

Department of Islamic History

Programme offered		B.A. Islamic History
Programme Outcome		<p>PO 1: Enable the students to realize the significance of Islamic History as a comprehensive social science discipline.</p> <p>PO 2: The cultural tendencies elaborated in the subject would enhance their capability of critical assessment, analytical skill and expertise in evaluation.</p> <p>PO 3: To understand the fundamental principles of Islam.</p> <p>PO 4: To elucidate the socio-political aspects in the Muslim rule across the world.</p> <p>PO 5: To assess the cultural tendencies existed throughout centuries in the realm of Islam.</p> <p>PO 6: To evaluate the theoretical and historical implications of Islamic Economics in global financial system.</p> <p>PO 7: To explicate the history of intellectual and scientific contributions of Muslim rule throughout centuries.</p> <p>PO 8: To expound the issues and challenges in the contemporary Muslim world.</p>
Course Code	Title of Courses	Course Outcome
IH 1141	Methodology and Muslim Historiography	<p>CO 1: Identify the main concerns of social science disciplines</p> <p>CO 2: Articulate the basic terminology and theories prevalent across disciplines.</p> <p>CO 3: To introduce history with its theory and method.</p> <p>CO 4: To familiarise the special features of Muslim historiography and Muslim historians.</p>
IH 1241	Life and Times of Prophet Muhammad	<p>CO 1: To introduce an awareness among the students in the geography of Arabia, its climate, flora and fauna.</p> <p>CO 2: It also gives an idea of the tribal system, Bedouin life and socio-religious condition of Jahiliyah period.</p> <p>CO 3: To give an idea to the students of the early life of the Prophet, the days of the prophet hood, the opposition of the Quraysh and the migration.</p> <p>CO 4: To provide information regarding the eventful life of Prophet Muhammad after migration to Madinah such as the defensive wars, the new administrative system, the religious teachings and the ideal society formed by the Prophet.</p>
IH 1321	Informatics	<p>CO 1: To review the basic concepts & functional knowledge in the field of informatics.</p> <p>CO 2: To review functional knowledge in a standard office package and popular utilities.</p> <p>CO 3: To create awareness about nature of the emerging digital knowledge society.</p> <p>CO 4: To create awareness about social issues and concerns in the use of digital technology.</p> <p>CO 5: To create awareness about major informatic initiatives in India and Kerala.</p> <p>CO 6: To impart skills to enable students to use digital knowledge resources in learning.</p>
IH 1341	Glorious Caliphate and Socio-Political Institutions	<p>CO 1: To familiarise students the great Muslim civilization that existed in the 7th-century A. D. when other parts of the world plunged in darkness.</p> <p>CO 2: To introduce the students regarding the Khilafah al Rashidah and its administration.</p> <p>CO 3: To provide an in-depth knowledge to students regarding the greatest glory of Khilafah, the luminaries lived there and their contributions.</p> <p>CO 4: To look the details of socio-political institutions established and its relevance.</p>
IH 1441	The Umayyah and Abbasiyah	<p>CO 1: To familiarise the two dynasties Umayyah and Abbasiyah presented one of the best civilizations the world has witnessed.</p> <p>CO 2: To introduce the students regarding the Umayyah dynasty and its rulers, administration, culture and scientific contributions.</p> <p>CO 3: To impart an idea regarding the Abbasiyah culture existed and its rulers and its administration, Muslim historians and their contributions glory of Baghdad city, the luminaries lived there and their contribution in art, Science, literature, theology, jurisprudence and architecture.</p> <p>CO 4: To provide an in depth knowledge to students regarding the greatest glory of Baghdad city, the luminaries lived there and their contribution in art, Science, literature, theology, jurisprudence and architecture.</p>
IH 1442	Muslims in Europe	<p>CO 1: To make aware the students about the conquest of Spain and the achievements of Muslim rule.</p> <p>CO 2: To introduce the students about the intellectual contribution of Muslims & its transmission to Europe.</p> <p>CO 3: To make understand about the petty dynasties after the fall of Umayyahs in Spain.</p> <p>CO 4: To mention about the conquest of Sicily by Muslims and their contributions to Europe through Sicily</p>
IH 1541	Muslim World Between 10th and 15th Centuries	<p>CO 1: The students understand that the succession states also made significant contribution to culture, science and literature as in the case of earlier Islamic dynasties.</p> <p>CO 2: The students get the idea that there is a continuity of Islamic culture and administration even after the fall of Abbasids.</p> <p>CO 3: Gets an idea about a number of Muslim dynasties which made significant contribution to civilization.</p> <p>CO 4: Realises the role of Crusades in the cultural exchange of East and West</p>
IH 1542	Rise and Fall of the Ottoman Empire	<p>CO 1: To give an idea of the origin and growth of Ottoman state.</p> <p>CO 2: To give an idea of the political, social and cultural life of Ottomans.</p> <p>CO 3: To underline the process of Ottoman downfall and the Ottoman and European responses to it.</p> <p>CO 4: To give an awareness of the creation of Turkish republic and the role of Mustafa Kamal Pasha.</p> <p>CO 5: To give an idea of the dismemberment of Ottoman Turkey.</p>
IH 1543	Indian History I (711-1707)	<p>CO 1: To reach students how really Islam came to India.</p> <p>CO 2: To give an idea to the students how various systems and movements emerged during the medieval and modern periods.</p> <p>CO 3: To provide a picture to the students about the progress our country has achieved in literature, art and architecture during the medieval period.</p> <p>CO 4: To give an idea about the Sultanate and Mughal periods.</p> <p>CO 5: To create consciousness among students about the socio-political and cultural changes India has undergone during the Middle Ages..</p>

IH 1544	Indian History II (1707-1947)	<p>CO 1: To give an idea to the students how various systems and movements emerged in India.</p> <p>CO 2: To provide a picture to the students about the progress our country has achieved in literature, art and architecture.</p> <p>CO 3: To develop respect for our great freedom fighters.</p> <p>CO 4: To create consciousness among students with regard to the real value of freedom.</p> <p>CO 5: To convince the young generation that any thin g can be achieved through peaceful means.</p>
IH 1545	History and Culture of Kerala Muslims	<p>CO 1: The first module discusses about the harmonious condition prevailed in Kerala which helped for the growth and development of a composite culture in Kerala.</p> <p>CO 2: The second module discusses about the role played by the Mappila community in the anti-colonial agitations and freedom struggle in Malabar.</p> <p>CO 3: The third module discusses about the reformation took place in the Muslim community in the early 20th century and the leaders involved in it.</p> <p>CO 4: The fourth module discusses about the cultural and educational contributions made by the community.</p> <p>CO 5: From the four modules mentioned above the learner gathers information about the birth and growth of Muslim community and their achievements.</p>
IH 1551	Islamic Economics and Banking (Open Course)	<p>CO 1: To introduce an economic system with the objective to achieve.</p> <p>CO 2: Economic well being within the frame work of moral norms of Islam</p> <p>CO 3: Universal brotherhood and justice</p> <p>CO 4: Equitable distribution of wealth</p> <p>CO 5: Freedom of individual within the context of social welfare.</p>
IH 1641	Select Problems of West Asia	<p>CO 1: To give an awareness of the genesis of the major issues in West Asia</p> <p>CO 2: To give a historical perspective of the Socio - political developments in West Asia</p> <p>CO 3: To give knowledge of the issues related with the creation of Israel and Arab response.</p> <p>CO 4: To give a general idea of the development in Egypt, Iraq and Iran.</p> <p>CO 5: To create an awareness regarding the economic and diplomatic importance of the area in relation with India.</p>
IH 1642	Revivalist Movement in Islam	<p>CO 1: To introduce an economic system with the objective to achieve</p> <p>CO 2: To understand the causes of Muslim setback in Modern period.</p> <p>CO 3: To give an awareness of revivalist movement in Arab world and Africa.</p> <p>CO 4: To enable the students to analyse the reform movement in Indian sub continent</p>
IH 1643	Human Rights in Islam	<p>CO 1: To introduce the ideal code of human rights Islam gave fourteen centuries ago.</p> <p>CO 2: To give the idea that human rights in Islam are an integral part of an overall Islamic order.</p> <p>CO 3: To understand that no ruler, government, assembly or authority can curtail or violate the human rights conferred by the creator.</p> <p>CO 4: To arise conscience against vio lations of the rights.</p> <p>CO 5: To create respect for human rights and defend violations of rights.</p>
IH 1644	Islamic Economics	<p>CO 1: Economic well being within the frame work of moral norms of Islam</p> <p>CO 2: Universal brotherhood and justice</p> <p>CO 3: Equitable distribution of wealth</p> <p>CO 4: Freedom of individual within the context of social welfare.</p>
IH 1651	Political Thought in Islam	<p>CO 1: Introduces the principles of Islamic Political theory.</p> <p>CO 2: Understand the method of selection of rulers in Islamic democracy.</p> <p>CO 3: Collect the ideas of the political thinkers of Islam.</p> <p>CO 4: Compare the Islamic political theory with other political ideologies.</p>
IH 1645	Project	<p>CO 1: The course intend to familiarize the students with the research methods in social science</p> <p>CO 2: To enable for the practical use of students in their project/dissertation in the sixth semester</p> <p>CO 3: To identify the different methods and techniques applicable to the Islamic History research</p> <p>CO 4: To make the students understand various concepts behind undertaking research project and preparing the final report</p>

Department of English

Programme offered	B.A English M.A English
Programme Outcome	<p>PO 1: The students demonstrate an ability to read and interpret a diverse range of literary texts</p> <p>PO 2: The students demonstrate an ability to speak globally intelligible English</p> <p>PO 3: The students demonstrate an ability to describe a number of contemporary and historical schools of criticism</p> <p>PO 4: The students demonstrate knowledge of specific works by major authors such as Shakespeare and Chaucer and Milton and their significance in the canon of British and American literatures</p> <p>PO 5: The students will be equipped both in written and oral communication</p>
Course code	Course Name
Course Outcome	
EN 1111.1	Listening Speaking and Reading
	<p>CO 1: Students are made proficient communicators in English.</p> <p>CO 2: Students are equipped in understanding English in wide range of contexts.</p> <p>CO 3: Students are prepared to face situations with confidence.</p> <p>CO 4: Helps to seek employment in modern globalized word.</p> <p>CO 5: Students gain rudimentary training in English Phonetics.</p>
EN 1121	Writings on Contemporary Issues
	<p>CO 1: It sensitizes students to the major issues in the society.</p> <p>CO 2: It encourages them to read literary pieces critically</p> <p>CO 3: Students gain an overall understanding of the major issues in the contemporary world.</p> <p>CO 4: Students are trained to respond empathetically to the issues of the society.</p>

EN 1211.1	Environmental Studies	<p>CO 1: Students are made aware of the need scope and importance of environmental studies.</p> <p>CO 2: They are made to understand the transnational character of environmental problems and ways of addressing them.</p> <p>CO 3: They develop sensitivity for the natural, physical and human resources in the immediate environment.</p> <p>CO 4: They get acquainted with the role of information technology in environment and human health</p> <p>CO 5: They nurture natural curiosity and creativity for the immediate surroundings.</p>
EN 1212.1	Modern English Grammar and Usage	<p>CO 1: Students gain a good understanding of modern English Grammar.</p> <p>CO 2: Students are enabled to produce grammatically and idiomatically correct Language.</p> <p>CO 3: Improvement in verbal communication skills.</p> <p>CO 4: Mother tongue influence minimized.</p> <p>CO 5: Spot Language errors and correct them.</p>
EN 1311.1	Writing and Presentation Skills	<p>CO 1: Understands the mechanism of general and academic writing</p> <p>CO 2: Recognizes the different modes of writing</p> <p>CO 3: Improves reference skills note making and documentation of data and materials.</p> <p>CO 4: Equipped to prepare and present seminar papers and project reports effectively.</p> <p>CO 5: Accuracy in writing is sharpened.</p>
EN 1411.1	Readings in Literature.	<p>CO 1: Students are sensitized to the aesthetic cultural and social aspects of literature.</p> <p>CO 2: Students are equipped to analyze and appreciate literary texts.</p> <p>CO 3: Review literary writing critically</p> <p>CO 4: Analyze literature as a cultural and interactive phenomenon.</p> <p>CO 5: Awareness of the various genres of literature.</p>
EN 1141	Reading Poetry	<p>CO 1: Students are sensitized to the language, forms and types of poetry.</p> <p>CO 2: Awareness of the diverse poetic devices and strategies.</p> <p>CO 3: Ability to read analyze and appreciates poetry.</p> <p>CO 4: Enhanced level of literary and aesthetic experience.</p> <p>CO 5: Respond critically and creatively to the world around.</p>
EN 1131	History of English Literature-1	<p>CO 1: To familiarize students with the social and literary history of England .</p> <p>CO 2: To understand English from its origins in Anglo-Saxon England to the present.</p> <p>CO 3: Ability to place literary text in a wider historical context.</p>
EN 1241	Reading Drama	<p>CO 1: Enabled to read analyze and appreciate drama.</p> <p>CO 2: Sensitized to the verbal and visual language of drama.</p> <p>CO 3: Identification of various forms and schools of drama.</p> <p>CO 4: Write critically about and engage actively in producing and performing drama .</p>
EN 1231	History of English Literature-2	<p>CO 1: To familiarize students with the social and literary history of England .</p> <p>CO 2: To understand English from its origins in Anglo-Saxon England to the present.</p> <p>CO 3: Ability to place literary text in a wider historical context</p>
EN 1341	Reading Fiction	<p>CO 1: Awareness of diverse fictional forms in prose.</p> <p>CO 2: Enabled to analyze and appreciate various fictional writings.</p> <p>CO 3: Develop an insight into other cultures.</p> <p>CO 4: Think and write Imaginatively</p>
EN 1342	Twentieth century Malayalam literature in English Translation.	<p>CO 1: Introduced to the richness of 20th century Malayalam writing.</p> <p>CO 2: Discern the distinctiveness of the 20th century Malayalam writing.</p> <p>CO 3: Identify the salient features of the works of twentieth century Malayalam writers.</p> <p>CO 4: Analyze and appreciate twentieth century Malayalam poetry, fiction and drama.</p> <p>CO 5: Assess the socio-educational influences of Malayalam literature in translation.</p>
EN 1331	History of English literature 3	<p>CO 1: To familiarize students with the social and literary history of England .</p> <p>CO 2: To understand English from its origins in Anglo-Saxon England to the present.</p> <p>CO 3: Ability to place literary text in a wider historical context.</p>
EN 1441	Reading Prose.	<p>CO 1: Understand and appreciate different types of prose writing.</p> <p>CO 2: Understand the basic concepts of style and literary devices</p> <p>CO 3: Acquainted with the cultural diversity and divergence in perspectives.</p> <p>CO 4: Enabled to write creatively and critically.</p>
EN 1421	Informatics	<p>CO 1: Basic informatics skill and attitudes developed</p> <p>CO 2: Equipped to utilize digital knowledge resources.</p> <p>CO 3: Comprehension of emerging digital knowledge society.</p> <p>CO 4: Effective use of ICT.</p>
EN 1431	History of English Language	<p>CO 1: Made familiar with the origin and development of English Language</p> <p>CO 2: Awareness of the changes in the different areas of Language</p> <p>CO 3: Identification of various language families</p>
EN 1541	Literary Criticism	<p>CO 1: Awareness of the historical and critical practices from classical period to present</p> <p>CO 2: Awareness of significant concepts on the development of critical thought</p> <p>CO 3: Developed a critical perspective and capacity to compare various critical schools.</p> <p>CO 4: Analyze and appreciate texts critically.</p>
EN 1542	Indian Literature in English	<p>CO 1: Introduced to the development of Indian writing in English</p> <p>CO 2: Sharpened aesthetic and analytical skills</p> <p>CO 3: Awareness of Indianness in Indian writing in English</p> <p>CO 4: Encouraged to read and appreciate Indian Literature</p> <p>CO 5: Understand the strength and constraints of Indian English as a literary medium.</p>
EN 1543	Film Studies	<p>CO 1: Gained an awareness of history art and culture of motion picture</p> <p>CO 2: Understand the key concepts in film studies.</p> <p>CO 3: Analyze and appreciate films.</p> <p>CO 4: Enabled to pursue higher studies and careers in film.</p> <p>CO 5: Equipped to write critically about films</p>
EN 1544	Linguistics and Phonetics	<p>CO 1: Understand the various aspects of the English Language.</p> <p>CO 2: Sensitized to the nuances of spoken and written forms of English</p> <p>CO 3: Equipped to overcome specific problems resulting from mother tongue interference</p> <p>CO 4: Understand the key concepts in Linguistics.</p> <p>CO 5: Improved general standard of pronunciation</p>

EN 1545	Post Colonial Literatures in English	<p>CO 1: Introduced to post colonial literature, life and culture</p> <p>CO 2: Broadened aesthetic and intellectual faculties</p> <p>CO 3: Trained to identify what is distinctively post colonial literature.</p> <p>CO 4: Appreciate post colonial literature with insight</p> <p>CO 5: Understand post colonial culture and modes of literary expression.</p>
EN 1551.1	Open Course-Communicative applications in English	<p>CO 1: Proficient in all four language skills</p> <p>CO 2: Equipped for competitive exams and IELTS.</p> <p>CO 3: Enhanced career prospects and employability</p> <p>CO 4: Developed personality by fine communication and presentation skills.</p> <p>CO 5: Use English for International Communications.</p>
EN 1641	World Classics	<p>CO1: Introduced to world classics in literature</p> <p>CO2:Broadened outlook and sensibility</p> <p>CO3: Equipped to read and appreciate Classical works.</p> <p>CO4: Trained to evaluate classical texts critically</p> <p>CO5: Learned to assess and place their own culture and classics.</p>
EN 1642	Methodology and Perspectives of Humanities	<p>CO1: Introduced to the methodological issues specific to the humanities</p> <p>CO2: Developed a critical perspective in pursuing literary studies.</p> <p>CO3: Introduced to the key concepts in literary theory and criticism</p> <p>CO4: Equipped to read literature from a theoretical perspective.</p>
EN 1643	English for the Media	<p>CO1: Sensitized to the English language used In the media</p> <p>CO2: Trained to be professionally skilled and employable in the media</p> <p>CO3: Awareness of the nature and scope of communication media.</p> <p>CO4: Trained to write for newspapers and magazines.</p> <p>CO5:Trained to produced and present programmes for radio and TV.</p>
EN 1644	Women's Writing.	<p>CO1: Introduced to the development of women's writing in various countries.</p> <p>CO2: Familiarized to the diverse concerns addressed by feminism.</p> <p>CO3: Motivated to critically analyze literary works from a feminist perspective.</p> <p>CO4: Equipped to understand feminism as a social movement and a critical tool.</p> <p>CO5: Equipped to interrogate the biases in the construction of gender and patriarchal norms.</p>
EN 1661.1	Translation Studies	<p>CO1: Introduced to the concepts and theories of translation.</p> <p>CO2: Familiarized to the art of translation.</p> <p>CO3: Encouraged to pursue translation as a profession.</p>
M.A English		
Programme Outcome		<p>PO1: The programme grooms the students to enter the teaching profession, especially the higher education sector.</p> <p>PO2: The programme instills human values in students.</p> <p>PO3: They comprehend the nuances of the relationship between art and life.</p> <p>PO4:The students learn how to engage critically and creatively with a wide range of selective texts.</p> <p>PO5: The gain skills and knowledge necessary to carry out independent and innovative research.</p> <p>PO6:The students gain an understanding of the contemporary pedagogic principles and practices in teaching language and literature.</p>
Course code	Course Name	Course Outcome
EL 211	Chaucer to The Elizabethan Age	<p>CO1: display an awareness of the Historical events which shaped the Renaissance Period and literature</p> <p>CO2: explain the impact of Renaissance</p> <p>CO3: Identify and explain the formal and literary features of each genre and text</p> <p>CO4: analyze and explain the similarities and differences between various types of drama</p>
EL 212	Shakespeare Studies	<p>CO1: Evaluate the significance of the socio political events which shaped the perspective of The Elizabethan Age.</p> <p>CO2: Relate the texts selected for study to the genre , sub genre.</p> <p>CO3: Identify discourses addressed in the plays and critically evaluate them</p> <p>CO4:Attempt critical reviews of Shakespearean plays</p>
EL 213	The Augustan Age	<p>CO1: Gain a comprehensive understanding of Puritanism and Restoration.</p> <p>CO2: Display an awareness of a neo classicist features.</p> <p>CO3: Assess critically the conflicting trends in the literature of the age.</p> <p>CO4: Acquire an understanding of the emergence and popularity of prose and novel</p>
EL 214	Romantics and Victorians	<p>CO1: Relate the texts selected for study to the genres they belong to.</p> <p>CO2: Display an awareness of the contributions of the poets novelists and prose writers.</p> <p>CO3: Understand the social and literary changes.</p> <p>CO4: Evaluate the implications of the critical responses of the period</p>
EL 221	From Modernism to Present	<p>CO1: Demonstrate an understanding of how the age affected the literature.</p> <p>CO2: Demonstrate the knowledge of the major movements that influence literature</p> <p>CO3: Analyze critically and explain the features of modernism</p> <p>CO4: Evaluate the text critically</p>
EL 222	Indian Writing in English	<p>CO1: Display an in-depth awareness of the major historical and socio cultural events</p> <p>CO2: Analyze the impact of socio cultural and political events on the texts selected for study</p> <p>CO3: Evaluate the contributions of major Indian English writers</p> <p>CO4: Develop a literary sensibility and an emotional response to the literary texts .</p>
EL 223	American Literature	<p>CO1: Understand the socio political factors that shaped the American L:iterary scene</p> <p>CO2: Analytically explore works in relation to Historical and Cultural contexts</p> <p>CO3: Examine the Afro-American experience as articulated in Literature.</p> <p>CO4: Develop an awareness of American Experience and Character</p>
EL 224	Critical Studies	<p>CO1: Sharpen their analytical and critical faculties</p> <p>CO2:Gain an idea of the evolution of critical thinking in Europe and India</p> <p>CO3:Understand the function of language in literary and cultural phenomenon</p> <p>CO4: Gain an insight into the interconnected nature of the major schools of thought</p>
EL 231	Linguistics and Structure of the English Language	<p>CO1: Develop an awareness of the basic nature, branches and history of linguistics</p> <p>CO2: Become familiar with contrastive linguistics</p> <p>CO3: Analyze language units based on their phonological, morphological and syntactical levels.</p> <p>CO4: Familiarize the students with history and developments of modern grammar</p>
EL 232	Critical Studies II	<p>CO1: Sharpen their analytical and critical faculties</p> <p>CO2:Gain an idea of the evolution of critical thinking in Europe and India</p> <p>CO3:Understand the function of language in literary and cultural phenomenon</p> <p>CO4: Gain an insight into the interconnected nature of the major schools of thought</p>

EL 233_1	European Drama	CO1: Trace the conditions that facilitated the origin and evolution of drama in Europe CO2: Display a comprehensive awareness of the aesthetic and socio moral principles of dramaturgy in Europe. CO3: Be acquainted with the defining aspects of major theatre movements in post world war era in Europe CO4: Critically analyze a play and identify the themes in the plot
EL 234_1	European Fiction	CO1: Identify the main themes of the texts CO2: Display their understanding of the historical cultural and political outlooks that shaped European Fiction CO3: Demonstrate the ability to read enjoy think and respond to European Fiction
EL 241	English Language Teaching	CO1: Have acquired knowledge of the historical and current theories in ELT CO2: Be able to assess critically the various approaches, methods and techniques. CO3: Have developed the ability to critically evaluate syllabi, teaching materials and evaluation procedures.
EL 242	Cultural Studies	CO1: Formulate and defend a position within a theoretical framework CO2: Articulate knowledge of the core concepts, central figures and different theoretical frameworks CO3: Critically examine social cultural ethical and political issues from multiple perspectives CO4: Conduct analyses that address the intersections of race ethnicity and nationality
EL 243_1	Comparative Literature	CO1: Display an awareness of the major concepts of comparative literature. CO2: Assess the cultural similarities and dissimilarities represented in the literature of different languages CO3: Demonstrate the ability to analyze text across languages and cultures. CO4: Appreciate the universal character of literature and arts
EL 244_2	Regional Literatures in English Translation	CO1: Demonstrate knowledge of at least a few languages and literatures with few native speakers and readers CO2: Demonstrate basic knowledge about the 8th schedule of the Indian Constitution CO3: Show an understanding of the major landmarks and trends in a few of India's major literatures CO4: Analyze critically some of major thematic concerns

Department of Physics

Programme offered	B.Sc Physics M.Sc Physics
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M.Sc Physics

Programme Outcome	<p>PO 1 : Acquire detailed understanding of the important theoretical frame work of physics Using Classical mechanics, Quantum Mechanics, Mathematical Physics and Statistical mechanics to understand and analyze various branches of physics including Electronics, Optics, Electromagnetic theory, Condensed matter physics, Nuclear Physics, Particle Physics, Spectroscopic methods, etc.</p> <p>PO 2 : Skill in experimentation Achieve experimental and data analysis skills from two general physics Lab courses and two Electronics Lab courses.</p> <p>PO3: Numerical computation techniques Familiarization with modern numerical methods for the analysis of problems in physics.</p> <p>PO4: Problem Solving and Analysis Acquire the skills to analyze</p>
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Course code	Course Name	Course Outcome
PH211	Classical mechanics	CO 1: Learn Lagrangian mechanics, analyze two-body central force problem, small oscillations and rigid body dynamics CO 2: Learn Hamiltonian mechanics and Hamilton-Jacobi method CO 3: Learn Special and General theories of Relativity CO 4: Acquire preliminary knowledge of nonlinear dynamics and chaos
PH212	Mathematical Physics	CO 1: Develop detailed knowledge of Linear algebra, Complex analysis, Fourier Series and Tensor analysis CO 2: Learn Probability theory, Group Theory and Special Functions CO 3: Develop in-depth knowledge of Differential equations and solution methods.
PH213	Basic Electronics	CO 1: Know common electronic circuits using Diodes, BJTs, FETs, OPAMPs and 555 timer ICs. CO 2: Familiarization with solid-state devices CO 3: Preliminaries of Digital Electronics and Optical Electronics CO 4: Knowledge of electronic instrumentation
PH251	General physics (Practicals)	CO 1: Learn experimental techniques in general physics CO 2: Learn data analysis and estimation of errors
PH252	Electronics & computer science(Practicals)	CO 1: Learn designing and construction of analog electronic circuits CO 2: Learn implementation of programs using C++ programming language
PH221	Modern Optics& electro magnetic theory	CO 1: Know challenging topics in modern optics and introductory concepts of non-linear optics CO 2: Learn electromagnetic wave theory and relativistic electrodynamics CO 3: Know electromagnetic wave propagation through waveguides and Transmission lines and working of different antennas
PH222	Thermo dynamics, Statistical Physics & Basic Quantum Mechanics	CO 1: Apply fundamental thermodynamics concepts to numerical problems CO 2: Learn Classical and quantum statistics CO 3: Learn mathematical foundations of quantum mechanics and postulates CO 4: Learn to solve Schrodinger equation for different physical systems such as hydrogen atom.
PH223	Computer Science & Numerical Techniques	CO 1: Learn basic computer architecture and microprocessors CO 2: Learn and write computer programmes using C++ and Python programming languages CO 3: Learn some important numerical methods for problem solving
PH231	Advanced Quantum Mechanics	CO 1: Learn the fundamental concepts of Angular momentum CO 2: Learn different approximation methods in quantum mechanics and introductory concepts of mult electron systems CO 3: Learn Relativistic quantum mechanics and fundamental concepts in classical quantum field theory
PH232	Advanced Spectroscopy	CO 1: Learn different spectroscopic methods and their applications CO 2: Learn general tools of spectroscopy
PH233 E	Advanced Electronics- I	CO 1: Learn working of optical fiber communications and mobile cellular communications CO 2: Learn Digital Signal Processing
PH261	Advanced Physics Practicals	CO 1: Learn experimental techniques in general physics CO 2: Learn data analysis
PH262	Advanced Electronics Practicals	CO 1: Learn how to construct digital electronics circuits CO 2: Learn Coding and Execution of Programs using a microprocessor
PH241	Condensed Matter physics	CO 1: Learn basic concepts of crystal structures and their determination CO 2: Learn different properties of materials and concepts of superconductivity
PH242	Nuclear & Particle Physics	CO 1: Learn fundamentals of nuclear properties and different nuclear models CO 2: Learn the construction and working of particle detectors and particle accelerators CO 3: Learn Elementary concepts of Particle physics

PH243 E	Advanced Electronics - II	CO 1: Learn about the microprocessor architecture, interfacing and embedded systems CO 2: Learn the preliminaries of Artificial Intelligence CO 3: Learn the working of television and Radar communication
PH201	Project	CO 1: To learn how to do research and write a dissertation and scientific article
PH202	Viva Voce	CO 1: To understand the knowledge in different areas of physics
B.Sc Physics		
Programme Outcome		<p>PO 1: Provide a solid foundation in all aspects of physics and to show a broad spectrum of modern trends : in physics and to develop experimental, computational and mathematical skills of students. The syllabi are framed in such a way that it bridges the gap between the plus two and post graduate levels of physics by providing a more complete and logical framework in almost all areas of basic physics.</p> <p>PO 2: By the end of the first year (2 nd semester), the students should have, (i) attained a common level in basic mechanics and properties of matter and laid a secure foundation in mathematics for their future courses. (ii) developed their experimental and data analysis skills through a wide range of experiments in the practical laboratories.</p> <p>PO 3: By the end of the fourth semester, the students should have (i)been introduced to powerful tools for tackling a wide range of topics in Thermodynamics, Statistical Mechanics and Electrodynamics. (ii) Become familiar with additional relevant mathematical techniques. (iii) Further developed their experimental skills through a series of experiments which also illustrate major themes of the lecture courses.</p> <p>PO 4: By the end of the sixth semester, the students should have (i) covered a range of topics in almost all areas of physics including quantum physics, solid state physics, 12computational physics, electronics etc. (ii)had experience of independent work such as projects, seminars etc. (iii) developed their understanding of core physics.</p> <p>PO 5: Provide education in physics of the highest quality at the undergraduate level and generate graduates of the caliber sought by industries and public service as well as academic teachers and researchers of the future.</p> <p>PO 5: Attract outstanding students from all backgrounds.</p> <p>PO 6: Provide an intellectually stimulating environment in which the students have the opportunity to develop their skills and enthusiasms to the best of their potential.</p> <p>PO 7: Maintain the highest academic standards in undergraduate teaching.</p>
Course code	Course Name	Course Outcome
PY1141	Basic Mechanics & Properties of Matter	CO 1: Acquire basic knowledge in dynamics of rigid bodies CO 2: Learn basic concepts of Oscillations and waves CO 3: Learn fundamental ideas of properties of fluids
PY1221	Classical mechanics	CO 1: Understand different conservation laws and their relation to the symmetry and properties of free space CO 2: Learn the concept of Central force problem CO 3: Learn Lagrangian formalism of Classical Mechanics
PY1341	Thermodynamics & Statistical Physics	CO 1: To learn the fundamental ideas of thermodynamics and working of practical heat engines CO 2: Understand the concept of entropy and thermal properties of solids CO 3: Learn the basics of statistical physics
PY1441	Electrodynamics	CO 1: To refresh the fundamental concepts of electrodynamics CO 2: To Learn the network theorems and their applications CO 2: To learn the Maxwell's equations and properties of electromagnetic waves
PY1541	Methodology in Physics & Relativistic Mechanics	CO 1: To learn the fundamentals of Research methodology CO 2: Learn the Hamiltonian formalism of classical mechanics CO 3: To familiarize the different concepts in Special theory of relativity
PY1542	Quantum Mechanics	CO 1: To know the importance of quantum mechanics CO 2: To learn the mathematical foundations and postulates of quantum mechanics CO 3: To solve Schrodinger equation for different physical systems
PY1543	Electronics	CO 1: To know the fundamental concepts of semiconductor devices such as diodes and transistors CO 2: To learn the basic ideas of Operational amplifiers and different communication systems CO3: Understand the Preliminaries of modulation
PY1544	Atomic & Molecular Physics	CO 1: Familiarise with the vector atom Model CO 2: Learn about Atomic spectra, X-ray spectra , molecular spectra and resonance spectra CO 3 : under stand the working principles of spectrometers (IR, Raman and Mossbauer)
PY1551.3	Applied Physics (Open Course)	CO 1: Electric and Electronic equipments, scientific instruments, Medical instruments, Optical instruments and some common mechanical devices CO 2: to learn the working of lasers - Ruby laser CO 3 : Understand priciples of holography and optical fiber communication
PY1641	Solid State Physics	CO 1: Familiarise with the Crystal structure and inter atomic forces CO 2: Learn X-ray, neutron and electron diffraction CO 3: Understand Free electron theory and Band theory CO 4: understand the principles of Magnetic, Dielectric and Optical properties of materials, and basics of superconductivity
PY1642	Nuclear & Particle Physics	CO 1: Understand Nuclear structure and nuclear models, Radio-Activity,Nuclear forces CO 2: study the different types of Radiation detectors and particle accelerators CO 3: characterise various Nuclear reactions, Nuclear fission and fusion CO 4: be familiar with the concept of Cosmic rays and study the elementary particles
PY1643	Classical & Modern Optics	CO 1: posses detailed knowledge of Interference and Diffraction, Polarization and Dispersion CO 2: get a grasp on the preliminaries of Fiber optics and Lasers CO 3: be able to understand the basics of Holography
PY1644	Computer Science	CO 1: learn about the Number systems, Boolean algebra and logic gates and some arithmetic and sequential circuits CO 2: understand the basics of computers and memory systems CO 3: write C programmes and understand the process of computer oriented numerical solving CO 4: Be able to write programmes using different numerical techniques and find solutio to interpolation and extrapolation problems
PY1661.4	Nano science and Technology (Elective course)	CO 1: Size effects, properties of nanomaterials and scaling laws CO 2: Synthesis and characterization of nanomaterials
PY1442	Mechanics, Properties of matter, Error measurement, heat and Acoustics(Practical)	CO 1:Familiarization with some simple experiments in mechanics, properties of matter, heat etc. CO 1:Analysis of experimental data with error calculations

PY1645	Optics, Electricity and Magnetism(Practical)	CO 1:Familiarization with some simple experiments in electricity and magnetism CO 2: Analysis of experimental data with error calculations
PY1646	Electronics and Computer Science(Practical)	CO 1: Experiments in Electronics CO 2: Solving some simple problems in physics using numerical methods by implementing them in C programming language
PY1131.1	Mechanics & Properties of matter(Complementary for Maths)	CO 1: Be able to calculate the moment of inertial of rigid bodies CO 2: Understand the different types of waves and show the mechanics of wave propagation CO 3: Understand mechanical properties of solids and characteristics like Young's Modulus and its determination.
PY1231.1	Thermal physics and statistical mechanics (Complementary for Maths)	CO 1: Have a sound understanding about how heat is transferred and the factors affecting it CO 2: students will be able to determine the temperature of the sun considering heat transfer factors. CO 3: Calculate efficiencies of heat engines CO 4: Familiarise with entropy and various statistical distributions
PY1331.1	Optics, Magnetism & electricity(Complementary for Maths)	CO 1: Understand the phenomena of interference and diffraction of light CO 2: Devise experiments using interference and diffraction for the determination of wavelength of light CO 3: Understand the principle and working of lasers and fiber optic communication CO 4: Be able to distinguish between different type of magnetic materials CO 5: Design circuits for LCR, RC and other resonance circuits
PY1431.1	Modern Physics & Electronics (Complementary for Maths)	CO 1: Understand the concept of Bohr's atom model and properties of the nucleus CO 2: would be able to calculate half lives of radioactive substances CO 3: Familiar with the basic concepts of quantum mechanics and predict the wavefunction of a particle in a box CO 4: Study the basics of electronics and factors affecting amplifiers CO 5: Able to design gate logics and convert to corresponding Boolean expressions
PY1432	Practical(Complementary for Maths)	CO 1: Be able to find Time period of oscillations for different types of pendulums CO 2: Find optical properties of different types of lenses CO 3: Determine the viscosity and surface tension of liquids CO 4: Complete various electronic circuits and draw characteristic curves of the same CO 5: Determine properties of interference and diffraction experimentally CO 6: Able to do Error measurement and calculations
PY1131.2	Mechanics & Properties of Matter(Complementary for Chemistry)	CO 1: Be able to calculate the moment of inertial of rigid bodies CO 2: Understand the different types of waves and show the mechanics of wave propagation CO 3: Understand mechanical properties of solids and characteristics like Young's Modulus and its determination.
PY1231.2	Thermal physics and statistical mechanics (Complementary for Chemistry)	CO 1: Have a sound understanding about how heat is transferred and the factors affecting it CO 2: students will be able to determine the temperature of the sun considering heat transfer factors. CO 3: Calculate efficiencies of heat engines CO 4: Familiarise with entropy and various statistical distributions
PY1331.2	Optics, Magnetism & electricity(Complementary for Chemistry)	CO 1: Understand the phenomena of interference and diffraction of light CO 2: Devise experiments using interference and diffraction for the determination of wavelength of light CO 3: Understand the principle and working of lasers and fiber optic communication CO 4: Be able to distinguish between different type of magnetic materials CO 5: Design circuits for LCR, RC and other resonance circuits
PY1431.2	Atomic Physics, Quantum Mechanics & Electronics(Complementary for Chemistry)	CO 1: Understand the concept of Bohr's atom model and properties of the nucleus CO 2: Familiar with the basic concepts of quantum mechanics and predict the wavefunction of a particle in a box CO 3: Study the principle behind spectroscopic techniques CO 4: Study the basics of electronics and factors affecting amplifiers CO 5: Able to design gate logics and convert to corresponding Boolean expressions
PY1432	Practical(Complementary for Chemistry)	CO 1: Be able to find Time period of oscillations for different types of pendulums CO 2: Find optical properties of different types of lenses CO 3: Determine the viscosity and surface tension of liquids CO 4: Complete various electronic circuits and draw characteristic curves of the same CO 5: Determine properties of interference and diffraction experimentally CO 6: Error measurement and calculations

Department of Chemistry

Programme offered	B.Sc Chemistry M.Sc Chemistry
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B.Sc Chemistry

Programme Outcome	<p>PO 1: Understand the basic concepts of chemical sciences and enable them with tools needed for the practice of chemistry.</p> <p>PO 2: Students should be able to interpret and analyse quantitative data, they should be able to recognize and apply the principles of atomic and molecular structure to predict chemical properties and chemical reactivity.</p> <p>PO 3: To know the role of chemistry in nature and society.</p> <p>PO 4: To be exposed to different techniques used in research and their applications.</p>
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Course code	Course Name	Course Outcome
CH1141	Inorganic Chemistry I	CO 1: The course helps the students to understand the structure of atom, periodicity and non aqueous solvents. CO 2: The student will be able to appreciate how the inner structure of elements dictates the chemical properties of the elements and also how the elements are arranged in the periodic table. CO 3: The students will learn the properties and application of s-block elements, the H atom and their compounds
CH1221	Methodology and Perspectives of Sciences and General Informatics	CO 1: The students will get a basic understanding to do self directed experimentation work and research in chemistry under the guidance of and supervision of a mentor. CO 2: The student should be able to write the research projects, its implementation and presentation of the outcome. Also how to overcome the difficulties posed during experiments, handling different reactions and analytical methods etc. CO 3: Analytical chemistry helps the students to understand about the experimental parts of the theory and safety measures which could follow when doing experiments using chemicals.

CH1341	Inorganic Chemistry II	<p>CO 1: The course provide a fundamental to detailed knowledge in chemical bonding and compounds of non transition elements and gives an elementary idea about nano materials.</p> <p>CO 2: The student will also get a strong idea about nuclear chemistry.</p>
CH1441	Organic Chemistry I	<p>CO 1: The student should get an idea bout the behaviour of aliphatic and aromtic compound and the fundamental concepts about reaction mechanism of organic compounds.</p> <p>CO 2: The course provides an insight in to stereochemical aspects, photochemical reactions and aromticity of compounds.</p>
CH1442	Inorganic Qualitative Analysis	<p>CO 1: The students will get idea about the systematic qualitative analysis by microscale methods of a mixture containing two acidic and two basic radicals.</p> <p>CO 2: Get an idea about identification and conformation of mixtures</p>
CH1541	Physical Chemistry I	<p>CO 1: Upon completion of this course, the students will gain an exposure and practice in the areas of physical chemistry.</p> <p>CO 2: The students are able to get concepts about gas,liquid properties and principles of thermodynamics and group theory.</p> <p>CO 3: The laws of thermodynamics forms the appropriate organizational tool to understand the chemistry of bulk systems.</p>
CH1542	Inorganic Chemistry III	<p>CO 1: This course helps the students to learn the important multidisciplinary areas of bio inorganic chemistry and organometallic chemistry.</p> <p>CO 2: The students will gain a thorough understanding of the classification of several organometallic reactions and able to identify the applications of organometallic compounds.</p> <p>CO 3: This also helps the students about analytical methods and techniques and general principle of isolation of elements helps the students to understand the isolation of elemnts from their ores</p>
CH1543	Physical Chemistry II	<p>CO 1: The students will be able to explain the concepts of thermodynamics, quantum mechanics and spectroscopy to chemical, physical and biochemical systems.</p> <p>CO 2: Students will be equipped to derive mathematical relationships in these areas of chemistry.</p> <p>CO 3: Students will evaluate the physical and chemical systems by non spectroscopic techniques.</p>
CH1544	Inorganic volumetric analysis	<p>CO 1: The students will get idea about the systematic qualitative analysis by microscale methods of a mixture containing two acidic and two basic radicals.</p> <p>CO 2: Get an idea about identification and confirmation of mixtures.</p> <p>CO 3: The students will be experienced in inorganic preparations.</p> <p>CO 4: The students will get an exposure about acidimetry, alkalimetry, permanganometry etc.</p>
CH1545	Physical chemistry experiments)	<p>CO 1: The students will be experienced in the determination of partitian coefficient of iodine between CCl₄ and water, critical solution temperature of phenol -water system, conductometric titrations, potentiometric titrations, calorimetric experiments, kinetics of ester hydrolysis etc.</p>
CH1551.3	Environmental Chemistry	<p>CO 1: This course helps the students to learn the important multidisciplinary areas of bio inorganic chemistry and organometallic chemistry.</p> <p>CO 2: The students will gain a thorough understanding of the classification of several organometallic reactions and able to idea about role of organometllic compounds.</p> <p>CO 3: The students will get an insight in to analytical methods and techniques.</p> <p>CO 4: The general principles of isolation of elements gives an understanding about how to isolate elements from their ores.</p>
CH1641	Organic Chemistry II	<p>CO 1: The students will get an idea about the preparation ,properties and mechanism of organic reactions.</p> <p>CO 2: Organic chemistry leaning should give the student a knowledge about reactions, reagents and products.</p> <p>CO 3: They are getting ideas about reactive site,nucleophile, electrophiles,the movement of arrows etc.</p> <p>CO 4: The course also gives a sufficient knowledge about the structural elucidation of organic compounds from spectra. This course also gives other novel areas such as supramolecular chemistry and green chemistry.</p>
CH1642	Organic Chemistry III	<p>CO 1: The students will get an idea about the preparation ,properties and mechanism of organic reactions.</p> <p>CO 2: The students get an idea about carbohydrates, aminoacids, protiens, nucliec acids, alkaloids,polymers and their properties.</p>
CH1643	Physical Chemistry III	<p>CO 1: The students learn the basics of electrochemistry and its application to modern industry and technology.</p> <p>CO 2: The course provide the different types of reactions and the various factors that determine the rate of the reactions.</p> <p>CO 3: The course gives an understanding about the phase diagrams of one teo and three component systems and elementary ideas of photochemistry</p>
CH1644	Organic chemistry experiments	<p>CO 1: The students should be able to develop laboratory skills.</p> <p>CO 2: Apply principles of seperation and isolation of organic compounds</p>
CH1645	Gravimetry	<p>CO 1: Gravimetry gives the basic concepts of anlytical methods.</p> <p>CO 2: Also get idea about the precipitation coprecipitation and post precipitation possibilities.</p>
CH1661.1	Supramolecular, Nano Particles and Green Chemistry	<p>CO 1: Supramolecular chemistry gives idea about chemistry beyond molecules.</p> <p>CO 2: Thelearners should get knowledge about the importance of self assembly.</p> <p>CO 3: Relevance of supramolecular chemistry to mimic biological systems.</p> <p>CO 4: Green chemistry knowledge should equip the student to handle environmentally benign reactions and the minimum use of hazardous chemicals and proper way of chemical waste management</p>
CH1646	Project and Factory visit	<p>CO 1: The students should develop an aptitude for research in chemistry, learn research methodology and literature search.To inculcate proficiency to identify appropriate research topic and presentation.</p>

M. Sc. Chemistry

Programme Outcome:		<p>PO 1: Provide an in depth knowledge in chemistry as theory and practical, provide research aptitude in chemistry</p> <p>PO 2: students can work in the pure, interdisciplinary and multidisciplinary areas of chemical sciences and its applications</p> <p>PO 3: analyse data obtained from sophisticated instruments (like UV-Vis, Fluorescence, FTIR, NMR, GCMS, HPLC, GCMS and TGA) for the structure determination and chemical analysis.</p> <p>PO 4: apply green chemistry approach towards planning and execution of research in frontier areas of chemical sciences</p> <p>PO 5: present scientific and technical information resulting from laboratory experimentation in both written and oral formats</p>
Course code	Course Name	Course Outcome
CH 211	Inorganic Chemistry I	<p>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,</p> <p>CO 2: understand the basic concepts of analytic chemistry, interpret TG, DTA and DSC curves, know the basic instrumentation and working principles,</p> <p>CO 3: To understand the basic concept of symmetry, hybridisation and point groups</p> <p>CO 4: 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>
CH 212	Organic Chemistry I	<p>CO 1: Students should be able to predic 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 reactio 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>
CH 213	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 predic 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 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 indepth knowledge on gaseous and liquid state of matter</p>
CH 221	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: indepth 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, pedict their spectra properties</p> <p>CO 5: the students will get an indepth knowledge on te structure of solids, superconductivity , photovoltaic effect, etc.</p>
CH 222	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.</p> <p>CO 4: learners will get an indepth 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>
CH 223	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</p> <p>CO 3: students 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 electrochemisrty, how a cell can be created and what are the underlying theoretical aspects.</p>
CH 214	Inorganic Practicals I	CO 1: identifications of individual componets from a mixture of rare earths, quantitative determination of transition metal ions using volumetric and colorimetric estimations
CH 215	Organic Practicals I	CO 1: separation of mixtures of organic compounds, determination of the purity using chromatographic techniques, multistage preparation of various organic compounds
CH 216	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
CH 231	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 utilises metal ions to perform its functions, how a cell works and different transport phenomenas.</p> <p>CO 4: learners will understand basic rpinciples of spectroscopy and apply this knowledge in predicting the spectral behavios 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>

CH 232	Organic Chemistry III	<p>CO 1: the learners will get a thorough understanding on various spectroscopic techniques used in organic chemistry, how electronic transition happen, 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>
CH 233	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 indepth 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>
CH 241	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>
CH 242.2	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 <u>green strategies for organic synthesis</u></p>
CH 234	Inorganic Practicals II	CO 1: The student will utilise his knowledge on analytical chemistry for quantitative separation of inorganic mixtures employing vo
CH 235	Organic Practicals II	CO 1: The student will utilise his knowledge in organic chemistry to do multi step preparations and estimate glucose, paracetamol
CH 236	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>
CH 243(a)	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.
CH 243(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

Complementary courses

Programme Outcome:		PO 1: These courses will give a deep insight about chemistry to students from other disciplines there by enabling them, to understand the concepts associated with the representative subject with more clarity.
Course code	Course Name	Course Outcome
CH1131 .1	Theoretical Chemistry (Complementary Chemistry)	<p>CO1: The students can thoroughly understand the concept of Atoms. They can also understand the Bohr concept and also the Quantum numbers.</p> <p>CO2: After studying the module of chemical bonding they can understand the common themes such as Ionic, covalent and metallic descriptions of chemical bonding.</p> <p>CO3: This helps the students to describe the phenomenon of radioactivity and its basics. It also helps them to explain how they are used in various fields including agriculture and medicine.</p> <p>CO4: Analytical principles emphasises the role of Analytical Chemistry in basic science. This helps them to evaluate quantitative and qualitative analysis.</p>
CH1131 .3	Theoretical Chemistry (Complementary Chemistry)	<p>CO1: The students can thoroughly understand the concept of atoms. They can also understand the Bohr concept and also the Quantum numbers.</p> <p>CO2: After studying the module of chemical bonding they can understand the common themes such as Ionic, covalent and metallic descriptions of chemical bonding.</p> <p>CO3: Analytical principles emphasises the role of Analytical Chemistry in basic science. This helps them to evaluate quantitative and qualitative analysis.</p> <p>CO4: After studying the environmental chemistry the students can understand the chemistry and toxicology of substances. They can also use the analytical skills to quantify the level and effects of toxicity in environment.</p>
CH1131 .4	Theoretical Chemistry (Complementary Chemistry)	<p>CO1: The students can thoroughly understand the concept of atoms. They can also understand the Bohr concept and also the Quantum numbers.</p> <p>CO2: After studying the module of chemical bonding they can understand the common themes such as Ionic, covalent and metallic descriptions of chemical bonding.</p> <p>CO3: Analytical principles emphasises the role of Analytical Chemistry in basic science. This helps them to evaluate quantitative and qualitative analysis.</p> <p>CO4: After studying the environmental chemistry the students can understand the chemistry and toxicology of substances. They can also use the analytical skills to quantify the level and effects of toxicity in environment.</p>

CH1131 .6	Inorganic and Analytical Chemistry (Complimentary Chemistry)	<p>CO1: Describe well about the structure of the atom and provides an idea regarding Bohr atom model, concepts of orbit and orbital. It also imparts knowledge about electronic configuration and different rules according to which electrons are filled.</p> <p>CO2: This module enable the students to develop an understanding of the principles of analytical chemistry with an emphasis on the common analytical qualitative and quantitative methods used in laboratory. It builds upon introductory courses in analytical chemistry and extends the scope to include the principles of analytical chemistry.</p> <p>CO3: Improve their knowledge of the basic information of Radiation and Nuclear chemistry; requirements, methods of preparation, uses of Radioelements. Improve their knowledge of types of radioactive decay, natural decay series, nuclear models, nuclear properties, Mass energy, relationships, nuclear reactions, rates of radioactive decay, interaction of radiation with matter.</p> <p>CO4: The topics offer a primary idea about transition metal organometallics and its syntheses. Basic concept of Structure and bonding is explained. Applications of organometallic complexes in various fields such as pharmaceutical and biomedical provides its importance in day-today life.</p>
CH1231 .1	Physical Chemistry I (Complimentary Chemistry)	<p>CO1: The student can understand the basic concepts of thermodynamics. It also helps them to learn how they can be applied in various applications.</p> <p>CO2: The student will be able to understand the concepts of chemical equilibrium. It helps them to describe the concept of free energy and reaction rates.</p> <p>CO3: The student will be able to describe the properties of acids and bases. It also helps them to understand the concept of pH.</p> <p>CO4: After studying this module the student will be able describe various thermochemical aspects. It also helps them to describe the nature of energy.</p>
CH1231 .3	Inorganic and bioinorganic chemistry (Complimentary Chemistry)	<p>CO1: The students will get a firm foundation in the fundamentals on organochemistry. They will also be able to explore new compounds and the applications in organometallic compounds.</p> <p>CO2: This helps them to understand the principles underlying fission and fusion, atomic bomb, nuclear bomb etc. They will also be aware of the nuclear powerplants their working principle etc.</p> <p>CO3: This helps to know the examples of coordination compounds and also the properties of them. This deals with the theories behind this and its vast applications and importance.</p> <p>CO4: This helps to describe the importance of metals in biological systems. Their biological functions are also studied.</p>
CH1231 .4	Inorganic and bioinorganic Chemistry (Complimentary Chemistry)	<p>CO1: The students will get a firm foundation in the fundamentals on organochemistry. They will also be able to explore new compounds and the applications in organometallic compounds.</p> <p>CO2: This helps them to understand the principles underlying fission and fusion, atomic bomb, nuclear bomb etc. They will also be aware of the Nuclear powerplants their working principle etc.</p> <p>CO3: This helps to know the examples of coordination compounds and also the properties of them. This deals with the theories behind this and its vast applications and importance.</p> <p>CO4: This helps to describe the importance of metals in biological systems. Their biological functions are also studied.</p>
CH1231 .6	Organic Chemistry (Complimentary Chemistry)	<p>CO1: Basic idea regarding structure and physical properties of simple carbohydrates are included in the syllabus with special emphasis on Glucose and Fructose. The various chemical reactions of glucose and fructose are explained well with adequate examples. The module describes all the basic concept about carbohydrate chemistry and provides thorough knowledge to students.</p> <p>CO2: The understanding of role of vitamins in nutrition and medical science is permanently growing. The syllabus is modified in such a way that it gives preliminary idea about the structure and functions of vitamins and importance of vitamins in our diet. Classification are also included to give students idea regarding physical compatibility.</p> <p>CO3: Make the students to understand about the physical and chemical properties of amino acids, Single letter and three letter codes as well as chemical reactions of Amino and carboxylic groups. It also makes aware the students about primary, secondary, tertiary and quaternary structures and chemical; tests to detect proteins.</p> <p>CO4: Enzymes are basically proteins for a specific biological function and this unit is an extension of previous unit amino acids and proteins. It dealt with enzyme characteristics, classification and kinetics. It is followed by some basic idea about important hormones present in our body. This module covers all the fundamental concepts of enzymes and hormones.</p>
CH1331.1	Physical Chemistry II (Complimentary Chemistry)	<p>CO1: The student will be able to understand the concept of different velocities of gases. It helps them to understand various aspects like liquifaction of gases, Joule Thomson effect.</p> <p>CO2: This module gives them a clear understanding of the solid state. It gives them an idea about the structure of crystals and applications like diffraction of x-rays by crystals.</p> <p>CO3: Student will be able to understand the fundamentals of electro chemistry. The syllabus is designed in such a way that they will be able to apply it practically.</p> <p>CO4: The student will be able to understand concepts of catalysis. Also they will understand the basic fundamentals of photo chemistry.</p> <p>CO5: The student will be able to determine the unit of rate constant. It helps them to describe how rate of a reaction change with time and various other aspects.</p> <p>CO6: After the module the student will be able to define the basic concepts of group theory like the various elements of symmetry. It gives them an idea of how to write a group multiplication table and understand the concept of point group.</p>
CH1331 .3	Physical Chemistry (Complimentary Chemistry)	<p>CO1: This helps the students to know the aspects of first order, second order, pseudo order reactions. Also helps to understand the order and molecularity of a reaction. The students can utilise their knowledge to find out the rate of simple reactions.</p> <p>CO2: This describes the difference between completion for irreversible and reversible chemical reactions. Also describes a system at chemical equilibrium. The students can understand the basic concept of ionic equilibrium and use this knowledge to calculate the pH of different solutions and predict the hydrolysis of various salts</p> <p>CO3: The students can understand the basic concepts of dilute solution and how to calculate the molecular weight of unknown solutes.</p> <p>CO4: It explains the working principle, also able to interpret UV-Vis spectrum. The relevant terms are also explained.</p> <p>CO5: The students should be able to prepare the standard solution and dilute solution. Also help to determine the concentration of solution in various units.</p> <p>CO6: This explains the definitions, classifications, preparations, purification, properties, applications, etc.</p> <p>CO7: The learners will understand the basic concepts of solution equilibria</p>

CH1331 .4	Organic Chemistry	<p>CO1: after studying this module students can predict the reaction mechanism involved in a chemical reaction.They can firmly understand the concepts of Inductive mechanism,Hyperconjugation,resonance etc.</p> <p>CO2: this helps them to understand the basic concepts such as Isomers,Chiral,Achiral molecules etc.</p> <p>CO3: This helps them to understand the basic concepts also the major types of carbohydrates and examples for each food source.Also gets a view about the reactions involved in carbohydrates.</p> <p>CO4: This describes the structure of amino acids,their physical and chemical properties.Also describes the primary,secondary,tertiary and quaternary structure in proteins.</p> <p>CO5: This helps to understand the various nucleic acids and their reactions.Also understands the basic concepts of lipids.</p> <p>CO6: Helps them to understand monomers,polymers and polymerization.Also helps them to understand the polymeric materials related with their daily life.</p>
CH1331 .6	Inorganic and Organic Chemistry and spectroscopy (Complimentary Chemistry)	<p>CO1: This module explains the concept about the hybridization as well as geometry of molecules. The syllabus gives idea regarding electronegativity, dipole moment and different types of secondary bond forces. The students may understand the partial covalent character of ionic bond by studying Fajans rule.</p> <p>CO2: It provides an opportunity to study and use the century old Nobel prize winning knowledge of coordination chemistry. The study will also lead to understand the difference between a coordinated ligand and charge balancing ion in a coordination compound. Complexation reactions, stability constants, structures, geometrical and optical isomerism, bonding, reactions and reactivity will be discussed.</p> <p>CO3: The module will provide a clear picture about the nucleophilic and electrophilic groups and the addition reactions which are happening through the nucleophiles and electrophiles. It also provides knowledge about the substitution and elimination reactions.</p> <p>CO4: The syllabus dealt with the concept stereochemistry and its importance. It also gives idea of stereochemistry substitution, aromaticity and stereochemical notation.</p> <p>CO5: To understand interaction of matter with radiation and Einstein's theory of transition probability. To learn rotation spectroscopy and vibrational spectroscopy of simple diatomic molecules.</p> <p>CO6: To know the basic classification and role of alkaloids,To learn the structural elucidation and degradation of alkaloids,To gain knowledge about the synthesis and structure of alkaloids,To learn about terpenoids and its classification and To study isoprene rule.</p>
CH1431 .1	Spectroscopy and Material Chemistry (Complimentary Chemistry)	<p>CO1: At the end of this module the student will be able to understand the fundamentals of spectroscopy.It helps them to explain the basic principles of IR,microwave and UV-Vis spectroscopy.</p> <p>CO2: At the end of this module the student will be able to explain the basic principles of Raman and NMR spectroscopy.It also enables them to use the fundamental concepts in simple molecules.</p> <p>CO3: The student will be able to understand the fundamentals of coordination chemistry,the theories governing it,their drawbacks.It also helps them to understand how coordination complexes find application in qualitative and quantitative analysis.</p> <p>CO4: This module is designed with the aim of giving the students a basic understanding in the general principles and extraction of metals.</p> <p>CO5: This will help the student to get a basic understanding on the evolution of nano science,preparation of nano particles,tools for measuring nano structure.It also gives them an idea of how nano particles can be used in various applications.</p> <p>CO6: This module help the students to understand the aspects of magnetic materials,conducting polymers and liquid crystals.This module covers the basic aspects including their classification,synthesis and application.</p>
CH1431 .3	Organic Chemistry (Complimentary Chemistry)	<p>CO1: This helps the students to explain different types of chromatographic techniques, Theory , Instrumentation working principle and its applications.</p> <p>CO2: This describes their structure,properties and also the type of interactions etc</p> <p>CO3: Understands the basic concepts such as Isomers,chiral centres.Also helps them to draw enantiomers,name enantiomers etc</p> <p>CO4: Defenition of oils,fats detergents their examples,properties ,synthesis etc.</p> <p>CO5: Familiarise them various types of dyes,examples,Formation and principle and its examples</p> <p>CO6: This helps them to understand the concept,their synthesis,properties,chemical reactions and examples</p>
CH1431 .4	Physical Chemistry (Complimentary Chemistry)	<p>CO1: this helps the students to know the aspects of first order,second order,pseudoorder reactions.Also helps to understand the order and molecularity of a reaction.</p> <p>CO2: This describes the difference between completion for irreversible and reversible chemical reactions. Also describes a system at chemical equilibrium.</p> <p>CO3: This explains defenition,classification,preparation,Important properties,Applications etc.</p> <p>CO4: This helps the students for understanding instrumentation,various principles underlying them and its applications.</p> <p>CO5: This also explains its working principle,relevant terms, Instrumentation,etc.,</p> <p>CO6: This interprets the nature of solutions,focused approach including the underlying assumptions etc.</p>
CH1431 .6	Organic Chemistry and Spectroscopy-II	<p>CO1: To learn about the definition of Adsorption and partition chromatography, To understand the Column, Paper, Thin Layer Chromatography, To know the detail study of Various types Ion exchange and gel-permeation chromatography</p> <p>CO2: To know about the Definition, classification – simple lipids. To know about the nucleosides, nucleotides, polynucleotides</p> <p>CO3: To study some of the basic terminologies in polymers, To learn about the different mechanisms involved in the polymer preparation, To study about the two different molecular weight concept in polymers, To learn about terpenoids and its classification, To study isoprene rule</p> <p>CO4: To study about osmosis and determination of Molecular mass by osmosis, To get idea about different kinds of adsorption</p> <p>CO5: Discuss fundamental concepts in surface chemistry as well as analyse and carry out calculations of surface chemical problems relevant to these concepts, To get idea regarding fundamentals of colloids such as lyophilic colloids and lyophobic colloids, Tyndal effect Zeta potential etc.</p> <p>CO6: To derive the Equation of motion of spin in magnetic fields and Chemical shift, To study the spin-spin coupling, NMR of simple isolated proton nucleus, To understand the Fundamentals of Raman Spectroscopy.</p>
CH1432 .1	Lab for Physics Majors (Complimentary Chemistry)	<p>CO1: The knowledge on inorganic chemistry will be utilised for the identification of inorganic radicals present in a mixture.</p> <p>CO2: The knowledge gained on analytical chemistry will be utilised for the quantitative estimation of various inorganic ions</p>

CH1432 .3	Lab for Botany Majors (Complimentary Chemistry)	CO1: the students will be able to develop their laboratory skills Also develops their ability to analyse an organic compound by experiment, observation, inference etc. CO2: They will also develop their skills in volumetric analysis. By repeating the experiments will get an idea about equivalence point end point, titrations etc. Also understands to do acidimetry, alkalimetry, permanganometry etc.
CH1432 .4	Lab for Zoology Majors (Complimentary Chemistry)	CO1: The students will be able to develop their laboratory skills Also develops their ability to analyse an organic compound by experiment, observation, inference etc. CO2: They will also develop their skills in volumetric analysis. By repeating the experiments will get an idea about equivalence point end point, titrations etc. Also understands to do acidimetry, alkalimetry, permanganometry etc.
CH1432 .6	Lab for Biochemistry Majors (Complimentary Chemistry)	CO1: The students will utilise the knowledge on basic organic chemistry to identify the functional group in a given compound. CO2: The knowledge gained on analytical chemistry will be utilised for the quantitative estimation of various inorganic ions.
Department of Biochemistry		
Programme offered		: B.Sc BioChemistry : M.Sc BioChemistry
B.Sc . Biochemistry		
Programme Outcome		PO1: To impart knowledge of Science as the basic objective of education. PO2: To develop scientific attitude is the major objective to make the students open minded, critical, curious. PO3: To develop skill in practical work, experiments and laboratory material and equipments along with the collection and interpretation of scientific data to contribute the science. PO4: To understand scientific terms, concepts, facts, phenomenon and their relationships. PO5: To develop skills to work in the field of research and other fields of their own interest and to make them fit for society. PO6: To create the interest of the society in the subject and scientific hobbies, exhibitions and other similar activities. PO7: To enrich the students with the latest development in the field of biochemistry, biotechnology and other related field of research and development. PO8: To keep the scientific temper which the students acquire from school level and to develop research culture. PO9: To encourage students to describe and analyze scientific data.
Course code	Course Name	Course Outcome
BC 1141	Perspectives, Methodology & Introduction to Biochemistry	CO1: To familiarize the students about the fundamental characteristics of science as a human enterprise and enable them to understand how science works. CO2: Scientific data is interpreted using statistical methods . CO3: Apply scientific methods in day to day life. CO4: To keep the scientific temper which the student acquired from school level and to develop a research culture. CO5: Student will understand the evolution of biochemistry and how to approach a biochemical process. CO6: Students will get basic awareness about the concepts and physical aspects in biochemistry. CO7: To impart a general awareness of Biochemistry (Carbohydrates and Lipids).
BC 1141	Practical for BC 1141 - P1	CO1: To resolve quantitative problems concerning the preparation of solutions, buffers and reagents CO2: To learn the qualitative analysis of biomolecules such as carbohydrates, lipid, etc.
BC 1221	Foundation Course II : General Informatics & Bioinformatics	CO1: Application of IT in Biological science will be learnt. CO2: Acquire basic idea about the application of biological data bases and general informatics. CO3: Students will know the importance of statistics in biological science. CO4: They will be known to the statistical methods commonly followed. CO5: To impart a general awareness of Biochemistry (Amino acids and Nucleic acid).
BC 1221	Practical for BC1221 - P2	CO1: Acquire the basics of Internet, NCBI Web sites and Data bases. CO2: To learn the qualitative analysis of biomolecules such as amino acids and proteins.
BC 1341	Cellular Biochemistry	CO1: To prepare the students for understanding biological systems at cellular level. CO2: Impart necessary knowledge that underpins various concepts in Cell Biology. CO3: Acquire detailed knowledge about membrane structure, membrane pumps and membrane transport. CO4: Develop thorough understanding on cell signalling. CO5: Students learn cell cycle and its regulation in detail. CO6: Describe the structural characteristics, functional properties and regulation of enzymes.
BC 1341	Practical for BC1341 - P3	CO1: Acquire detailed hands own training in qualitative analysis of various sugars and lipids. CO2: To develop the skill in enzyme assays (trypsin/urease).
BC 1441	Techniques in Biochemistry	CO1: To familiarize the students with the principle, functioning and applications of biological equipments. CO2: Learns the principles and acquires working knowledge of different laboratory equipments and techniques such as microscopes, centrifuges, electrophoresis, chromatography, etc. CO3: Learns the principles and acquires working knowledge of tissue homogenization and fractionation. CO4: Acquires knowledge about radioactivity, radio-labelling methods, nuclear medicine, applications of radiations, safety guidelines, etc.
BC 1442	Practical IV - P4	CO1: Learns the principles and acquires working knowledge of various chromatographic techniques. CO2: Develop the skill for qualitative analysis of various biomolecules.
BC 1541	Physiology & Immunology	CO1: This course aims at providing an idea regarding the physiological functions of the biological system. CO2: Develops thorough understanding of immunology CO3: Develops functional knowledge in immunological techniques. CO4: Acquires a clear understanding of the structure and working of different human organ systems such as muscular system, endocrine system, etc.
BC 1542	Bioenergetics & Carbohydrate Metabolism-I	CO1: Learn the concept of bioenergetics and energy production. CO2: Acquire a clear understanding of general principles of cellular energy metabolism. CO3: Enable to schematize the oxidative pathways of carbohydrates. CO4: Detailed understanding of electron transport chain and oxidative phosphorylation.
BC 1543	Analytical Biochemistry	CO1: Enable the students to understand the fundamentals of Analytical Biochemistry. CO2: Learn the assessment of nutrients, food preservation and food additives. CO3: Understanding the prospects and challenges of microbes in food industry. CO4: Develops a thorough knowledge on toxicological assessment of foods.

BC 1544	Classical & Molecular Genetics	CO1: To create awareness about the molecular details of the biological system and the events encompassing the central dogma of molecular biology. CO2: Acquire detailed information on chromatin structure, topology of nucleic acids, organization of the eukaryotic genome, CO3: Learn the concept of DNA Replication, repair and recombination. CO4: Acquire detailed knowledge on transcription and RNA processing, translation-gene expression and gene regulation mechanisms.
BC 1545	Practical V- P5	CO1: Students will get hands own training in quantitative analysis of various molecules. CO2: Learn to apply spectroscopic method especially colorimeter to quantify carbohydrates, lipids, amino acids, proteins and nucleic acids.
*Choice based Open Course offered to students of other Departments (5th Semester)		
*BC 15 51.1	Clinical Diagnosis of Common Diseases	CO1: Learn the fundamental basis for the interpretation of various biochemical tests of diseased conditions CO2: Acquire knowledge on diagnostic enzymes. CO3: Develops a deeper understanding about the blood analysis and blood banking. CO4: Learn the basic information about clinical pathology.
*BC 1551.2	Life style Diseases	CO1: To create general awareness among students about the various diseases associated with lifestyle. CO2: Learn to prevent the development of life style disorders by controlling the life style. CO3: Acquire the importance of physical exercise in daily life.
BC 1641	Clinical Biochemistry	CO1: Acquire the knowledge of clinical applications of biochemistry. CO2: Learn the basic information about microbiology and pharmacology. CO3: Familiarise with laboratory safety measures. CO4: Acquire detailed knowledge on blood and urine analysis.
BC 1642	Metabolism –II	CO1: To learn the metabolic events occurring in the biological system. CO2: Understand the different pathways which are aimed at energy production and biosynthesis. CO3: Detailed understanding of the diseases caused by inborn errors in metabolism. CO4: Acquire detailed knowledge about xenobiotic metabolism. CO5: Larn the biochemical aspects of Photosynthesis.
BC 1643	Practical VI -P6	CO1: Learn the preparation of blood serum and plasma for various assays. CO2: Get expertise in Hematological experiments. CO3: Learn the diagnostic importance of srum enzymes and techniques used.
BC 1644	Practical VII - P7	CO1: Acquire detailed hands own training in the analysis of various food items. CO2: To develop the skill in qualitative analysis of urine. CO3: Learn the diagnostic importance of the quantitative assay of various molecules in urine sample.
** Elective Course offered to students of Biochemistry Department (6th Semester)		
**BC 1661.1	Molecular Biotechnology	CO1: To understand the fundamentals of molecular Biotechnology. CO2: Learn the protocol of rDNA technology. CO3: Learn the basic steps in gene cloning. CO4: Acquire the knowledge of commonly used molecular biological techniques.
**BC 1661.2	Immunology & Immunological Techniques	CO1: Enable the students to understand the fundamentals of Immunology and Immunological techniques. CO2: A proper understanding of life processes requires familiarity with the discipline of immunology. CO3: Learn the assessment of functions, disordered functions, diagnosis and treatment of immunological disorders.
BC 1646	Project Work	CO1: Develop an interest in outreach activities. CO2: The students will get an idea on basic research methodology. CO3: To gain an understanding of academic writing. CO3: The students will be able to execute individual projects. CO4. Develops scientific temper in students to perform research in future.
M.Sc. Biochemistry		
Programme Outcome		PO1: To prepare students for future careers in the various fields in which a core understanding of the chemistry of biological processes is important. PO2: Scientific disciplines such as human biochemistry, medical biochemistry and biotechnology will enhance the understanding of human health. PO3: The Biochemistry Programme will benefit the society on the whole by adding to the highly skilled scientific workforce, particularly for the biomedical research sectors, in the academic, industry as well as for research laboratories across the country and the globe.
Course code	Course Name	Course Outcome
BC 211	Techniques in Biochemistry	CO1: Expose students to various laboratory techniques in areas of Biochemistry. CO2: Learns the principles and acquires working knowledge of tissue homogenization and fractionation. CO3: Familiarize students with operation of all biochemical equipments. CO4: Acquires knowledge about radioactivity, radio-labelling methods, radiation hazards and precautions taken while handling radio isotopes, applications of radiations, etc.
BC 212	Cell Biology & Genetics	CO1: Imparts knowledge on the structure and functions of a cell, their general properties etc. CO2: Familiarize students with interactions between the molecular components that carry out the various biological processes in living cells. CO3: Learns cell communication and signaling, the cell cycle, protein sorting and targeting. CO4: Acquires knowledge on Mendelian Genetics, Population genetics and Chromosomal abnormalities.
BC 213	Plant & Microbial Biochemistry	CO1: To be able to understand photosynthesis, plant secondary metabolites, Nitrogen cycle, plant hormones, senescence and plant microbe interactions. CO2: To familiarize with introduction of bacteria, viruses, fungi, mycoplasma, protozoa and algae. CO3: Familiarize students on staining techniques and sterilization. CO4: Imparts knowledge on nutrient cycles, microbial genetics and applications of microbiology in industries.
BC 214	Practical I - Biochemical & Microbial techniques	CO1: To be able to demonstrate paper chromatography, thin layer chromatography, dialysis and electrophoresis CO2: To be able to handle basic techniques of microbiology and enzyme activity analysis. CO3: To be able to perform enumeration of microorganisms from water.
BC 221	Enzymes	CO1: Imparts knowledge on classification of enzymes, purification and isolation. CO2: To be able to understand cofactors, kinetics and regulation of enzymes. CO3: To familiarize students with the applications of enzymes in industry, therapeutics and diagnosis.

BC 222	Metabolism	CO1: To familiarize students with carbohydrate metabolism ,its significance and regulation. CO2:Acquire knowledge on lipid metabolism,its significance and regulation. CO3:Acquire knowledge on aminoacid and nucleic acid metabolism,its significance and regulation. CO4:To be able to familiarize on mechanism of energy production,utilization,regulation and inhibition.
BC 223	Clinical & Nutritional Biochemistry	CO1: Acquire knowledge on energy metabolism ,food adulteration and preservation. CO2:Develops knowledge on nutritional aspects of biomolecules. CO3:To be able to familiarize with biochemical aspects of diet and diet related diseases. CO4: Acquire knowledge on inborn errors of metabolism.
BC 224	Practical II - Enzymology & Clinical Biochemistry	CO1: Acquire knowledge about determination of enzyme activity in biological tissues. CO2: Acquire knowledge on enzyme kinetics. CO3:Imparts knowledge on enzyme isolation and purification. CO4:To be able to perform liver,kidney and cardiac function tests .
BC 231	Molecular Biology	CO1:To be able to understand DNA replication and repair. CO2:Learn transcription ,translation and regulation. CO3: Familiarize students on the basic aspects of developmental biology.
BC 232	Immunology	CO1:Acquires knowledge on innate,humoral and cell mediated immunities. CO2:Acquires knowledge on immunological techniques. CO3:Imparts knowledge on hypersensitivity,autoimmunity,transplantation immunology and immunodeficiency disorders.
BC 233	Pharmacology & Toxicology	CO1:To be able to understand basic aspects of Pharmacology and pharmacokinetics. CO2:Learns therapeutics and screening for pharmacological activity. CO3:Acquires knowledge on toxins and their mechanism of action and detection.
BC 234	Methods in Research	CO1:Learns IPR policies and patents. CO2:Able to understand methodology for research and scientific writing. CO3:Acquires knowledge on Statistical analysis,bioinformatics ,genomics and proteomics.
BC 235	Practical III - Immunotechniques & Phytochemical Analysis	CO1:To be able to perform immunotechniques. CO2:To be able to perform phytochemical analysis.
BC 241	Molecular Endocrinology	CO1:Imparts knowledge on hormonal classification and mechanism of hormone action . CO2:Learns Hypothalamo-hypophysial,thyroid and parathyroid ,adrenal and pancreatic hormones.
BC 242	Biotechnology & Genetic Engineering	CO1: Imparts knowledge on recombinant DNA technology and advanced molecular techniques. CO2:Learns medical and plant biotechnology. CO3:Acquires knowledge on environmental and Industrial biotechnology.
BC 243	Practical IV - Techniques in molecular Biology	CO1:To be able to perform isolation of RNA and DNA. CO2:To be able to perform Electrophoresis. CO3:To be able to study culturing of E.coli cells and isolation of plasmid.
BC 244	Dissertation Comprehensive Viva-Voce	CO1: Acquire a considerably more in-depth knowledge of biochemistry, including deeper insight into current research and development work. CO2: Gain a deeper knowledge of methods in Biochemistry. CO3: A capability to contribute to research and development field. CO4: The capability to plan and use adequate methods to conduct research in given frameworks.

Department of Mathematics

Programme offered

B.Sc Mathematics
M.Sc Mathematics

B.Sc Mathematics

Programme Outcome

PO1: apply mathematical or computational techniques to areas outside of mathematics. Graduates will extract mathematically relevant information from data, test hypotheses and assumptions, and formulate logical conclusions using mathematical analysis.
PO2: independently extend mathematical ideas and arguments from previous coursework to a mathematical topic not previously studied.
PO3: be able to explain the core ideas and techniques of mathematics at the college level

Course code	Course Name	Course Outcome
MM 1141	Methods of Mathematics	CO1: Solve number theory problems using division algorithm CO2: Identify the properties of functions using the concepts limit, continuity and differentiability CO3: Characterize the graphs of second degree equations in two variables.
MM 1131.1	Differentiation and Analytic Geometry	CO1: Apply Mathematical methods to chemistry CO2: Introducing some basic math concepts CO3: Understand the idea of limits, continuity and differentiation CO4: Understand the concept of power series and its convergence CO5: Understand the calculus of functions of several variables CO6: Solve system of linear equations CO7: Determine eigenvalues and eigenvectors and solve eigenvalue problems
MM 1131.2	Differentiation and Matrices	CO1: Apply Mathematical methods to chemistry CO2: Introducing some basic math concepts CO3: Understand the idea of limits, continuity and differentiation CO4: Understand the concept of power series and its convergence CO5: Understand the calculus of functions of several variables CO6: Solve system of linear equations CO7: Determine eigenvalues and eigenvectors and solve eigenvalue problems
ST 1131.1	Descriptive statistics	CO1: Methods of collection and representation of a data CO2: different types of central values of a data CO3: deviation of a data from its central value CO4: skewed and unskewed data
ST1231.1	Probability and Random Variables	CO1: axiomatic, classical and frequency approach of probability CO2: Baye's theorem CO3: probability density function

MM 1221	Foundations of Mathematics	CO1: Visualize some of the properties of graphs of elementary functions CO2: Identify the maximum and minimum value of some functions using derivatives. CO3: Solve problems using Fundamental theorem of Calculus CO4: Understand the application of polar coordinates in Astronomy CO5: Explain more properties of numbers using congruence relations
MM 1231.1	Integration and Vectors	CO1: Apply Integral calculus and vectors to problems in chemistry CO2: Use integration to find the area and volume of a surface of revolution CO3: Evaluate multiple integrals CO4: Solving first order and second order linear differential equations CO5: Identify the Equations of different types of conics in Cartesian and polar coordinates and sketch them
MM 1231.2	Integration, Differential Eqs. and Analytic Geometry	CO1: Apply Integral calculus and vectors to problems in chemistry CO2: Use integration to find the area and volume of a surface of revolution CO3: Evaluate multiple integrals CO4: Solving first order and second order linear differential equations CO5: Identify the Equations of different types of conics in Cartesian and polar coordinates and sketch them
MM 1341	Algebra and Calculus-I	CO1: Explain the equations of curves and surfaces in three dimension CO2: Understand the physical and geometrical interpretations of vectors. CO3: Explain more properties of curves in three dimension space using the concepts of differentiability CO4: Understand the abstract structures like ring and group CO5: solve some of the problems in number theory using Chinese Remainder Theorem
MM 1331.1	Theory of Eqs., Differential Eqs., and Theory of Matrices	CO1: solve special types of first order equations CO2: solve second order linear differential equation, homogeneous and non homogeneous equation. CO3: solve second order equations by operator method. CO4: solve Euler, Cauchy and Legendre equations CO5: solve system of linear equations CO6: compute the rank of a matrix CO7: determine whether a square matrix is diagonalizable and compute its diagonalization if it is CO8: understand the relation between roots and coefficients of a polynomial and apply these relations to solve polynomial equations CO9: characterise roots of a polynomial. CO10: calculate approximate roots of a polynomial equation using bisection and Newton Raphson method
MM 1331.2	Theory of Eqs. and Vector Analysis	CO1: To explain vector valued function CO1: To evaluate line integrals and surface integrals CO1: To explain Greens, Stokes and Divergence theorem CO1: To explain Fundamental theorem of algebra CO1: To solving polynomial equations
ST 1331.1	Probability distributions and theory of estimation	CO1: Understands the basic probability models, limit theorems and sampling distributions CO2: Understands the logic of statistical inference and the methods of statistical estimation CO3: Use the statistical tables and judge the quality of estimators
ST 1431.1	Testing of hypothesis and analysis of variance	CO1: Understands the statistical significance of testing of hypothesis CO2: To solve problems related to testing CO3: To pose a hypothesis and test CO4: Understands the concept of analysis of variance
ST 1432.1	Practical using Excel	CO1: To use the statistical tools available in excel CO2: Develops the skill of using tools in excel CO3: To use the data analysis package in excel. CO4: To test the hypothesis and drawing conclusions
MM 1441	Algebra and Calculus-II	CO1: generalize the concept of polynomials to arbitrary rings, CO2: explain the theory of factorizing polynomials and the notion of irreducibility CO3: demonstrate the reducibility of real polynomials with degree greater than 2. CO4: discuss solvability of higher degree polynomials by radicals and fundamental theorem of algebra.
MM 1431.1	Complex Analysis, Fourier Series and Transforms	CO1: demonstrate accurate and efficient use of complex analysis techniques CO2: apply problem-solving using complex analysis techniques applied to diverse situations in physics, engineering and other mathematical contexts, CO3: evaluate integrals using Cauchy's Residue integration method, CO4: explain the fundamental concepts of Fourier transforms and Fourier series,
MM 1431.2	Abstract Algebra and Linear Transformations	CO1: Acquire fundamental concept of Group theory CO2: Enhance capacity for mathematical reasoning CO3: Develop problem solving skill CO4: Students can connect the theory of groups to problems in other discipline
MM 1541	Real Analysis-I	CO1: state the definition of convergent sequences and series and to verify or disprove these directly in easy examples CO2: state the completeness axiom of the reals and do simple calculations with suprema and infima of bounded sets CO3: calculate limits of sequences using the algebra of limits for sequences and the standard list of basic sequences, CO4: state the monotone convergence theorem and the sandwich (squeeze) rule for sequences and apply them to calculate limits of sequences CO5: establish the existence of irrational numbers like square root of 2, e etc CO6: state various convergence tests for series (e.g. comparison test or the ratio test) and use them to detect convergence or divergence of series
MM 1542	Complex Analysis I	CO1: Define continuity and differentiability for complex functions CO2: Prove the Cauchy-Riemann equations and apply them to complex functions in order to determine whether a given continuous function is complex differentiable CO3: Compute the radius of convergence for complex power series,

MM 1543	Differential Equations	CO1: Solve second order differential equations CO2: Solve second order and first order differential equations using power series CO3: Understand some special functions ? Bessel and Legendre functions CO4: Solve First and second order partial differential equations CO5: Derive wave equation CO6: Solve boundary value problem
MM 1544	Vector Analysis	CO1: Understands the concepts of directional derivative CO2: Understands the concept of conservative vector field CO3: Identifies the relationship between line integrals and surface integrals CO4: Solve problems based on line integrals and multiple integrals CO5: Calculate the work done based on conditions given
MM 1545	Abstract Algebra I	CO1: Acquire fundamental concept of Group theory CO2: Enhance capacity for mathematical reasoning CO3: Develop problem solving skill CO4: Students can connect the theory of groups to problems in other discipline
MM 1551	Open Course	CO1: Formulate a linear programming problem and solve it using graphical method or simplex method. CO2: Solve transportation problem and assignment problem. CO3: Analyse project networks using PERT and CPM.
MM 1641	Real Analysis-II	CO1: state the definition of continuous functions and verify or disprove this in easy examples, formulate characterizations of continuity in terms of convergent sequences and in terms of limits of functions, CO2: state the intermediate value theorem and the boundedness theorem and apply them to solve equations, CO3: state the definition of differentiable functions and to verify or disprove this in easy examples, CO4: calculate derivatives using the chain rule, the algebra of differentiable functions and the rule on derivatives of compositional inverses CO5: state Rolle's theorem, the Mean Value Theorem and L'Hospital's Rule and to apply them to recognise the shape of functions (e.g. existence of local extrema, surjectivity of the derivative) and to calculate limits, CO6: state the definition of Riemann Integrability and derive the Cuchy criteria. CO7: establish the integrability using various results, like squeeze theorem, integrability of monotone functions etc. CO8: derive the relation between integration and differentiation via fundamental theorem of calculus
MM 1642	Linear Algebra	CO1: Understand the basics of Linear Algebra and matrix theory through geometry CO2: Demonstrate understanding of linear independence, span, and basis. CO3: Determine eigenvalues and eigenvectors and solve eigenvalue problems CO4: Apply principles of matrix algebra to linear transformations.
MM 1643	Complex Analysis II	CO1: Evaluate integrals along a path - directly from the definition and also via the Fundamental Theorem of Contour Integration and Cauchy's Theorem, CO2: Compute the Taylor and Laurent expansions of simple functions, determining the nature of the singularities and calculating residues CO3: Prove the Cauchy Residue Theorem and use it to evaluate integrals
MM 1644	Abstract Algebra II	CO1: Explain fundamental concepts of homomorphism of Groups CO2: Develop the notion of Ring theory CO3: handle Factor ring CO4: use the theory of rings to problems in other discipline
MM 1645	Computer Programming (Pract.)	CO1: programs based on the fundamentals of GNU/Linux OS. CO2: programs to prepare a document using the LATEX typesetting program. CO3: solve numerical problems using Python programs
MM 1651	Elective Course Complex Integration	CO1: Evaluate integrals along a path - directly from the definition and also via the Fundamental Theorem of Contour Integration and Cauchy's Theorem, CO2: Compute the Taylor and Laurent expansions of simple functions, determining the nature of the singularities and calculating residues CO3: Prove the Cauchy Residue Theorem and use it to evaluate integrals
MM 1646	Project	CO1: computational understanding of mathematics to a broad understanding encompassing logical reasoning, generalization, abstraction, and formal proof. CO2: create and verify their own conjectures, rather than simply using provided formulas, rules and theorems in multiple courses throughout the mathematics curriculum. CO3: construct clear and well-supported mathematical arguments to explain mathematical problems, topics, and ideas in writing.
MM 1551.1	Operations Research	CO1: Formulate a linear programming problem and solve it using graphical method or simplex method. CO2: Solve transportation problem and assignment problem. CO3: Analyse project networks using PERT and CPM.
MM 1661.1	Graph Theory	CO1: Fundamental Concepts of graph CO2: Chinese postman problem CO3: Teleprinters Problem CO4: Decanting Problem CO5: Konigsberg Bridge problem CO6: Designing maps using four colour theorem
M.Sc. Mathematics		
Programme Outcome		PO1: demonstrate the ability to communicate mathematical concepts effectively through oral presentations and written exposition. PO2: demonstrate a solid foundation in mathematics which exhibits both breadth and depth of knowledge. PO3: be able to recognize the power of abstraction and generalization, and carry out investigative mathematical work with independent judgement.
Course code	Course Name	Course Outcome

MM 211	Linear Algebra	CO1: Analyze finite dimensional vector spaces and subspaces over a field and their properties including the basis structure of vector spaces CO2: Use the definition and properties of linear maps and matrices of linear map including nullspace, range, invertibility and to apply Rank Nullity theorem to find dimension of null space and range space CO3: Compute eigenvalues, eigen vectors, eigen spaces and invariant subspaces of linear operators and analysing equivalent condition for a set of vectors to give an upper triangular operator. CO4: Find characteristic polynomial and minimal polynomial of certain operators. Prove Cayley Hamilton theorem. CO5: Define trace and determinant of a matrix and linear operator
MM 212	Real Analysis - I	CO1: Characterization of functions in terms of monotone functions CO2: Extension of Riemann Integration CO3: Point wise and Uniform convergence of functions CO4: Partial Derivatives and Directional derivatives of multivariable scalar functions
MM 214	Topology - I	CO1: understand the concept of topological and metric spaces CO2: Distinguishes the topological properties CO3: apply the properties of connectedness CO4: Application of properties related to compactness CO5: identify the condition under which a topological space should be considered as a subspace of a compact topological space
MM 223	Topology-II	CO1: Compare topologies. CO2: Understand the idea of quotient space. CO3: Know the separation properties and metrization CO4: Understand the idea of fundamental group. CO5: describe the structure of topological spaces by algebraic means.
MM244	Elective II-Analytic Number Theory	CO1: working with complex mathematical texts and abstract concepts CO2: constructing logical arguments, communicating mathematical ideas clearly and succinctly, and explaining mathematical ideas to others CO3: formulating the theory of arithmetical function and use it in deriving various identities and inequalities, CO4: solving the system of congruences and various congruence relations, CO5: finding the square root modulo a positive integer CO6: finding the primitive roots modulo integers.
MM 213	Differential Equations	CO1: Solve second order differential equations CO2: Solve second order and first order differential equations using power series CO3: Understand some special functions ? Bessel and Legendre functions CO4: Solve First and second order partial differential equations CO5: Derive wave equation CO6: Solve boundary value problem
MM 221	Abstract Algebra	CO1: Understand the elementary concepts of group theory, ring theory and field theory CO2: Prove fundamental theorem and apply the theorem to classify abelian groups CO3: Demonstrate knowledge and understanding of different type of integral domains CO4: Understand factorization of polynomials and apply reducibly tests CO5: Understand the fundamental theorem of field theory and Galois theory CO6: Characterize extensions and find Galois fields of certain polynomials
MM 222	Real Analysis-II	CO1: Characterization of functions in terms of monotone functions CO2: Extension of Riemann Integration CO3: Point wise and Uniform convergence of functions CO4: Partial Derivatives and Directional derivatives of multivariable scalar functions
MM 223	Topology-II	CO1: Compare topologies. CO2: Understand the idea of quotient space. CO3: Know the separation properties and metrization CO4: Understand the idea of fundamental group. CO5: describe the structure of topological spaces by algebraic means.
MM 224	Scientific Programming with Python	CO1: use Anaconda's IDE Spyder to open, write, debug, and run Python programs, CO2: decompose algorithmic processes into control structures (like loops and logical branches) and implement them in the Python programming language CO3: identify and use the appropriate data types for variables, being critically aware of memory and complexity issues, CO4: identify reusable building blocks of their code and restructure them into well-documented functions, CO5: read from and write to external data sources and files, perform data manipulations on these, present and interpret the result
MM 231	Complex Analysis-I	CO1: Demonstrate understanding and appreciation of deeper aspects of complex analysis CO2: Work with multi-valued functions (logarithmic, complex power) and determine branches of these functions CO3: Use the complex derivatives function CO4: Use and operate analytic functions CO5: Demonstrate knowledge of integration in the complex plane CO6: Use the Cauchy integral theorem and Cauchy integral formula CO7: Manipulate and use power series CO8: Understand residues and their use in integration
MM 232	Functional Analysis-I	CO1: Handle infinite dimensional vector spaces CO2: Combine the idea from linear algebra and analysis CO3: Connect theoretical mathematics to applied mathematics CO4: Develop problem solving skill
MM 234	Elective-II Differential Geometry	CO1: Understand the concepts and language of differential geometry and its role in modern mathematics CO2: Analyse and solve problems using appropriate techniques from differential geometry CO3: Define n-surfaces and their properties CO4: Find parametrization of surfaces CO5: Express tangent spaces of surfaces CO6: Explain differential maps between surfaces and find derivatives of such maps.

MM 241	Complex Analysis-II	CO1: understand Gamma and Zeta functions, their properties and relationships CO2: understand the Harmonic functions on a disc and concerned results CO3: understand the factorization of entire functions having infinite zeros CO4: demonstrate the concept of Analytic Continuation and prove related Theorems
MM 242	Functional Analysis-II	CO1: Handle inner product space CO2: Idea of approximation and optimization CO3. Expert in Banach algebra CO4. problem solving skill
MM 243	Elective-III Field Theory	CO1: Define and able to give examples of splitting field, algebraic extension, Galois groups, solvable groups and solvability of polynomials by radicals. CO2: Understand the Fundamental Theorem of Galois Theory and Galois correspondence. CO3: Compute the Galois group of some field extensions CO4: Explain how , one can use Galois theory to prove that polynomials of degree less than five are solvable by radicals ,while the general quintic equation is not.
MM 244	Elective-IV Analytic Number Theory	CO1: working with complex mathematical texts and abstract concepts CO2: constructing logical arguments, communicating mathematical ideas clearly and succinctly, and explaining mathematical ideas to others CO3: formulating the theory of arithmetical function and use it in deriving various identities and inequalities, CO4: solving the system of congruences and various congruence relations, CO5: finding the square root modulo a positive integer CO6: finding the primitive roots modulo integers.
MM 245	Dissertation/ Project	CO1: computational understanding of mathematics to a broad understanding encompassing logical reasoning, generalization, abstraction, and formal proof. CO2: create and verify their own conjectures, rather than simply using provided formulas, rules and theorems in multiple courses throughout the mathematics curriculum. CO3: construct clear and well-supported mathematical arguments to explain mathematical problems, topics, and ideas in writing.
MM233	Algebraic Topology	CO1: characterize geometrical properties like holes and connectivity of spaces using algebraic objects namely groups. CO2: Module 1-2: Calculate the Homology groups and characterize regular simple polyhedrons in \mathbb{R}^3 . CO3: Module 3: Using simplicial approximation theorem, analyze the homeomorphism between n-spheres and between Euclidean spaces. CO4: Module 4: Calculate Fundamental groups and observe the simple connectivity of n-sphere. CO5: Module 5: Prove the Borsuk-Ulam theorem and show that at any point of time there is at least one pair of antipodal points on the surface of the earth having identical atmospheric pressures and identical temperatures.

Department of Botany

Programme Offered		B.Sc Botany
Programme Outcome		<p>PO1: Knowledge and understanding of the range of plant diversity in terms of structure, function and environmental relationships.</p> <p>PO2: Students learn to carry out practical work, in the field and in the laboratory, with minimal risk.</p> <p>PO3: Identify the taxonomic position of plants, formulate the research literature, and analyze non reported plants with substantiated conclusions using first principles and methods of nomenclature and classification in Botany.</p> <p>PO4: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and development of the information to provide valid conclusions.</p> <p>PO5: Get self-employment in the fields viz. mushroom Cultivation, organic manure preparation, the horticultural plant production, cultivation of crops in poly-house condition, plant tissue, culture laboratories etc.</p>
Course code	Course Name	Course Outcome
BO1141	Angiosperm anatomy, Reproductive Botany and Palynology	<p>CO1: To know more about the plant cell structure and Non living inclusions of the cell.</p> <p>CO2: To understand and familiarize the angiosperm tissue system and various cell theories.</p> <p>CO3: To study the primary and secondary structure of root, stem, leaf of dicot and monocot plants</p> <p>CO4: To know about more about the normal and anomalous secondary thickening in some selected plants.</p> <p>CO5: Students should be familiar with the structure of anther and embryo.</p> <p>CO6: Study on pollen structure, morphology, economic and taxonomic importance.</p>
BO1221	Methodology and Perspectives in plant sciences	<p>CO1: To familiarize the students with the fundamental characteristics of science as human enterprise.</p> <p>CO2: To see how science works and ethics in science.</p> <p>CO3: To apply scientific methods independently.</p> <p>CO4: To interpret scientific data using basic statistical methods.</p> <p>CO5: To familiarize stains, fixatives and mounting media.</p> <p>CO6: General awareness of Micro technique- Maceration, smears & squash.</p> <p>CO7: Demonstration of microtome sectioning and hand sectioning.</p> <p>CO8: To provide basic knowledge on biophysics and certain instruments.</p> <p>CO9: To familiarize the separation methods.</p>
BO1341	Microbiology, Phycology, Mycology, Lichenology and Plant pathology	<p>CO1: Examination of different forms of bacteria, viruses</p> <p>CO2: Students should know a brief idea about the various aspects of microbiology in different fields (Soil, Aquatic, Food, Agricultural)</p> <p>CO3: To provide a detailed study of structure, reproductive & life cycle of selected genera and their economic values. (algae)</p> <p>CO4: Students will be trained to identify the algal specimens up to generic level.</p> <p>CO5: To provide a detailed study of structure, reproductive, life cycle & evolutionary trends of selected genera and their economic importance. (fungi)</p> <p>CO6: Students will be trained to identify the fungi specimens up to generic level.</p> <p>CO7: To know a general account on lichens and to familiarize Usnea.</p> <p>CO8: Helps the students to identify diseases mentioned with respect to causal organisms and symptoms.</p> <p>CO9: Students should be trained to prepare the fungicide Bordeaux mixture & Tobacco decoction.</p>

BO1441	Bryology, Pteridology, Gymnosperms and Paleobotany	<p>CO1: To know more about some selected mosses with special reference to reproduction and alternation of generation.</p> <p>CO2: To know more about some selected cryptogams with special reference to internal structure, reproduction, life cycle and alternation of generation.</p> <p>CO3: To study the stelar evolution in pteridophytes.</p> <p>CO4: To know more about some selected gymnosperms with special reference to anatomy, reproduction & life cycle.</p> <p>CO5: Evolutionary trends in gymnosperms.</p> <p>CO6: Economic importance is common for all the 3 modules.</p> <p>CO7: To familiarize certain fossil pteridophytes.</p>
BO1541	Angiosperm Morphology, Systematic Botany, Economic Botany, Ethno botany and Pharmacognosy	<p>CO1: To study a detail account on morphology of angiosperms</p> <p>CO2: To familiarize different systems of classifications.</p> <p>CO3: To know about botanical nomenclature, herbarium and its techniques.</p> <p>CO4: To discuss modern trends in taxonomy.</p> <p>CO5: Students must be able to identify the angiosperm members included in the syllabus up to the level of families.</p> <p>CO6: To study the economic products obtained from the plants mentioned in the syllabus</p> <p>CO7: Students will know more about the tribal communities and their traditional methods of using crude drugs.</p>
BO1542	Environmental studies and Phytogeography	<p>CO1: Students will familiarize with the different natural resources and their conservation & sustainable life styles.</p> <p>CO2: Students will get a basic concept on different ecosystems and plant adaptations.</p> <p>CO3: To know more about Biodiversity and its conservation strategies.</p> <p>CO4: To familiarize environmental issues and different acts based on it.</p> <p>CO5: Helps the students to familiarize with the different Phytogeographical regions of India.</p>
BO1543	Cell Biology, Genetics and Evolutionary Biology	<p>CO1: To study the ultra structure and functions of the cell components and organelles.</p> <p>CO2: Students will have a detailed knowledge on chromosome.</p> <p>CO3: Students will be expertise in several work out problems of genetics.</p> <p>CO4: To familiarize different types of evolution and the theories based on it. Also gives an account on variation, hybridization and mutation</p>
BO1641	Plant Physiology and Biochemistry	<p>CO1: Students will get a detailed knowledge on the basics of physiological processes in plants.</p> <p>CO2: To know more about photosynthesis and respiration.</p> <p>CO3: To study metabolic processes, plant movement and stress physiology.</p> <p>CO4: A detailed study on the certain molecules in life.</p> <p>CO5: To familiarize secondary plant products.</p>
BO1642	Molecular Biology, General Informatics & Bioinformatics	<p>CO1: To understand a detailed knowledge on genetic elements (DNA, RNA etc)</p> <p>CO2: Familiarizing IT and developing knowledge skills for higher education. Special account on social informatics.</p> <p>CO3: Students are expected to work with at least any one of the commercial/ Scientific packages, to explore the WEB and able to find, recognize, download, install and use software in various areas useful to the research in biology.</p>
BO1643	Horticulture, Plant Breeding & Research Methodology	<p>CO1: Familiarize the garden tools and implements mentioned in the syllabus.</p> <p>CO2: Students must be trained to do cutting/ layering/ grafting/ budding.</p> <p>CO3: Familiarizing techniques of emasculation and hybridization also focuses on different types of breeding techniques.</p> <p>CO4: To know more about the format of project preparation.</p>
BO1551.2	Mushroom Cultivation and Marketing	<p>CO1: To familiarize the values and different mushroom cultivation strategies with special reference to diseases and storage.</p>
BO1651	Biotechnology and Nano Biotechnology	<p>CO1: To study the use of equipments and tools used in a biotech research laboratory.</p>
BO1131	Micro technique, Angiosperm Anatomy and Reproductive Biology	<p>CO1: To familiarize stains, fixatives and mounting media.</p> <p>CO2: General awareness of Micro technique</p> <p>CO3: To know more about the plant cell structure.</p> <p>CO4: To understand and familiarize the angiosperm tissue system and various cell theories.</p> <p>CO5: To study the primary and secondary structure of root, stem, leaf of dicot and monocot plants</p> <p>CO6: To know about more about the normal and anomalous secondary thickening in some selected plants.</p> <p>CO7: Students should be familiar with the structure of anther and embryo</p>
BO1231	Phycology, Mycology, Lichenology, Bryology, Pteridology, Gymnosperms and Plant Pathology	<p>CO1: To provide a detailed study of structure, reproductive & life cycle of selected genera and their economic values. (algae)</p> <p>CO2: Students will be trained to identify the algal specimens up to generic level.</p> <p>CO3: To provide a detailed study of structure, reproductive & life cycle of selected genera and their economic importance. (fungi)</p> <p>CO4: Students will be trained to identify the fungi specimens up to generic level.</p> <p>CO5: To know a general account on lichens and to familiarize Usnea.</p> <p>CO6: To know more about some selected mosses with special reference to reproduction and alternation of generation.</p> <p>CO7: To know more about some selected cryptogams with special reference to internal structure, reproduction, life cycle and alternation of generation.</p> <p>CO8: To know more about some selected gymnosperms with special reference to anatomy, reproduction & life cycle.</p> <p>CO9: Helps the students to identify diseases mentioned with respect to causal organisms and symptoms.</p> <p>CO10: Students should be trained to prepare the fungicide Bordeaux mixture & Tobacco decoction.</p>
BO1331	Systematic Botany, Economic Botany, Ethno botany, Plant Breeding	<p>CO1: To study a detail account on morphology of angiosperms</p> <p>CO2: To familiarize different systems of classifications.</p> <p>CO3: To know about botanical nomenclature & herbarium.</p> <p>CO4: Students must be able to identify the angiosperm members included in the syllabus up to the level of families.</p> <p>CO5: To study the economic products obtained from the plants mentioned in the syllabus.</p> <p>CO6: Students will know more about the tribal communities and the plants used by them.</p> <p>CO7: Familiarizing techniques of emasculation and hybridization also focuses on different types of breeding techniques.</p>

BO1431	Plant Physiology, Plant Ecology, Horticulture and Plant Biotechnology	<p>CO1: Students will get a detailed knowledge on the basics of physiological processes in plants.</p> <p>CO2: To know more about photosynthesis.</p> <p>CO3: To know more about respiration.</p> <p>CO4: To study metabolic processes, plant movement and stress physiology.</p> <p>CO5: Observation and study of different ecosystems mentioned in the syllabus.</p> <p>CO6: Study of ecological and anatomical modifications of xerophytes, hydrophytes, halophytes, epiphytes and parasites.</p> <p>CO7: Familiarize the garden tools and implements mentioned in the syllabus.</p> <p>CO8: Students must be trained to do cutting/ layering/ grafting/ budding</p> <p>CO9: To know more about plant tissue culture techniques.</p>
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Department of Zoology

Programme Offered

B.Sc. Zoology

B.Sc. Zoology

Programme outcome

PO 1: Students will acquire an in-depth knowledge of the diversity and habits of invertebrates, vertebrates, the systematics and the hierarchy of different categories, general characteristics and classification of different classes of organisms and economically important fauna.

PO 2: They will develop an understanding on how science works and learn to apply scientific methods of Zoology in relation to other disciplines

PO 3: Students will have an understanding on the ultra-structure, functions, special properties and biochemistry of cells.

PO 4: Students will acquire an idea on the principles, techniques and underlying physiological, genetic and molecular mechanism of processes operating in man and will be able to enlighten the public and lower students on the principle and importance of genetic, biochemical and molecular clinical tests.

PO 5: Principles and mechanisms of immunology, scope and importance of clinical tests and the inherent dangers of microbes will be learned by students.

PO 6: Awareness on the inherent disorders, deficiencies and system malfunctioning will be created in students.

PO 7: Students will develop awareness on the problem associated with sex-health and can participate in awareness programmes to promote fitness and well-being of the community and to ward off the sexually transmitted diseases

PO 8: Students will acquire a thorough knowledge on the principles of developmental biology, various stages involved in the embryonic development and developmental abnormalities.

PO 9: Students will learn the principles, applications and management of environmental science, the basics of organic evolution with special reference to man and the behavioural attributes of many organisms.

PO 10: Students can promote self-employment and self-reliance among public by implementing the basic procedure and methodology of vermiculture and apiculture.

Course code	Course	Course Outcome
ZO1141	Methodology and Perspectives of Science and Zoology	<p>CO1: Students will have knowledge on fundamental characteristics of science as a human enterprise</p> <p>CO2: They will have developed an understanding on how science works.</p> <p>CO3: They will have studied to apply scientific methods independently and to systematically pursue Zoology in relation to other disciplines</p> <p>CO4: They will have developed scientific aptitude.</p>
ZO1221	General Informatics and Bioinformatics	<p>CO1: Students will have been made aware about social issues and concerns in the use of digital technology</p> <p>CO2: They will have expanded basic informatics skill and attitudes relevant to the emerging society.</p> <p>CO3: The student will be equipped to effectively utilize the digital knowledge resources for the study of Zoology.</p> <p>CO4: Students can go for further studies in Bioinformatics</p>
ZO1341	Animal Diversity I	<p>CO1: Students will acquire an in-depth knowledge of the diversity in form, structure and habits of invertebrates</p> <p>CO2: They will be thorough in systematics and the hierarchy of different categories through the diagnostic characters of each phylum with typical examples.</p> <p>CO3: They might have developed knowledge on economically important invertebrate fauna.</p> <p>CO4: They will be able to identify invertebrates</p>
ZO1441	Animal Diversity II	<p>CO1: Students will have earned an in-depth knowledge of the diversity in form, structure and habits of vertebrates</p> <p>CO2: Students will have learnt general characteristics and classification of different classes of vertebrates and the vertebrate evolutionary tree.</p> <p>CO3: They might have developed knowledge on economically important vertebrate fauna.</p> <p>CO4: They will be able to identify invertebrates</p>
ZO1442	Practical I - Methodology and Perspectives of Science and Zoology, Animal Diversity I and II	<p>CO1: Students will get hands on training experience in anatomy through simple dissection and mountings</p> <p>CO2: Students will have made acquaintance with the conventional organ system in animals.</p> <p>CO3: Students will have developed scientific aptitude.</p> <p>CO4: Students will have developed the ability to collect and identify various animal specimens.</p>
ZO1541	Cell Biology and Molecular Biology	<p>CO1: Students will have grasped the ultra-structure of prokaryotic and eukaryotic cells</p> <p>CO2: Students will have developed an understanding on the fundamental structure and biochemistry of cells</p> <p>CO3: Students will be able to explain the functions of each cell.</p> <p>CO4: Students will have learnt the special properties of each cell</p> <p>CO5: Students will be well-versed in the molecular reactions occurring in organisms</p>
ZO1542	Genetics and Biotechnology	<p>CO1: Students will have acquired an idea on the underlying genetic mechanism operating in man like crossing over and inheritance patterns.</p> <p>CO2: They will have understood the principles and techniques involved in DNA technology</p> <p>CO3: They will have got an overview of modern techniques like PCR, Hybridoma technology, gene therapy and human cloning</p> <p>CO4: They will be able to enlighten the public and lower students on the principle and importance of genetic tests.</p>
ZO1543	Immunology and Microbiology	<p>CO1: The scope and importance of clinical immunology and the inherent dangers of microbes will have been learned by students.</p> <p>CO2: They will have understood the principles and mechanisms of immunology.</p> <p>CO3: They will be aware on the malfunctioning and disorders of the immune system</p> <p>CO4: They will have idea on microbes and their economic importance with special reference to pathogenic forms.</p>

ZO1641	Practical II - Cell Biology and Molecular Biology, Genetics and Biotechnology and Immunology and Microbiology	<p>CO1: Students will be equipped to carry out routine hematological and microbiological techniques</p> <p>CO2: They will be able to prepare and observe chromosomal arrangements during cell division.</p> <p>CO3: They will have developed idea on chromosomal aberrations in man and immunological procedures.</p> <p>CO4: Students will have an insight on various microbes.</p>
ZO1642	Physiology and Biochemistry	<p>CO1: Students will have developed an idea on human physiology and different systems.</p> <p>CO2: They will be aware on the inherent disorders/ deficiencies</p> <p>CO3: They will have grasped the structure and functions of bio-molecules</p> <p>CO4: The role of bio-molecules in metabolism will have been imparted to students.</p>
ZO1643	Developmental Biology and Experimental Embryology	<p>CO1: Students will have acquired a thorough knowledge on the principle of developmental biology.</p> <p>CO2: Students will have understood various stages involved in the developing embryo and initial developmental procedures involved in Amphioxus, Frog and chick.</p> <p>CO3: They will have learnt experimental procedures in embryology</p> <p>CO4: Students can explain the developmental abnormalities.</p>
ZO1644	Ecology, Ethology, Evolution and Zoogeography	<p>CO1: Students will have learnt the principles, applications and management of environmental science</p> <p>CO2: They can categorize animals on the basis of the inherent morphological and physiological bases of behavioural pattern exhibited.</p> <p>CO3: They will have acquired knowledge of organic evolution with special reference to man.</p> <p>CO4: They will have initiate protective measures for animals as they have developed conservatory aptitude by this course.</p>
ZO1645	Practical III- Physiology and Biochemistry	<p>CO1: Students can demonstrate the basic principles in physiology, clinical procedures for blood & urine analysis</p> <p>CO2: Students will be skilful in simple biochemical laboratory procedures.</p> <p>CO3: Techniques in bioinformatics are also dealt in the session.</p> <p>CO4: They can aware public about the need and importance of clinical tests.</p>
ZO1646	Practical IV - Developmental Biology and Experimental Embryology and Ecology, Ethology, Evolution and Zoogeography	<p>CO1: Awareness on the principle of developmental biology, various stages involved in the developing embryo and experimental procedures in embryology will be developed in students.</p> <p>CO2: Students will have practically learnt the principles, applications, management of environmental science.</p> <p>CO3: Students can understand the inherent morphological and physiological bases of behavioural pattern exhibited by vertebrates.</p> <p>CO4: They will have acquired knowledge of organic evolution with special reference to man.</p>
ZO1551.2	Human Health and Sex Education	<p>CO1: Students will have awareness on the problem associated with health and sex</p> <p>CO2: Students can aware others for promoting fitness and well-being.</p> <p>CO3: They will have studied the importance of good health and the clean sexual habits</p> <p>CO4: They can participate in awareness programmes to ward off sexually transmitted diseases.</p>
ZO1651.1	Economic Zoology - Vermiculture and Apiculture	<p>CO1: Students can promote self-employment and self-reliance among educated youth</p> <p>CO2: Students will grasp the basic procedure and methodology of vermiculture and scope and methodology of apiculture.</p> <p>CO3: Students can educate public the practices of vermiculture and apiculture</p> <p>CO4: Students can start self-employment</p>
ZO 1646	Zoology Project and Field study	<p>CO1: Students will have developed research aptitude in Zoology</p> <p>CO2: Students will have acquired practical experience in Zoology.</p> <p>CO3: By field trip, students will have experienced and felt the reality of what they have learnt in the theory classes of various courses.</p> <p>CO4: Students will have developed a positive attitude to science and protective mind to nature and can become scientists and conservationists.</p>
ZO1141	Animal Diversity I	<p>CO1: Students will acquire an in-depth knowledge of the diversity in form, structure and habits of invertebrates</p> <p>CO2: They will be thorough in systematics and the hierarchy of different categories through the diagnostic characters of each phylum with typical examples.</p> <p>CO3: They might have developed knowledge on economically important invertebrate fauna.</p> <p>CO4: The will be able to identify invertebrates</p>
ZO1241	Animal Diversity II	<p>CO1: Students will have earned an in-depth knowledge of the diversity in form, structure and habits of vertebrates</p> <p>CO2: Students will have learnt general characteristics and classification of different classes of vertebrates and the vertebrate evolutionary tree.</p> <p>CO3: They might have developed knowledge on economically important vertebrate fauna.</p> <p>CO4: The will be able to identify invertebrates</p>
ZO1341	Methodology and Perspectives of Zoology	<p>CO1: Students will have knowledge on fundamental characteristics of science as a human enterprise</p> <p>CO2: They will have developed an understanding on how science works.</p> <p>CO3: They will have studied to apply scientific methods independently and to systematically pursue Zoology in relation to other disciplines</p> <p>CO4: They will have developed scientific aptitude.</p>
ZO1441	Cell Biology	<p>CO1: Students will have grasped the ultra-structure of prokaryotic and eukaryotic cells</p> <p>CO2: Students will have developed an understanding on the fundamental structure and biochemistry of cells</p> <p>CO3: Students will be able to explain the functions of each cell.</p> <p>CO4: Students will have learnt the special properties of each cell</p>
ZO1442	Practical I - Methodology and Perspectives of Zoology, Animal Diversity I and II	<p>CO1: Students will get hands on training experience in anatomy through simple dissection and mountings</p> <p>CO2: Students will have made acquaintance with the conventional organ system in animals.</p> <p>CO3: Students will have developed scientific aptitude.</p> <p>CO4: Students will have developed the ability to collect and identify various animal specimens.</p>
ZO1541	Genetics and Biotechnology	<p>CO1: Students will have acquired an idea on the underlying genetic mechanism operating in man like crossing over and inheritance patterns.</p> <p>CO2: They will have understood the principles and techniques involved in DNA technology</p> <p>CO3: They will have got an overview of modern techniques like PCR, Hybridoma technology, gene therapy and human cloning</p> <p>CO4: They will able to enlighten the public and lower students on the principle and importance of genetic tests.</p>

ZO1544	Immunology and Microbiology	<p>CO1: The scope and importance of clinical immunology and the inherent dangers of microbes will have been learned by students.</p> <p>CO2: They will have understood the principles and mechanisms of immunology.</p> <p>CO3: They will be aware on the malfunctioning and disorders of the immune system</p> <p>CO4: They will have idea on microbes and their economic importance with special reference to pathogenic forms.</p>
ZO1543	Physiology and Biological chemistry	<p>CO1: Students will have developed an idea on human physiology and different systems.</p> <p>CO2: They will be aware on the inherent disorders/ deficiencies</p> <p>CO3: They will have grasped the structure and functions of bio-molecules</p> <p>CO4: The role of bio-molecules in metabolism will have been imparted to students.</p>
ZO1221	General Informatics, Bioinformatics and Molecular Biology	<p>CO1: Students will have been made aware about social issues and concerns in the use of digital technology</p> <p>CO2: They will have expanded basic informatics skill and attitudes relevant to the emerging society.</p> <p>CO3: The student will be equipped to effectively utilize the digital knowledge resources for the study of Zoology.</p> <p>CO4: Students can go for further studies in Bioinformatics</p> <p>CO5: Students will be well-versed in the molecular reactions occurring in organisms</p>
ZO1641	Practical II - Cell Biology, Molecular Biology, Genetics, Biotechnology, Immunology and Microbiology	<p>CO1: Students will be equipped to carry out routine hematological and microbiological techniques</p> <p>CO2: They will be able to prepare and observe chromosomal arrangements during cell division.</p> <p>CO3: They will have developed idea on chromosomal aberrations in man and immunological procedures.</p> <p>CO4: Students will have an insight on various microbes.</p>
ZO1642	Developmental Biology and Experimental Embryology	<p>CO1: Students will have acquired a thorough knowledge on the principle of developmental biology.</p> <p>CO2: Students will have understood various stages involved in the developing embryo and initial developmental procedures involved in Amphioxus, Frog and chick.</p> <p>CO3: They will have learnt experimental procedures in embryology</p> <p>CO4: Students can explain the developmental abnormalities.</p>
ZO1643	Ecology, Ethology, Evolution and Zoogeography	<p>CO1: Students will have learnt the principles, applications and management of environmental science</p> <p>CO2: They can categorize animals on the basis of the inherent morphological and physiological bases of behavioural pattern exhibited.</p> <p>CO3: They will have acquired knowledge of organic evolution with special reference to man.</p> <p>CO4: They will have initiate protective measures for animals as they have developed conservatory aptitude by this course.</p>
ZO1644	Practical III - Physiology and Biological Chemistry and Bioinformatics.	<p>CO1: Students can demonstrate the basic principles in physiology, clinical procedures for blood & urine analysis</p> <p>CO2: Students will be skilful in simple biochemical laboratory procedures.</p> <p>CO3: Techniques in bioinformatics are also dealt in the session.</p> <p>CO4: They can aware public about the need and importance of clinical tests.</p> <p>CO5: Students will be having preliminary knowledge to implement bioinformatics tools in Zoology</p>
ZO1645	Practical IV - Developmental Biology, Ecology, Ethology, Evolution and Zoogeography	<p>CO1: Awareness on the principle of developmental biology, various stages involved in the developing embryo and experimental procedures in embryology will be developed in students.</p> <p>CO2: Students will have practically learnt the principles, applications, management of environmental science.</p> <p>CO3: Students can understand the inherent morphological and physiological bases of behavioural pattern exhibited by vertebrates.</p> <p>CO4: They will have acquired knowledge of organic evolution with special reference to man.</p>
ZO1551.2	Human Health and Sex Education	<p>CO1: Students will have awareness on the problem associated with health and sex</p> <p>CO2: Students can aware others for promoting fitness and well-being.</p> <p>CO3: They will have studied the importance of good health and the clean sexual habits</p> <p>CO4: They can participate in awareness programmes to ward off sexually transmitted diseases.</p>
ZO1651.1	Economic Zoology - Vermiculture and Apiculture	<p>CO1: Students can promote self-employment and self-reliance among educated youth</p> <p>CO2: Students will grasp the basic procedure and methodology of vermiculture and scope and methodology of apiculture.</p> <p>CO3: Students can educate public the practices of vermiculture and apiculture</p> <p>CO4: Students can start self-employment</p>
ZO 1646	Zoology Project and Field study	<p>CO1: Students will have developed research aptitude in Zoology</p> <p>CO2: Students will have acquired practical experience in Zoology.</p> <p>CO3: By field trip, students will have experienced and felt the reality of what they have learnt in the theory classes of various courses.</p> <p>CO4: Students will have developed a positive attitude to science and protective mind to nature and can become scientists and conservationists.</p>
ZO1141	Animal Diversity I	<p>CO1: Students will acquire an in-depth knowledge of the diversity in form, structure and habits of invertebrates</p> <p>CO2: They will be thorough in systematics and the hierarchy of different categories through the diagnostic characters of each phylum with typical examples.</p> <p>CO3: They might have developed knowledge on economically important invertebrate fauna.</p> <p>CO4: They will be able to identify invertebrates</p>
ZO1241	Animal Diversity II	<p>CO1: Students will have earned an in-depth knowledge of the diversity in form, structure and habits of vertebrates</p> <p>CO2: Students will have learnt general characteristics and classification of different classes of vertebrates and the vertebrate evolutionary tree.</p> <p>CO3: They might have developed knowledge on economically important vertebrate fauna.</p> <p>CO4: They will be able to identify invertebrates</p>
ZO1341	Methodology and Perspectives of Zoology	<p>CO1: Students will have knowledge on fundamental characteristics of science as a human enterprise</p> <p>CO2: They will have developed an understanding on how science works.</p> <p>CO3: They will have studied to apply scientific methods independently and to systematically pursue Zoology in relation to other disciplines</p> <p>CO4: They will have developed scientific aptitude.</p>
ZO1441	Cell Biology	<p>CO1: Students will have grasped the ultra-structure of prokaryotic and eukaryotic cells</p> <p>CO2: Students will have developed an understanding on the fundamental structure and biochemistry of cells</p> <p>CO3: Students will be able to explain the functions of each cell.</p> <p>CO4: Students will have learnt the special properties of each cell</p>

ZO1544	Practical I - Methodology and Perspectives of Zoology, Animal Diversity I and II	CO1: Students will get hands on training experience in anatomy through simple dissection and mountings CO2: Students will have made acquaintance with the conventional organ system in animals. CO3: Students will have developed scientific aptitude. CO4: Students will have developed the ability to collect and identify various animal specimens.
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ZO 1646	Zoology Project and Field study	CO1: Students will have developed research aptitude in Zoology CO2: Students will have acquired practical experience in Zoology. CO3: By field trip, students will have experienced and felt the reality of what they have learnt in the theory classes of various courses. CO4: Students will have developed a positive attitude to science and protective mind to nature and can become scientists and conservationists.

COMPLEMENTARY COURSES

Course code	Course Name	Course Outcome
ZO1131	Animal Diversity I	CO1: Students will acquire an in-depth knowledge of the diversity in form, structure and habits of invertebrates CO2: They will be thorough in systematics and the hierarchy of different categories through the diagnostic characters of each phylum with typical examples. CO3: They might have developed knowledge on economically important invertebrate fauna. CO4: They will be able to identify invertebrates
ZO1231	Animal Diversity II	CO1: Students will have earned an in-depth knowledge of the diversity in form, structure and habits of vertebrates CO2: Students will have learnt general characteristics and classification of different classes of vertebrates and the vertebrate evolutionary tree. CO3: They might have developed knowledge on economically important vertebrate fauna. CO4: They will be able to identify invertebrates

ZO1331	Functional Zoology	Co1: Students will have been familiarized on the physiology of their own body Co2: Students will have got an urge to take precautionary measures to safeguard their health. Co3: They will have learnt structure and function of each system in the human body. Co4: They can identify diseases and common physiological disorders, syndromes and diseases as they have studied the etiology of diseases.
ZO1431	Applied Zoology	CO1: Students will have learnt the basic principles involved in the culture and breeding of common edible and ornamental fishes of Kerala CO2: They can culture and breed common edible and ornamental fishes CO3: They can demonstrate the art of aquarium keeping. CO4: They can aware public on human genomics and reproductive biology including stem cell research and prenatal diagnostic techniques.
ZO1432	Practical I - Animal Diversity I and II, Functional Zoology and Applied Zoology	CO1: Students will have got hands- on training experience in anatomy through simple dissections and mountings CO2: Students will have been familiarized with conventional organ system in animals. CO3: They will have studied and can aware the public on the principles behind routine clinical analysis of blood and urine. CO4: They can carry out routine clinical analysis of blood and urine.
ZO1131	Animal Diversity I	CO1: Students will acquire an in-depth knowledge of the diversity in form, structure and habits of invertebrates CO2: They will be thorough in systematics and the hierarchy of different categories through the diagnostic characters of each phylum with typical examples. CO3: They might have developed knowledge on economically important invertebrate fauna. CO4: The will be able to identify invertebrates
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Department of Commerce

Programme Offered	B.Com (Computer application) & B.Com (Finance) M.Com
M.COM	
Programme Outcome	PO 1: Demonstrate knowledge of key concepts and theories underlying qualitative decision making. PO 2: Compare International markets and environment through the lens of commerce discipline. PO 3: Apply critical and analytical skills and methods to the identification, evaluation and resolution of complex problems. PO 4: Inculcate a global mindset of entrepreneurship and managerial skills.

CO2 11	Contemporary Management Concepts and Thoughts	CO 1:To create awareness about modern management concepts CO 2:To provide the students with an indepth knowledge regarding the organisation behaviour CO 3:To enable the students to understand various motivation and leadership theories CO 4:To make the students aware regrading the management practices in the field of HRM, Marketing, Financial and Operations.
CO2 12	Management Information System	CO 1:To familiarize the students with the application of computer in the development functioning and maintenance of information system CO 2:To acquaint the students with concepts of Management Information System CO 3:To create an awareness about different types of systems CO 4:To understand the students about system analysis and design
CO2 13	Research Methodology	CO 1:To provide an insight into the fundamentals of Social Science research CO 2:To understand the need, significance and relevance of research and research design CO 3:To make the students understand the steps in the process of social science research CO 4:To develop skill in carrying out research
CO2 14	Planning and Development Administration	CO 1:Providing the students a general idea regarding planning process and procedure CO 2:To create an awareness on economic growth and development in national and international perspectives CO 3:To develop a consciousness in central-State relationship and Budget processing CO 4:To impart knowledge on planning mechanism peveiling in India
CO2 15	Advanced Corporate Accounting	CO 1: To understand the students about the accounting practices prevailing in the corporate CO 2:To create an awareness about various provisions of Companies Act 2013 CO 3: To enable the students to prepare and interpret Financial statements of Joint stock companies CO 4:To familiarise the students about Indian Accounting Standards and IFRS
CO2 21	E -Business and Cyber laws	CO 1:To equip students with the emerging trends in business CO 2:To equip the students to explore the use of information technology in business operations CO 3:To create an awareness about E-marketing, e-retailing and its different models CO 4:To familiarise the students with the cyber world and cyber regulations
CO2 22	Business Ethics and Corporate Governance	CO 1:To impart knowledge on business ethics and social responsibility of business CO 2:To impart reasoning and analytical skills needed to apply technical concepts during business decisions CO 3:To understand the relevance of corporate governance in new millenium CO 4:To introduce various code of conduct developed by the corporate world for better administration
CO2 23	Quantitative Techniques	CO 1:To familiarise the students with the various techniques used in data analysis CO 2:To create an awareness about statistical quality control CO 3:To understand the use of SPSS software in processing and analysis of data CO 4:To impart expert knowledge in the application of quantitative techniques in research
CO2 24	International Business	CO 1:To understand the students regarding the origin and development of international Trade CO 2: To understand the students with the various theories of International Trade CO 3:To familiarise the students with the capital flow between countries CO 4:To create knowledge regarding and recent development in the international trade
CO2 25	Strategic Management	CO 1:To create a conceptual awareness on various strategies CO 2:To familiarise students with the analysis of the internal and external environment CO 3:To understand the concepts of formulation and implementation of strategies CO 4:To enhance decision making abilities of students in situations of uncertainty in a dynamic business environment
CO2 21	Income tax Planning and Management	CO 1:To provide the students an in depth knowledge of the provisions relating to computation of income tax CO 2:To gain knowledge on fundamental priciples and practices on Income Tax Laws CO 3:To familiarise with tax planning principles CO 4:To equip the students with practical knowledge of corporate taxation
CO2 22	Security Analysis and Portfolio Management	CO 1:To help the students to understand various issues in Security Analysis and Portfolio Management CO 2:To equip the students to value the real worth of securities CO 3:To provide a comprehensive understanding on the principles of Security analysis CO 4:To develop the skills in portfolio management
CO2 23	Strategic Financial Management	CO 1:To convey the basic concepts of Strategic Financial Management CO 2:To understand students about the financial aspects of corporate restructuring CO 3:To create an awareness about financial engineering CO 4:To provide a comprehensive understanding of ethical issues in Strategic finance
CO2 24	Advanced Cost and Management Accounting	CO 1:To acquaint students with the accounting concepts, tools and techniques for managerial decisions CO 2:To comprehend established techniques and methods in advanced cost and management accounting to the students CO 3:To introduce the evolving dynamic cost and management techniques developed to support emerging business models CO 4:To familiarise students with the concept of total quality management
CO2 21	Indirect Tax Laws and practices	CO 1:To gain expert knowledge of the principles and laws relating to indirect taxes CO 2:To equip the students with the practical knowledge on indirect taxes CO 3:To familiarise students with service tax practices CO 4:To develop concepts and practices on Indirect tax laws in India
CO2 22	International Finance	CO 1:To familiarise students with international financial markets CO 2:To convey an understanding about foreign exchange risk management CO 3:To familiarise the students about international investment decisions CO 4:To create an awareness about international financial instruments
CO2 23	Management Optimization Techniques	Co 1:To enable the students to gain knowledge about optimization techniques CO 2:To impart knowledge on various facets of project management CO 3:To convey basic principles of project optimisation using various tools CO 4:To create an awareness about various optimization models
CO2 24	Financial Statements- Interpretation and Reporting	CO 1:To familiarise students with new developments in reporting of financial statements CO 2:To equip students with the techniques to interpret financial statements CO 3: To enable the students to prepare and interpret Financial statements of Joint stock companies CO 4:To familiarise the students about Indian Accounting Standards and IFRS
CO 245	Project Report	To make the students understand the process of social science research

B.COM

Programme Outcome		<p>PO 1: An inclination towards enduring learning and gear up with updated knowledge in implementing business practices.</p> <p>PO 2: To familiarize with the intricacies of stock market functionalities</p> <p>PO 3: To understand the provisions and legal framework pertaining to the business community.</p> <p>PO 4: To bring out an innate entrepreneurial talents in students</p> <p>PO 5: To cater to the manpower needs of companies</p>
CO 1121	Methodology and Perspectives of Business Education	<p>CO 1:To provide the students an in depth knowledge of higher learning in business education</p> <p>CO 2:To understand business and its role in society</p> <p>CO 3:To understand entrepreneurship and its heuristics</p> <p>CO 4:To comprehend the business environment</p> <p>CO 5: To provide a holistic, comprehensive and integrated perspective to business education</p>
CO 1141	Environmental Studies	<p>CO 1:To enable students to aquire basic ideas about environment.</p> <p>CO 2:To impart knowledge about emerging issues about Industry and environmental problems</p> <p>CO 3:To provide knowledge about emerging Social issues and environmental problems</p> <p>CO 4: To give awareness about the need and importance of environmental protection</p>
CO 1142	Functional Application of Management	<p>CO 1:To familiarise students with various aspects of organisational management</p> <p>CO 2: To acquaint students with the fundamental concepts of financial management</p> <p>CO 3:To familiarise the students with the concepts of operations management</p> <p>CO 4: To understand the various aspects of marketing and human resource management</p>
CO 1131	Managerial Economics	<p>CO 1:To provide the students an in depth knowledge in the context of managerial decision making</p> <p>CO 2:To familiarise the students with the economic principles underlying various business decisions</p> <p>CO 3:To familiarise the students with the economic theories underlying various business decisions</p> <p>CO 4:To equip the students to apply the economic theories in different business situations.</p>
CO 1221	Informatics and Cyber Laws	<p>CO 1 :To review the basic concepts and fundamental knowledge in the field of informatics.</p> <p>CO 2: To create awareness about the nature of the emerging digital knowledge society</p> <p>CO 3: To understand the impact of informatics on business decisions.</p> <p>CO 4:To create an awareness about informatics and cyber regulation</p>
CO 1241	Business Communication and Office Management	<p>CO 1:To develop communication skills among students relevant to various business situations</p> <p>CO 2: To impart knowledge on the management of modern offices</p> <p>CO 3:To understand the principles and practices of record keeping and management</p> <p>CO 4:To apply the appropriate communication skill to various business situations</p>
CO 1242	Financial Accounting	<p>CO 1:To impart knowledge and understanding of the principles and concepts of financial accounting</p> <p>CO 2:To familiarize the students with Accounting Standards</p> <p>CO 3:To develop the skill required for the preparation of financial statements</p> <p>CO 4:To equip students to prepare accounts of special business areas</p>
CO 1231	Business Regulatory framework	<p>CO 1:To provide brief idea about framework of Indian business laws</p> <p>CO 2: To understand the provisions of Law of contract and Special Contracts</p> <p>CO 3:To impart knowledge about the provisions of Sale of Goods Act 1930</p> <p>CO 4:To enable the students to apply the provisions of business laws in business activities</p>
CO 1341	Entrepreneurship Development	<p>CO 1:To understand the conceptual framework of entrepreneur</p> <p>CO 2:To familiarise the students with the latest programs of the government authorities in promoting small and medium Industries</p> <p>CO 3:To equip the students to have a practical insight for becoming an entrepreneur</p> <p>CO 4:To impart knowledge regarding how to start new ventures</p>
CO 1342	Company Administration	<p>CO 1:To familiarise students with various aspects of Indian Companies ACT 2013</p> <p>CO 2:To acquaint the students about Management and Administration of Companies</p> <p>CO 3:To comprehend the students about Compliance requirements of a company</p> <p>CO 4:To acquaint the students about investigation into the affairs of the company</p>
CO 1343	Advanced Financial Accounting	<p>CO 1:To create an awareness about various accounts of partnership branch joint venture etc</p> <p>CO 2:To create awareness of accounts related to dissolution of partnership firms.</p> <p>CO 3:To acquaint students with the system of accounting for different branches and departments</p> <p>CO 4:To enable students to prepare accounting of consignments and joint venture.</p>
CO 1331	Information Technology in Business	<p>CO 1:To review basic concepts and knowledge in the field of IT</p> <p>CO 2: To expose the students to the innovations in Information technology</p> <p>CO 3:To familiarise the students to application of computer in the field of business.</p> <p>CO 4:To provide a conceptual framework on e-commerce and its applications</p>
CO 1361.1	Financial Management	<p>CO 1:To familiarise the students with the conceptual framework of financial management.</p> <p>CO 2:To provide conceptual and analytical insights to make financial decisions.</p> <p>CO 3:To enable the students to understand the practical application of financial management.</p> <p>CO 4: To provide an analytical insights to make Investment decisions skillfully.</p>
CO 1441	Capital Market	<p>CO 1:To provide an idea about functioning of capital market</p> <p>CO 2:To provide the students an indepth knowledge about Secondary market</p> <p>CO 3: To familiarise the students with the concept of financial derivatives.</p> <p>CO 4:To create an awareness about the role and function of SEBI</p>
CO 1442	Banking Theory and Practice	<p>CO 1:To provide a basic idea about the theory and practice of banking</p> <p>CO 2:To familiarise the students with the changing scenario of Indian Banking system</p> <p>CO 3: To study the recent trends in banking</p> <p>CO 4:To expose the students with the innovations and reforms in banking</p>
CO 1443	Corporate Accounting	<p>CO 1: To understand the students about the accounting practices prevailing in the corporate</p> <p>CO 2:To create an awareness about various provisions of Companies Act 2013</p> <p>CO 3: To enable the students to prepare and interpret Financial statements of Joint stock companies</p> <p>CO 4:To familiarise the students about Indian Accounting Standards and IFRS</p>
CO 1431	Business Statistics	<p>CO 1:To provide the students an in depth knowledge of various statistical Techniques</p> <p>CO 2: To enable the students to gain understanding of statistical techniques as are applicable to Business.</p> <p>CO 3: To enable the students to apply statistical techniques for quantification of data in business</p> <p>CO 4: To create awareness about Correlation, Regression etc.</p>

CO 1461.1	Project Finance	CO 1:To provide knowledge on the concept of project finance CO 2:To highlight the sources and application of finance CO 3:To enable the students to learn the process and issues relating to preparation, appraisal and monitoring of projects CO 4:To create an awareness about various institutional finance for projects
CO 1541	Fundamentals of Income Tax	CO 1:To impart the basic understanding of the concepts and practices of Income Tax Law in India CO 2:To familiarize the students about the fundamental concepts of Income Tax CO 3:To enable the students to acquire the skills required to compute Gross Total Income CO 4:To provide practical knowledge in the computation of Tax liability of individuals
CO 1542	Cost Accounting	CO 1:To familiarise the student with cost concepts and fundamentals of cost accounting CO 2:To acquaint the students with the measures of cost control CO 3:To make the students learn cost accounting as a separate system of accounting CO 4:To understand the students about cost accounting standards
CO 1543	Accounting for Specialised Institutions	CO 1:To familiarise the students with accounting practices in various specialised institutions CO 2:To develop the skill for the preparation of final accounts of specialised institutions CO 3:To enable the students to acquire professional competence in accounting CO 4:To acquaint the students with the preparation of final accounts of the Government institutions.
CO 1551.2	Principles of Management	CO 1:To familiarise the students with various management principles and equip them to apply in various business situations CO 2:to develop the students the art of decision making CO 3:to understand various control techniques and methods CO 4:to acquaint the students with the staffing and recruitment process
CO 1561.1	Financial Markets & Services	CO 1:To make the students understand various financial services available CO2:to understand the students about various sources of finance CO3:to familiarise the students with the structure of our financial system CO4:to create an awareness about the functioning of financial markets in India
CO 1641	Auditing	CO1:To familiarise students with the principles and procedure of auditing CO2:to understand the duties and responsibilities of auditors CO3:to familiarise the students with the audit of various types of companies CO4:to create a practical awareness regarding investigation on various aspects
CO 1642	Applied Costing	CO1:To acquaint the students with different methods and techniques of costing CO2:to understand students about various types of costs in an organisation CO3:to develop the skill required for the application of methods and techniques in managerial decision making CO4:to apply the costing methods and techniques in different types of industries
CO 1643	Management Accounting	CO1:To enable the students to have thorough knowledge on the management accounting techniques in decision making CO2:To develop professional competence and skill in applying accounting information for decision making. CO3:To equip the students to interpret financial statements with specific tools of management accounting CO 4:To develop skill in analysing and interpreting financial statements
CO 1661.6	Marketing Management	CO 1:To familiarise students with the marketing function of management CO 2:To understand the marketing mix components CO 3:To acquaint students with the strategies pertaining to the marketing of various products CO 4:To understand the recent trends in marketing
CO 1661.1	Income Tax Law and Accounts	CO 1:To familiarize the students with the procedure of income tax assessment CO 2:To equip the students with the practical skill and knowledge of Income Tax Law and Accounts CO 3:To enable the students to understand the provisions of Income Tax for computing Total Income CO 4:To understand the provisions of Income Tax for computing Tax Liability of various persons
CO 1644	Project	CO 1: To make the students understand the process of social science research
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CO 1121	Methodology and Perspectives of Business Education	CO 1: To provide the students an in depth knowledge of higher learning in business education CO 2: To understand business and its role in society CO 3: To understand entrepreneurship and its heuristics CO 4: To comprehend the business environment CO 5: To provide a holistic, comprehensive and integrated perspective to business education
CO 1141	Environmental Studies	CO 1: To enable students to acquire basic ideas about environment. CO 2: To impart knowledge about emerging issues about Industry and environmental problems CO 3: To provide knowledge about emerging Social issues and environmental problems CO 4: To give awareness about the need and importance of environmental protection
CO 1142	Functional Application of Management	CO 1: To familiarise students with various aspects of organisational management CO 2: To acquaint students with the fundamental concepts of financial management CO 3: To familiarise the students with the concepts of operations management CO 4: To understand the various aspects of marketing and human resource management
CO 1131	Managerial Economics	CO 1: To provide the students an in depth knowledge in the context of managerial decision making CO 2: To familiarise the students with the economic principles underlying various business decisions CO 3: To familiarise the students with the economic theories underlying various business decisions CO 4: To equip the students to apply the economic theories in different business situations.
CO 1221	Informatics and Cyber Laws	CO 1:To review the basic concepts and fundamental knowledge in the field of informatics. CO 2: To create awareness about the nature of the emerging digital knowledge society CO 3: To understand the impact of informatics on business decisions. CO 4:To create an awareness about informatics and cyber regulation
CO 1241	Business Communication and Office Management	CO 1:To develop communication skills among students relevant to various business situations CO 2: To impart knowledge on the management of modern offices CO 3:To understand the principles and practices of record keeping and management CO 4:To apply the appropriate communication skill to various business situations
CO 1242	Financial Accounting	CO 1: To impart knowledge and understanding of the principles and concepts of financial accounting CO 2: To familiarize the students with Accounting Standards CO 3: To develop the skill required for the preparation of financial statements CO 4: To equip students to prepare accounts of special business areas

CO 1231	Business Regulatory framework	CO 1: To provide brief idea about framework of Indian business laws CO 2: To understand the provisions of Law of contract and Special Contracts CO 3: To impart knowledge about the provisions of Sale of Goods Act 1930 CO 4: To enable the students to apply the provisions of business laws in business activities
CO 1341	Entrepreneurship Development	CO 1: To understand the conceptual framework of entrepreneur CO 2: To familiarise the students with the latest programs of the government authorities in promoting small and medium industries CO 3: To equip the students to have a practical insight for becoming an entrepreneur CO 4: To impart knowledge regarding how to start new ventures
CO 1342	Company Administration	CO 1: To familiarise students with various aspects of Indian Companies ACT 2013 CO 2: To acquaint the students about Management and Administration of Companies CO 3: To comprehend the students about Compliance requirements of a company CO 4: To acquaint the students about investigation into the affairs of the company
CO 1343	Advanced Financial Accounting	CO 1: To create an awareness about various accounts of partnership branch joint venture etc CO 2: To create awareness of accounts related to dissolution of partnership firms. CO 3: To acquaint students with the system of accounting for different branches and departments CO 4: To enable students to prepare accounting of consignments and joint venture.
CO 1331	Information Technology in Business	CO 1: To review basic concepts and knowledge in the field of IT CO 2: To expose the students to the innovations in Information technology CO 3: To familiarise the students to application of computer in the field of business. CO 4: To provide a conceptual framework on e-commerce and its applications
CO 1361.5	Computer Application for Publications	CO 1: To give functional knowledge in the field of free software. CO 2: To develop practical skills in document preparation, publishing and business presentation CO 3: To update skills in electronic data processing and computer application in business operations CO 4: To equip the students to meet the demands of the industry
CO 1441	Capital Market	CO 1: To provide an idea about functioning of capital market CO 2: To provide the students an indepth knowledge about Secondary market CO 3: To familiarise the students with the concept of financial derivatives. CO 4: To create an awareness about the role and function of SEBI
CO 1442	Banking Theory and Practice	CO 1: To provide a basic idea about the theory and practice of banking CO 2: To familiarise the students with the changing scenario of Indian Banking system CO 3: To study the recent trends in banking CO 4: To expose the students with the innovations and reforms in banking
CO 1443	Corporate Accounting	CO 1: To understand the students about the accounting practices prevailing in the corporate CO 2: To create an awareness about various provisions of Companies Act 2013 CO 3: To enable the students to prepare and interpret Financial statements of Joint stock companies CO 4: To familiarise the students about Indian Accounting Standards and IFRS
CO 1431	Business Statistics	CO 1: To provide the students an in depth knowledge of various statistical Techniques CO 2: To enable the students to gain understanding of statistical techniques as are applicable to Business. CO 3: To enable the students to apply statistical techniques for quantification of data in business CO 4: To create awareness about Correlation, Regression etc.
CO 1461.5	Software for Data Management	CO 1: To familiarise students with the basics of software for datamanagement CO 2: To develop theoretical and technical expertise in applying software for data management CO 3: To develop practical skills in spreadsheet application CO 4: To equip the students to use Statistical software for analysing data
CO 1541	Fundamentals of Income Tax	CO 1: To impart the basic understanding of the concepts and practices of Income Tax Law in India CO 2: To familiarize the students about the fundamental concepts of Income Tax CO 3: To enable the students to acquire the skills required to compute Gross Total Income CO 4: To provide practical knowledge in the computation of Tax liability of individuals
CO 1542	Cost Accounting	CO 1: To familiarise the student with cost concepts and fundamentals of cost accounting CO 2: To acquaint the students with the measures of cost control CO 3: To make the students learn cost accounting as a separate system of accounting CO 4: To understand the students about cost accounting standards
CO 1543	Accounting for Specialised Institutions	CO 1: To familiarise the students with accounting practices in various specialised institutions CO 2: To develop the skill for the preparation of final accounts of specialised institutions CO 3: To enable the students to acquire professional competence in accounting CO 4: To acquaint the students with the preparation of final accounts of the Government institutions.
CO 1551.2	Principles of Management	CO 1: To familiarise the students with various management principles and equip them to apply in various business situations CO 2: to develop the students the art of decision making CO 3: to understand various control techniques and methods CO 4: to acquaint the students with the staffing and recruitment process
CO 1561.5	Web designing and production for business	CO 1: To familiarise the students with various types of websites CO 2: To familiarise with the various methods of creating a website CO 3: To acquaint students with mark up languages like html and xml CO 4: To impart functional knowledge in the field of Web design
CO 1641	Auditing	CO1: To familiarise students with the principles and procedure of auditing CO2: to understand the duties and responsibilities of auditors CO3: to familiarise the students with the audit of various types of companies CO4: To create a practical awareness regarding investigation on various aspects
CO 1642	Applied Costing	CO1: To acquaint the students with different methods and techniques of costing CO2: to understand students about various types of costs in an organisation CO3: to develop the skill required for the application of methods and techniques in managerial decision making CO4: to apply the costing methods and techniques in different types of industries
CO 1643	Management Accounting	CO1: To enable the students to have thorough knowledge on the management accounting techniques in decision making CO2: To develop professional competence and skill in applying accounting information for decision making. CO3: To equip the students to interpret financial statements with specific tools of management accounting CO 4: To develop skill in analysing and interpreting financial statements

CO 1661.6	Marketing Management	CO 1: To familiarise students with the marketing function of management CO 2: To understand the marketing mix components CO 3: To acquaint students with the strategies pertaining to the marketing of various products CO 4: To understand the recent trends in marketing
CO 1661.5	Computerised Accounting	CO 1: To familiarise the students with the various modes of mechanised accounting CO 2: To understand the students about the accounting software Tally CO 3: To provide a practical knowledge in the preparation of final accounts using Tally CO 4: To acquaint the students with the preparation of accounts of a business enterprise using Tally
CO 1644	Project	CO 1: To make the students understand the process of social science research

Department of Malayalam

Course Code	Title of Courses	Course Outcome
ML 1111.1	മലയാള കവിത	CO 1: മലയാളകവിതയെ സംബന്ധിച്ച് സാമാന്യജ്ഞാനം വിദ്യാർത്ഥികൾക്കു നൽകുക. CO 2: വിദ്യാർത്ഥി കളിൽ കാവ്യഭിരുചിയും കാവ്യാസ്വാദന താല്പര്യം വളർത്തുക. CO 3: കവിതകളെ വിശകലനം ചെയ്യാൻ അവരെ പ്രാപ്തരാക്കുക
ML 1211.1	ഗദ്യസാഹിത്യം	CO 1: മലയാളഗദ്യസാഹിത്യത്തിലെ പ്രധാന സഹിത്യരൂപങ്ങളെക്കുറിച്ച് സമാന്യബോധം നൽകുക. CO 2: തെരഞ്ഞെടുത്ത പാഠങ്ങളുടെ വിശദ പഠനത്തിന് പുറമെ അതത് ഗദ്യങ്ങളുടെ ഉല്പത്തി വികാസത്തെക്കുറിച്ച് അവബോധം നൽകുക CO 3: രചനകളെ സ്വയം വിശകലനത്തിനു വിധേയമാക്കുക.
ML 1311.1	ദൃശ്യകലാസാഹിത്യം	CO 1: കേരളത്തിലെ ദൃശ്യകലാ സംസ്കാരത്തിന്റെ സമ്പന്നതയും വൈവിധ്യവും തിരിച്ചറിയുക. CO 2: കഥകളി, തുള്ളൽ, നാടകം, സിനിമ എന്നീ ദൃശ്യകലകളും അവയ്ക്കു ധാരമായ സാഹിത്യ പാഠങ്ങളും പരിചയപ്പെടുത്തുക
ML 1411.1	വിനിയമം, സർഗാത്മകത	CO 1: ആശയ വിനിയമ ശേഷി വർദ്ധിപ്പിക്കുക CO 2: ഔദ്യോഗിക കാര്യങ്ങളും മറ്റും മലയാളത്തിലൂടെ അവതരിപ്പിക്കാൻ കഴിയുക
ML 1111.2	നോവൽ, നാടകം, സഞ്ചാരസാഹിത്യം	CO 1: മലയാള നോവൽ പ്രാരംഭം, വികാസഘട്ടം CO 2: നാടകം, സാഹിത്യരൂപം, പാരമ്പര്യം CO 3: മലയാളത്തിലെ ആദ്യകാല സഞ്ചാര കൃതികൾ
ML 1121.2	കവിത, കഥ, ഉപന്യാസം	CO 1: മലയാള കവിതയുടെ വികാസ പരിണാമ ഘട്ടങ്ങൾ CO 2: മലയാള ചെറുകഥയുടെ വികാസപരിണാമ ഘട്ടങ്ങൾ CO 3: ഉപന്യാസങ്ങളുടെ ആവിർഭാവം, ഉപന്യാസ ശാകയെ സമ്പന്നമാക്കിയ എഴുത്തുകാർ.

Department of Hindi

Course Code	Title of Courses	Course Outcome
HN 1111.1	Prose and One act plays	CO 1: To understand and appreciate hindi prose. CO 2: To appreciate the literary and stylistic element of hindi one act plays. CO 3: To understand the distinct features of hindi one act plays. CO 4: To difference between drama and one act plays.
HN 1211.1	Fiction: Novel and Short Story	CO 1: To familiarize the students the well known writings of Hindi fiction. CO 2: To understand and appreciate Hindi short stories. CO 3: To understand the distinct features of Hindi novels. CO 4: To identify the difference between novels and short stories.
HN 1311.1	Poetry and Grammar	CO 1: To introduced the students to the world of ancient and modern Hindi poetries. CO 2: To sensitize the student to the aesthetic aspects of literary appreciation and analysis. CO 3: To clarify the aspects of ancient and modern poetry. CO 4: To understand the theory and practice of hindi.
HN 1411.1	Poetry, Long Poems and Culture	CO 1: To introduced the students to the world of ancient and modern Hindi poetries. CO 2: To sensitize the student to the aesthetic aspects of literary appreciation and analysis. CO 3: To introduce the specialities of Indian Culture and Kerala culture. CO 4: It educate their emotions and enhances their power of imagination.
HN 1111.2	Prose, Commercial Hindi and Letter writing	CO 1: To understand and appreciate hindi prose. CO 2: To understand the difference between commercial letters and personal letters. CO 3: To enrich the knowledge of commercial letter writings. CO 4: To enrich the knowledge of the form of style of other letters.
HN 1121.2	Poetry, Translation, Technical Terminology	CO 1: To sensitize the student to the aesthetic aspects of literary appreciation and to introduce hindi poetry. CO 2: To clarify the concepts of ancient and modern poetry. CO 3: For communication skills in Hindi and English through the translation. CO 4: To familiarize the technical terms used in offices.

Department of Arabic

Course Code	Title of Courses	Course Outcome
AR 1111.1	Communicative Arabic I	CO 1: To perfect the mastery of Arabic with efficient communicative skills and expressive capabilities CO 2: To familiarize with situation language and situation vocabulary in the different domains of life. CO 3: To understand and acquire knowledge of employing the language in real life occasions.
AR 1211.1	Communicative Arabic II	CO 1: To perfect the mastery of Arabic with efficient communicative skills and expressive capabilities. CO 2: To familiarize with situation language and situation vocabulary in the different domains of life. CO 3: To understand and acquire knowledge of employing the language in real life occasions.
AR 1311.1	Classical Arabic Literature	CO 1: To review the basic concepts and functional knowledge in the field of informatics. CO 2: To create awareness about nature of the emerging digital knowledge society. CO 3: To create awareness about social issues and concern in the use of digital technology. CO 4: To impart skills to enable students to use digital knowledge resources in Arabic. CO 5: To give theoretical and practical experience in Arabic computing.
AR 1311.1	Culture and Civilization	CO 1: To enable the student to look critically at Kerala Culture and civilization. CO 2: To appreciate the cultural movements, religions, arts and other human perspectives. CO 3: To evaluate the development of Muslim Culture in Kerala.

AR1111.2	Functional Arabic - I	<p>CO 1: To enrich the functional capabilities of learners in using Arabic as a Functional and Communicative language.</p> <p>CO 2: To perfect the mastery of Arabic with efficient communicative skills and expressive capabilities</p> <p>CO 3: To familiarize with situation language and situation vocabulary in the different domains of life.</p> <p>CO 4: To understand and acquire knowledge of employing the language in real life occasions.</p>
AR1211.2	Functional Arabic - II	<p>CO 1: To enrich the functional capabilities of learners in using Arabic as a Functional and Communicative language.</p> <p>CO 2: To perfect the mastery of Arabic with efficient communicative skills and expressive capabilities</p> <p>CO 3: To familiarize with situation language and situation vocabulary in the different domains of life.</p> <p>CO 4: To understand and acquire knowledge of employing the language in real life occasions.</p>

Department of Economics

Course Code	Title of Courses	Course Outcome
EC 1131	Foundations of Economic Theory	<p>CO 1: To provide a basic understanding of economic concepts and theories.</p> <p>CO 2: To introduce basic principles of Micro Economics.</p> <p>CO 3: To Understand the working of an economy as a whole.</p> <p>CO 4: To introduce different types of markets and their Functioning.</p>
EC 1231	Money and Banking	<p>CO 1: To understand the concept of money and its functions.</p> <p>CO 2: To create awareness about Indian Banking system</p> <p>CO 3: To give basic understanding about the nature and significance of money and banking in the functioning of an economy.</p> <p>CO 4: To develop comprehensive knowledge on the role of finance in the operation of an economy.</p>
EC 1331	Public Finance and Trade	<p>CO 1: To inculcate the students about the significance of public finance in the context of increasing role Government.</p> <p>CO 2: To provide the basic theoretical framework of budgetary mechanism in India</p> <p>CO 3: To know the various aspects of international trade.</p> <p>CO 4: To develop comprehensive knowledge on Indian public finance.</p>
EC 1431	Indian Economy Since Independence	<p>CO 1: To provide basic understanding of the Indian Economy.</p> <p>CO 2: To familiarise the students about the various concepts of National Income.</p> <p>CO 3: To create an awareness about the significance of agriculture, industry and servicesector in the economy.</p> <p>CO 4: To enable students to comprehend and critically appraise current issues and problems of Indian economy.</p>

Department of History

Course Code	Title of Courses	Course Outcome
HY 1131.1	History of Modern India (1857-1900)	<p>CO 1: To highlight the importance of revolt of 1857 which marked the beginning of far-reaching changes in the history of India</p> <p>CO 2: To make awareness among the students about the background of Indian Nationalism</p> <p>CO 3: To trace the significance of socio-religious reform movements in Modern India</p> <p>CO 4: To understand the history of renaissance in India</p>
HY 1231.3	History of Modern India (1901-1920)	<p>CO 1: To review the factors which led Indian National Congress into crises</p> <p>CO 2: To Highlight the impact of First World War on Indian Nationalism</p> <p>CO 3: To help students to trace advent of Gandhi in Indian freedom struggles</p> <p>CO 4: To familiarize students about Gandhian Ideologies</p>
HY 1331.5	History of Modern India (1921-1947)	<p>CO 1: To understand the concept of Non-Cooperation</p> <p>CO 2: To highlight the emergence of socialist ideas in Indian Nationalism</p> <p>CO 3: To analyse India's steps towards freedom</p> <p>CO 4: To assess the impact of World War II in India's freedom struggle</p>
HY 1431.7	History of Contemporary India (After 1948)	<p>CO 1: To familiarize students about Nehruvian era</p> <p>CO 2: To review India's role in world affairs</p> <p>CO 3: To understand the political developments in Post-Nehruvian period</p> <p>CO 4: To know the role of women's movements and tribal movements in the formation of contemporary India</p>