Course title	Course outcomes
<b>SEMESTER I</b>		
<b>CL 211</b>	INORGANIC CHEMISTRY I	CO1: To understand the key concepts of theories of metal complexes- CFT and MOT CO2: To evaluate data from various analytical techniques and apply statistical analysis of data CO3: To explain the functioning of frontier materials-SOFC, rechargeable battery, solid electrolytes etc CO4: Explain the preparation, properties and structure of isopoly and heteropoly acids CO5: To identify naturally occurring chemical processes and evaluate impact of human perturbations on these process
<b>CL 212</b>	Organic Chemistry 1	CO1: Understand basic concepts and evaluate applications of stereochemistry

		<p>CO2: Understand and analyze chemistry of Carbenes, Nitrenes and Free radicals</p> <p>CO3: Describe different types mechanism of substitution, elimination and addition reactions</p>
<b>CL213</b>	Physical Chemistry 1	<p>CO1: Outline and apply tools of quantum mechanics in determining the wave functions and energies of moving particles.</p> <p>CO2: Surface chemistry and catalysis</p> <p>CO3: understand theories, mechanism and, kinetics of reactions and solve numerical problems.</p> <p>CO4: Identify point groups and construct character table and predict hybridization and spectral properties of molecules.</p>
<b>CL 214</b>	Inorganic Practicals I	<p>CO1: Able to estimate volumetrically and colorimetrically the concentration of metal ions using EDTA</p> <p>CO2: Able to prepare metal complexes</p> <p>CO3: Able to record and analyse spectral properties of complexes</p>
<b>CL 215</b>	Organic Practicals I	<p>CO1: Able to separate binary mixture</p> <p>CO2: Develop TLC of separated compounds</p> <p>Utilize the synthetic procedures and reagents to convert a compound into another</p>
<b>CL216</b>	Physical Practicals I	<p>CO3: Interpret data from an experiment, including the construction of appropriate graphs and the evaluation of errors.</p> <p>CO4: Will be able to do practical based on the principles of adsorption, kinetics, Phase rule, Surface tension.</p>
<b>SEMESTER II</b>		

<b>CL 221</b>	Inorganic chemistry ii	<p>CO1: Explain the correlation diagrams and interprets electronic spectra of complexes.</p> <p>CO2: To obtain and understand splitting of term symbols</p> <p>CO3: Magnetic properties and application of magnetic moments in structure determination of complexes</p> <p>CO4: Crystalline state</p> <p>CO5: Explains theories of electronic structure of solids, their classification and applications</p> <p>CO6: Structure, preparation, properties of compounds of S, N, P and B</p> <p>CO7: Occurrence, general properties and applications of lanthanides and actinides</p>
<b>CL 222</b>	Organic chemistry i1	<p>CO1: Separation techniques</p> <p>CO2: Principle and applications of phase transfer catalysis</p> <p>CO3: Understand physical aspects of organic chemistry</p> <p>CO4: Rearrangement reactions</p> <p>CO5: Aromaticity and pericyclic reactions</p> <p>CO6: Photochemistry</p>
<b>SEMESTER II</b>		
<b>CL223</b>	Physical chemistry i1	<p>CO1: Apply quantum mechanical principles in solving both real and imaginary spherical harmonics systems</p> <p>CO2: Microwave, vibrational, Raman and electronic spectroscopy.</p> <p>CO3: Acquire knowledge of basics of statistical mechanics and compare statistical methods.</p>

		<p>CO4: Understand the theories and applications behind various types of analytical techniques in electrochemistry.</p> <p>CO5: Acquire skill in solving numerical problems.</p>
<b>CL 214</b>	Inorganic Practicals I	<p>CO1: Able to estimate volumetrically and colorimetrically the concentration of metal ions using EDTA</p> <p>CO2: Able to prepare metal complexes</p> <p>CO3: Able to record and analyse spectral properties of complexes</p>
<b>CL 215</b>	Organic Practicals I	<p>CO1: Able to separate binary mixture</p> <p>CO2: Develop TLC of separated compounds</p> <p>CO3: Utilize the synthetic procedures and reagents to convert a compound into another</p>
<b>CL216</b>	Physical Practicals I	<p>CO1: Interpret data from an experiment, including the construction of appropriate graphs and the evaluation of errors.</p> <p>CO2: Will be able to do practical based on the principles of adsorption, kinetics, Phase rule, Surface tension.</p>
<b>SEMESTER III</b>		
<b>CL231</b>	Inorganic chemistry iii	<p>CO1: Organometallic Compounds- Synthesis, Structure and Bonding, and its reactions, catalysis.</p> <p>CO2: Bioinorganic Compounds</p> <p>CO3: Explain the principles and applications of spectroscopic methods in inorganic chemistry</p> <p>CO4: Fundamental aspects of nuclear chemistry and ensure sustainable use of the world's nuclear resources.</p> <p>CO5: Reactions of metal complexes</p>

<b>CL232</b>	Organic chemistry iii	<p>CO1: Apply knowledge of UV-visible, IR, mass and NMR spectroscopic techniques to identify chemical compounds from experimental data.</p> <p>CO2: Discuss organic transformations with organometallic compounds and predict the products of the reactions.</p> <p>CO3: Propose the retro synthetic pathways to a variety of molecules</p> <p>CO4: Oxidation-reduction reactions</p>
<b>CL233</b>	Physical chemistry iii	<p>CO1: Understand approximate methods and theories of chemical bonding</p> <p>CO2: Understand the properties of gases and liquids</p> <p>CO3: NMR, ESR, Mossbauer, NQR and PES spectroscopy</p> <p>CO4: Computational chemistry</p>
<b>CL 234</b>	Inorganic Practicals II	<p>CO1: Estimation of simple mixture of ions (involving quantitative separation) by volumetric and gravimetric methods</p> <p>CO2: Environmental Analysis</p> <p>CO3: Interpretation of TG and DTA</p>
<b>CL 235</b>	Organic Practicals II	<p>CO1: Able to do volumetric and colorimetric estimation of organic compounds</p> <p>CO3: Separations of mixtures by Paper Chromatography</p> <p>CO4: Identification of amino acids</p> <p>CO5: Single stage preparation of organic compounds by green chemistry</p>
<b>CL 236</b>	Physical Practicals II	<p>CO1: Able to do experiments based on conductometry, potentiometry, spectrophotometry, Polarimetry and refractometry</p>
<b>SEMESTER IV</b>		

<b>CL241</b>	Chemistry of advanced materials	<p>CO1: Understand physicochemical properties of nanomaterials, its applications and characterization tools</p> <p>CO2: Outline and recognize the types of polymerizations, kinetics and mechanisms, stereochemical aspects</p> <p>CO3: Discuss the synthesis and applications of selected classes of speciality polymers, important applications of smart materials</p>
<b>CL 242</b>	Applied analytical chemistry	<p>CO1: Explain the thermal and radiochemical methods used in analytical chemistry</p> <p>CO2: Explain the application of radio isotopes and the need for a safe disposal of nuclear waste.</p> <p>CO3: Explain the principle underlying the methods used in food analysis</p> <p>CO4: Carryout the detection of food adulterants</p> <p>CO5: Explain the basic principles of forensic analysis.</p> <p>CO6: Explain the instrumentation and working principle of flame spectrometry, aas, aes, xps and xrf</p>
<b>CL 234</b>	Inorganic chemistry practicals – ii	<p>CO1: Estimation of simple mixture of ions (involving quantitative separation) by volumetric and gravimetric methods</p> <p>CO2: Environmental Analysis</p> <p>CO3: Interpretation of TG and DTA</p>
<b>CL235</b>	Organic chemistry practicals – ii	<p>CO1: Able to do volumetric and colorimetric estimation of organic compounds</p> <p>CO2: Separations of mixtures by Paper Chromatography</p> <p>CO3: Identification of amino acids</p> <p>CO3: Single stage preparation of organic compounds by green chemistry</p>

<b>CL 236</b>	Physical chemistry practicals – ii	CO1: Able to do experiments based on conductometry, potentiometry, spectrophotometry, Polarimetry and refractometry
<b>CL 243 (a)</b> <b>CL 243 (b)</b>	Dissertation Visit to R & D Centre	CO1: Develop an understanding of the requirements to undertake independent research in a chemistry field.

### M.SC BOTANY

Course code	Course title	Course outcomes
<b>SEM ESTER I</b>		
<b>BO211</b>	Phycology, Mycology and Plant Pathology	CO 1: Algae and Fungi, deals the diversity and the important roles. CO 2: Makes students aware of the pests and pathogens adversely affecting the yield of important crop plants, their control underlying mechanisms of employed by plants for their defence and the approaches to strengthen their resistance to have resistant crops.
<b>BO212</b>	Bryophyta, Pteridophyte and Gymnosperms.	CO 1: To understand their Diversity. CO 2: Know their systematics, morphology and structure CO 3: Know life cycle pattern CO 4: Know economic importance of cryptogams. CO 5: Know its evolution
<b>BO213</b>	Microbiology, Histology, Micro technique and Histochemistry	CO 1: To understand the structure and life cycle of Bacteria, Viruses, etc CO 2: Deals with all microbes and the technologies for their effective uses in industry and mitigation of environmental concerns



		<p>CO 3: To Know different types of stains, Staining, Permanent slide preparation, etc.</p> <p>CO 4: Understand anatomical peculiarities</p>
<b>SEMESTER II</b>		
<b>BO 221</b>	Taxonomy, Economic Botany and Ethnobotany	<p>CO 1: Deals with naming and classification of plants their interrelationships and evolution.</p> <p>CO 2: To know the external peculiarities and features of angiosperms.</p> <p>CO 3: To study the classification of angiosperms.</p> <p>CO 4: Understand the phylogenetic relationship between them.</p> <p>CO 5: Know about systematic classification &amp; nomenclature.</p> <p>CO 6: Knows about taxonomic aspects of angiosperms</p> <p>CO 7: To understand the scope and importance of pharmacognosy.</p> <p>CO 8: Know the cultivation, collection, processing &amp; importance of various herbal drugs.</p> <p>CO 9: Understand the scope of economic botany.</p> <p>CO 10: Know the botanical resources like non wood forest products.</p>
<b>BO222</b>	Environmental Biology, Phytogeography, Conservation Biology and Evolution	<p>CO 1: Know the biotic and abiotic components of ecosystem.</p> <p>CO 2: Food chain &amp; food web in ecosystem.</p> <p>CO 3: Understanding the population structure of the organisms, organization into communities and their functional relationships with their environment.</p> <p>CO 4: Understand diversity among various groups of plant kingdom.</p> <p>CO 5: Understand plant community &amp; ecological adaptation in plants.</p>

		<p>CO 6: Scope, importance and management of biodiversity. CO 7: To know our Phytogeographic Zones</p> <p>CO 8: Types of Vegetation across the world</p> <p>CO 9: Strategies adopted by the organisms under changing environment in relation to their biogeographic distribution</p>
<b>BO223</b>	Cell and Molecular Biology and genetics	<p>CO 1: The structure in relation to function of cells the fundamental unit of life, are concerned in this course along with molecular present in cells and the flow they make the basic framework of cells and their continuity.</p> <p>CO 2: Highlights the interaction of symbionts, pathogens and pest with plants at molecular level.</p> <p>CO 3: Pertains to heredity and variation at molecular and cellular levels.</p> <p>CO 4: Deals with regulation of growth and development of plant as affected by various growth regulations, thus cross talk and extrinsic biotic and abiotic factors.</p> <p>CO 5: Provides a detailed view of the visualizing concepts and technique for genetic engineering and biotechnology.</p>
<b>BO231</b>	Cell and Molecular Biology and genetics	<p>CO 1: The structure in relation to function of cells the fundamental unit of life, are concerned in this course along with molecular present in cells and the flow they make the basic framework of cells and their continuity.</p> <p>CO 2: Highlights the interaction of symbionts, pathogens and pest with plants at molecular level.</p>

		<p>CO 3: Pertains to heredity and variation at molecular and cellular levels.</p> <p>CO 4: Deals with regulation of growth and development of plant as affected by various growth regulations, thus cross talk and extrinsic biotic and abiotic factors.</p> <p>CO 5: Provides a detailed view of the visualizing concepts and technique for genetic engineering and biotechnology.</p>
<b>SEMESTER IV</b>		
<b>BO231</b>	Plant Breeding, Horticulture and Reproductive Biology	<p>CO 1: Understand the scope &amp; importance of plant breeding.</p> <p>CO 2: Know the technique of production of new superior crop varieties.</p> <p>CO 3: Know the about heterosis, hybrid vigor etc.</p> <p>CO 4: Know the process of hybrid variety, development &amp; their release.</p> <p>CO 5: Know about seed germination, processing, production etc. Know the methods of plant propagation.</p> <p>CO 6: Demonstration and management of crop diversity for meeting human for requirement forms care of this paper</p> <p>CO 7: Understand the fruit &amp; vegetables production technology</p> <p>CO 8: Understand the scope &amp; importance of horticulture.</p> <p>CO 9: Highlights structural and functional aspects of the development of plants from zygots to the mature stage</p> <p>CO 10: Highlights the strategies adopted by flowering plants for their reproduction</p>

<b>BO232</b>	Research methodology and Biostatistics and Plant Biotechnology	<p>CO 1: Deals with fundamentals of bioinformatics tools, computational biology and statistical methods utmost necessary for contemporary research.</p> <p>CO 2: Know the basic terms and test of hypothesis in biostatistics.</p> <p>CO 3: Understand the technical experimental statistics.</p> <p>CO 4: Know the concept of bioinformatics.</p> <p>CO 5: To know the concept of sampling methods and analysis of biostatical data in Botany</p>
<b>BO241</b>	Special Paper – Bioinformatics	<p>CO 1: Understand general bioinformatics and its application</p> <p>CO 2: To know various tools and online programmes used in Bioinformatics and its application</p>
<b>BO242a</b>	Elective Paper – Biotechnology	<p>CO 1: Apprises students of conventional and non-conventional plant resources being used by human, their effective and sustainable utilization and improvement by biotechnological tools.</p> <p>CO 2: Deals mainly with science, methodology and applications of plant tissue culture methods.</p>
	Dissertation	<p>CO 1: The objective is to train students in basics of research, literature recession, analysis and expression of their understanding of the topic in their own words.</p>

## M. SC BIOTECHNOLOGY

Course code	Course title	Course outcomes
<b>SEMESTER I</b>		
<b>BT 101</b>	Cell Biology and Genetics	<p>CO1: The course gives the life activities at cellular and molecular level and basic functions of the various cellular compartments and organelles.</p> <p>CO2: It also gives the structural- functional and biochemical details of all cellular activities.</p> <p>CO3: This explains the basic principles of Mendelian, population genetics and heredity and gives an overview on the classical genetics- Linkage &amp; Crossing over.</p>
<b>BT 102</b>	Biochemistry	<p>CO1: The overall objective of the course is for the student to gain a basic working knowledge of biochemical concepts and techniques which will be necessary for future scientific endeavors.</p> <p>CO2: This course gives an idea on different biological molecules, their origin, biological role and its degradation according to the needs and demand of the system under various conditions.</p> <p>CO: The interrelation of each of these metabolic pathways and their contribution in various metabolic disorders are also explained in detail.</p> <p>CO4: The application of the knowledge generated in the practical aspects of Biotechnology</p>
<b>BT 103</b>	Biophysics and statistics	<p>CO1: The course is designed to train the students in biophysics and bio instrumentation techniques essential for the understanding of life sciences and biotechnology, for which basic knowledge in physics</p>

		<p>or Biophysics at graduate level is expected and is necessary for the proper understanding of this topic at postgraduate level.</p> <p>CO2: This course consists of basics of thermodynamics as applicable in the field of Biological systems- bio energetics- energy trapping and its transactions methods biophysics of various biological activities.</p> <p>CO3: The course helps to attain knowledge on mathematical calculations and problems· helping in competitive exams.</p>
<b>BT 104</b>	Biochemistry lab	<p>CO1: The course gives an idea for the maintenance of laboratory and the practices that should be accomplished in a laboratory.</p> <p>CO2: The course explains how to prepare buffers and reagents, various methods of estimation of proteins, enzyme extraction and purification.</p>
<b>BT 105</b>	Cell biology, genetics and biostatistics lab	<p>CO1: The course gives an idea for the maintenance of laboratory and the practices that should be accomplished in a laboratory.</p> <p>CO2: The course explains how to make slides for cytological examinations, other histochemical analysis, solving problems based on genetics and statistical analysis.</p>
<b>Semester ii</b>		
<b>BT 201</b>	Basic microbiology	CO1: Imparts advanced training in Microbiology for the students

		CO2: Makes the student aware the role of microbes in the daily life as well as in the various fields of science. How it can be controlled is also dealt with.
<b>BT 202</b>	Molecular biology	CO1: The course gives an in-depth insight into the molecular aspects of life - the central dogma. CO2: It explains molecular aspects of genes and its regulation- genome- gene expressions heredity- recombination- protein synthesis- molecular basis of diseases- mutations genetic analysis etc.
<b>BT 203</b>	Mathematics, computer science, bioinformatics & research methodology	CO1: The course explains the applications of computer in biotechnology and statistical analysis of experimental data and also basic research methodology adopted. CO2: The course gives an introduction on the origin and evolution of Bioinformatics and its importance in Biotechnology, Genomics and Proteomics. CO3: Various methods of genome analysis and proteome analysis is also described. CO4: It gives an outline on the various bioinformatics and computational tools used in analyzing protein, gene and genome data bases.
<b>BT 204</b>	Microbiology lab	CO1: The course gives an idea for the maintenance of laboratory and the practices that should be accomplished in a laboratory. CO2: The course explains the isolation and screening techniques of microbes and quality analysis of water.

<b>BT 205</b>	MOLECULAR BIOLOGY LAB	CO2: The course gives hands on training on the practical experiments and techniques in molecular biology.
<b>SEMESTER III</b>		
<b>BT 301</b>	PLANT BIOTECHNOLOGY	CO1: It gives introduction to the various transformation techniques employed in plant systems.  CO2: It also describes the application of genetically modified plants in the various fields of science.
<b>BT 302</b>	ANIMAL BIOTECHNOLOGY	CO3: It gives introduction to the various transformation techniques employed in animal systems.  CO4: It also describes the application of genetically modified animals in the various fields of science.  CO4: The techniques of animal cell culture and its industrial and medical applications are described.
<b>BT 303</b>	GENETIC ENGINEERING	CO1: To illustrate creative use of modern tools and techniques for manipulation and analysis of genomic sequences.  CO2: To expose students to application of recombinant DNA technology in biotechnological research.  CO3: To train students in strategizing research methodologies employing genetic engineering techniques.
<b>BT 304</b>	Plant biotechnology/ animal biotechnology lab	CO1: The course gives hands own experience in the tissue culture of plant and animal cells.
<b>BT 305</b>	Genetic engineering lab	CO1: To understand the basics of genetic engineering.  CO2: To learn different methodologies in genetic engineering.  CO3: To enable students to design a cloning experiment.



<b>SEMESTER IV</b>		
<b>BT 401</b>	IMMUNOLOGY	<p>CO1: This course is designed to impart the students the importance of immunology and its theoretical aspects and on the principles of immunology and immunotechnology</p> <p>CO2: The application of immunology in medicines is also dealt with.</p> <p>CO3: It also explains the various antigen-antibody reactions involved in diseases, stem cell technology and vaccine development.</p>
<b>BT 402</b>	ENVIRONMENTAL BIOTECHNOLOGY	<p>CO1: The course explains the application of biotechnology in environment.</p>
<b>BT 403</b>	FOOD AND DAIRY BIOTECHNOLOGY/ BASICS OF BIOPROCESS	<p>CO1: The course explains the role of biotechnology in food and dairy technology.</p> <p>CO2: It gives details about the conversion of a small-scale laboratory process in to a large-scale industrial process.</p> <p>CO3: It also deals with the various important products produced by the bioprocess techniques.</p>
<b>BT 404</b>	PROJECT	<p>CO 1: Familiarize the students to develop research aptitude and skills</p> <p>CO 2: Enable students to develop a comprehensive knowledge on academic writing.</p> <p>CO3: Impart the skills essential for analysing research issues</p> <p>CO 4: Enable the students to conduct research in future.</p>

## MSC ZOOLOGY

Course code	Course title	Course outcomes
	SEM I	
<b>ZO 211</b>	Systematics and Evolutionary Biology	<p>CO 1: Students learn about the basic concepts of systematic and taxonomy</p> <p>CO 2: Students are introduced with the tools and techniques employed in taxonomy and trends followed in the taxonomy research</p> <p>CO 3: Students learn about the concepts regarding molecular evolution, genomic evolution and evolution of higher taxa</p>
<b>ZO 212</b>	Biochemistry	<p>CO 1: Students learn about the structure, classification and metabolism of macromolecules</p> <p>CO 2: Students learn about the toxicity of free radicals and the role of anti-oxidants in detoxification process</p> <p>CO 3: They learn about the biochemical basis of aging</p> <p>CO 4: They are also introduced with the clinical aspects of biochemical processes in human body</p>
<b>ZO 213</b>	Biophysics, Instrumentation and Computer Science	<p>CO 1: The students learn about the concepts of energy and thermodynamics</p> <p>CO 2: Students develop concrete understanding on radiation biophysics and nanotechnology</p> <p>CO 3: Students develop concepts regarding the principles behind the working of instruments such as different types of microscopes, centrifuge</p> <p>CO 4: They learn about different types of electrophoresis, chromatography, and also biophysical methods like</p>

		<p>Atomic absorption spectrophotometer, IR spectrophotometer, NMR, CO 1: EMR, MS, UV-Vis Spectrophotometer, X-ray diffraction etc.</p> <p>CO 5: Students are introduced with different computer softwares and operating systems</p>
<b>ZO 214</b>	Practical I Systematics and Evolutionary Biology	<p>CO 1: Students develop skills in collection of zoological specimens and their identification with the assistance of taxonomic keys</p> <p>CO 2: Students get hands on training on various analytical techniques in biochemistry</p> <p>CO 3: Students get an understanding on various biophysical methods and working of various instruments</p> <p>CO 4: Students learn to apply softwares for the statistical analysis of scientific data originating from research</p>
<b>SEMESTER II</b>		
<b>ZO 221</b>	Advanced Physiology and Functional Anatomy	<p>CO 1: Students develop in depth knowledge about the physiological aspects of various organ systems in the human body</p> <p>CO 2: Students develop deep understanding about the anatomy of different organ system in relation to their functions</p> <p>CO 3: Students understand about the various disorders associated with the different organ systems and also their clinical implications</p> <p>CO 4: Develop a better understanding on the physiological mechanisms adopted by the human body for the maintenance of homoeostasis</p>
<b>ZO 222</b>	Genetics, Quantitative Analysis and	<p>CO 1: Students learn about the concepts of Mendelian Genetics and its applications</p>

	<p>Research Methodology</p>	<p>CO 2: Learn about the various aspects of population genetics, human genetics and microbial genetics</p> <p>CO 3: Learn about of the role of genetics in medicine and forensic science</p> <p>CO 4: Students are familiarized with the various statistical techniques such as Chi-square, ttest, ANOVA, Correlation, Regression etc. which are employed in quantitative analysis in scientific research</p> <p>CO 5: Students develop concepts about the characteristics of good research, formulation and design of research, execution of research plan, scientific documentation of research</p> <p>CO 6: Students develop a good understanding of the ethics in research</p>
<p><b>ZO 223</b></p>	<p>Cell Biology, Molecular Biology and Bioinformatics</p>	<p>CO 1: Students learn about the various pathways involved in cell-cell signalling</p> <p>CO 2: Students learn about cell cycle and its regulatory role in the propagation of malignant cells</p> <p>CO 3: Students learn about the chromatin structure, topology of nucleic acids and the organization of eukaryotic chromosome</p> <p>CO 4: Students learn about DNA replication, transcription, RNA processing and translation</p> <p>CO 5: Students develop a concrete understanding on the gene regulation mechanisms</p> <p>CO 6: Students are familiarized with various biological databases, construction and interpretation of phylogenetic trees and their use in analyzing evolutionary trends</p>

		CO 7: Students get an overview of computational biology and analyses of genomes and proteomes
<b>ZO 224</b>	Practical II – Advanced Physiology and Functional Anatomy	CO 1: Students learn to do experiments on physiological aspects of body functions CO 2: Students do a comparative study of the functional anatomy and morphology of animals from diverse taxa CO 3: Students learn to observe the chromosomes of insects and to analyse the stages in cell division CO 4: Students develop expertise in doing statistical analysis of scientific data CO 5: Students learn to estimate DNA from the given tissue extract and to localize proteins and glycogen in the samples
<b>SEMESTER III</b>		
<b>ZO 231</b>	Microbiology and Biotechnology	CO 1: Students learn about the classification of microorganisms CO 2: Students learn about the applications of microorganisms in food, beverages, dairy, and pharmaceutical industries CO 3: They study about the role of microorganisms in the cycling of elements in nature and also how microorganisms can be employed for the treatment of waste water and solid wastes CO 4: In Medical Microbiology students study about the mode of action of toxins produced by various pathogens, and the measures which can be adopted for the control of microorganisms. Students also gain knowledge about the drug resistance mechanisms

		<p>adopted by microorganisms so that they will develop a better idea about the proper use of antibiotics</p> <p>CO 5: Students learn about the various biotechnological methods such as molecular cloning, techniques employed in gene transfer and practical applications of genetic engineering</p> <p>CO 6: Students are also introduced with the recent trends in Biotechnology, and also about the ethical, legal and social issues of Biotechnology</p>
<b>ZO 232</b>	Ecology, Ethology and Biodiversity Conservation	<p>CO 1: Students get a deep knowledge about the flow of energy in ecosystems</p> <p>CO 2: Students learn about the transition and stability in ecosystem and also develop an understanding about the relevance of ecosystem development theory to human ecology</p> <p>CO 3: Students develop a concept about the interactions between various species in the ecosystem and develop a better understanding that all species are essential for the sustainable development of ecosystem and develop an urge for the conservation of nature and its inhabitants</p> <p>CO 4: Students learn about the complex behavioural patterns among animals and the role of nervous system, environment, genetics in the evolution of behaviour</p> <p>CO 5: Students learn about the causes for the depletion of biodiversity and strategies for the conservation of biodiversity</p> <p>CO 6: Students are familiarized with the international conventions and treaties for the conservation of biodiversity</p>

<b>ZO 233</b>	Immunology and Developmental Biology	<p>CO 1: Students understand the principles and mechanisms of immunology</p> <p>CO 2: Learn the malfunctioning and disorders of the immune system</p> <p>CO 3: Students acquire knowledge on immunodeficiency diseases</p> <p>CO 4: Learn the transplantation and mechanism of graft retention and rejection</p> <p>CO 5: Students learn about the scope and practical applications of developmental biology</p> <p>CO 6: Learn about the sequence of embryonic development in selected model organisms</p> <p>CO 7: Students understand the role of genes in the control of embryonic development</p> <p>CO 8: Students develop concepts on inductive interactions and the role of organizers in embryonic development</p> <p>CO 9: Students understand the different medically assisted reproductive technologies in practice and cloning experiments</p>
<b>ZO 234</b>	Practical – Microbiology, Biotechnology, Ecology, Immunology and Developmental Biology	<p>CO 1: Students develop skills in techniques for microbial isolation, enumeration and Gram staining</p> <p>CO 2: Students gain expertise in assessing the quality of milk depending of microbial load</p> <p>CO 3: Students get hands on training in the isolation of DNA and plasmids</p> <p>CO 4: Students study about the antigen-antibody interaction and other immunology techniques</p>

		<p>CO 5: Students get familiarized with techniques such as induced ovulation and artificial fertilization</p> <p>CO 6: Students are able to observe the developmental sequences in chick and also the effects of drug on chick embryo</p> <p>CO 7: Students gain expertise in ecological studies such as productivity, population diversity and density, diversity indices, ecological adaptations of animals</p>
<b>SEMESTER IV</b>		
<b>ZO 241</b>	Pollution Biology and Environmental Physiology	<p>CO 1: Students understand the different causes of environmental pollution</p> <p>CO 2: Students learn about the impact of different types of pollution on biosphere and its inhabitants</p> <p>CO 3: Students learn about the technologies developed so far for the abatement of water pollution</p> <p>CO 4: Students develop concepts on the physiological adaptations of animals in response to environmental factors such as temperature, pressure, osmotic pressure, etc.</p> <p>CO 5: Students learn about eco-physiological adaptations of animals such as mimicry, camouflage, echolocation, bioluminescence, bioelectricity</p>
<b>ZO 242</b>	Environmental Management	<p>CO 1: Students get a deep understanding about the various resources on earth and the impact of human exploitation of earth's resources</p> <p>CO 2: Students develop an urge for the biological conservation and management of the resources</p> <p>CO 3: Students learn about the social, economic and legal aspects of environmental policy</p>



		<p>CO 4: Students learn about the enforcement of environmental laws and the role of Government, media and voluntary organizations in environment management</p> <p>CO 5: Students learn about environment impact assessment and sustainable development</p> <p>CO 6: Students learn about various biotechnological techniques that are useful for pollution abatement</p>
<b>ZO 243</b>	Practical I – Pollution Biology and Environmental Physiology	<p>CO 1: Students get hands on training in soil analysis for texture, moisture, pH, organic carbon, porosity, chlorine content etc</p> <p>CO 2: Student learn to determine the lethality of fishes exposed to pollutants and the effect of pollution on oxygen consumption by fishes</p> <p>CO 3: Students learn about the impact of soil pollution on inhabitants like earthworms</p> <p>CO 4: Students study about the various ecological indicators of pollution</p> <p>CO 5: Students get an opportunity to make a field study on the problem of environmental pollution in their area</p>
<b>ZO 244</b>	Practical II – Environmental Management	<p>CO 1: Students gain expertise in determining water quality parameters such as pH, electrical conductivity, turbidity, salinity, hardness, BOD and COD</p> <p>CO 2: Students study the working of instruments like pH meter, electrical conductivity meter, flame photometer, hygroscopic soil thermometer</p> <p>CO 3: Students learn to estimate primary and secondary productivity in aquatic ecosystem</p>

		CO 4: Students learn to construct ecological pyramids CO 5: Students learn to estimate species diversity in an ecosystem
<b>ZO 201</b>	PROJECT	CO 1: Familiarize the students to develop research aptitude and skills CO 2: Enable students to develop a comprehensive knowledge on academic writing. CO3: Impart the skills essential for analysing research issues CO 4: Enable the students to conduct research in future.

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Course code	Course title	Course outcomes
<b>SEMESTER I</b>		
<b>CO 211</b>	Business Ethics and Corporate Governance	CO 1: To convey basic understandings on the theories of Business Ethics CO 2: To provide a understanding on Corporate Governance practices and the provisions of the Companies Act relating to corporate governance
<b>CO 212</b>	Legal Framework for Business	CO 1: To enable student acquire updated knowledge and develop understanding of the regulatory framework for business CO 2: To make students aware of opportunities available in various legal compliances so as to enable them employable. CO 3: To expose students in emerging trends in good governance practices including governance.
<b>CO 213</b>	Research Methodology	CO 1: To provide an insight into the fundamentals of social science research.

		<p>CO 2: To understand the need, significance and relevance of research and research design.</p> <p>CO 3: To acquire practical knowledge and required skills in carrying out research.</p>
<b>CO 214</b>	Planning and Development Administration	CO 1: To generate an overall insight on planning process in Indian Economy
<b>CO 215</b>	Advanced Corporate Accounting and Reporting	<p>CO 1: To acquaint the students about important accounting standards</p> <p>CO 2: To gain ability to prepare financial statements including consolidated financial statements of group companies and financial reports of various types of entities by applying relevant accounting standards.</p> <p>CO 3: To expose the students to advanced accounting issues and practices such as insurance Department of Economics claims, investment accounting and liquidation of companies.</p>
<b>SEMESTER II</b>		
<b>CO 221</b>	E-Business & Cyber Laws	<p>CO 1: To equip the students with the emerging trends in business</p> <p>CO 2: To equip the students to introduce and explore the use of information technology in all aspects of business.</p> <p>CO 3: To familiarise with the students cyber world and cyber regulations</p>
<b>CO 222</b>	Strategic Management	<p>CO 1: To create a conceptual awareness on various strategies.</p> <p>CO 2: To familiarise students with the formulation, implementation and evaluation of strategies</p>

<b>CO 223</b>	Quantitative Techniques and Financial Econometrics	CO 1: To impart expert knowledge in the application of Quantitative Techniques and Business Econometrics in research.  CO 2: To impart knowledge in the use of SPSS in processing and analysis of data.
<b>CO 224</b>	International Business	CO 1: To introduce the concept of international business and to create awareness on the changes in the international business arena
<b>CO 225</b>	Investment Management	CO 1: To provide a general understanding about investment avenues and personal finance.  CO 2: To give a broader understanding about behavioural finance and how it equips to decide personal investment.
<b>SEMESTER III</b>		
<b>CO 231U</b>	Income Tax Planning and Management	CO 1: To impart deep knowledge about the latest provisions of Income Tax Act  CO 2: To develop application and analytical skill of the provisions of Income Tax Law for Income Tax planning and Management.
<b>CO 232F</b>	Security Analysis and Portfolio Management	CO 1: To provide a comprehensive understanding on the principles of security analysis and develop the skill in portfolio management.  CO 2: Equip the students to value the real worth of securities
<b>CO 233 F</b>	International Financial Management	CO 1: To familiarise the students with the international financial markets and instruments.  CO 2: To convey an understanding about foreign exchange risk management

<b>CO 234F</b>	Strategic Cost and Management Accounting	<p>CO 1: To comprehend and familiarize the established techniques, methods and practices in Strategic Cost and Management Accounting to the students.</p> <p>CO 2: To introduce the evolving Strategic approaches and techniques in Cost and Management field and to developed industrial behaviour among the students in the emerging business areas.</p>
<b>SEMESTER IV</b>		
<b>CO 241W</b>	Goods and Service Tax & Customs Duty- Law and Practice	<p>CO 1: To gain expert knowledge of the principles and law relating to Goods and Service Tax and Customs Act.</p> <p>CO 2: To impart skill in applying and analysing the provisions of Goods and Service Tax Act and Customs Act in handling practical situations.</p>
<b>CO 242F</b>	Risk Management and Derivatives	<p>CO 1: To understand the risk management process and its application</p> <p>CO 2: To give a broader awareness on derivatives and its applications</p>
<b>CO 243F</b>	Accounting Standards	<p>CO 1: To acquaint the students to understand the structure, process and organizational set up involved in evolving accounting standards in India.</p> <p>CO 2: To enable the students to apply some key standards while preparing and presenting the financial statements</p>
<b>CO 244S</b>	Management Optimization Techniques	<p>CO 1: To convey basic principles and application of optimization tools of resource utilization.</p> <p>CO 2: To provide an insight into optimal project implementation Techniques under deterministic and probabilistic conditions.</p>

	Project	<p>CO 1: Familiarize the students to develop research aptitude and skills</p> <p>CO 2: Enable students to develop a comprehensive knowledge on academic writing.</p> <p>CO3: Impart the skills essential for analysing research issues</p> <p>CO 4: Enable the students to conduct research in future.</p>
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