ST. GREGORIOS COLLEGE KOTTARAKARA

COURSE OUTCOMES (UG & PG)

UNDER-GRADUATE PROGRAMMES

Name of the Programme: BSc. MATHEMATICS

Course Code	Course Title		Course Outcomes
SEMESTER 1			
MM 1141	Methods of Mathematics	CO1	Understand the various methods of differential calculus and its properties such as extremum problems, Rolle's Theorem, Mean Value Theorem and its consequences.
		CO2	Understand the various methods of integral calculus, its properties through area, volume, length related concepts.
		CO3	Acquire the skill of problem solving.
SEMESTER 2			
MM 1221	Foundations of Mathematics	CO1	Begin the rigorous study of Mathematics, understand the concept of sets and functions.
		CO2	Realize the logical aspects such as connectives, truth tables, conditional statements and understand the usage of various quantifiers like universal and extential quantifiers in statements.
		CO3	Understand the fundamental concepts of Cartesian system and polar coordinate system and the relation between them.
SEMESTER 3			
MM 1341	Elementary Number Theory And Calculus - I	CO1	Acquire the knowledge of algebraic structures through congruence classes.
		CO2	Acquire the skill in differentiating and integrating vector valued functions.
		CO3	Analyse vector functions to find derivatives, tangent lines, integrals, arc length and curvature.
SEMESTER 4			
MM 1441	Elementary Number Theory And Calculus - II	CO1	Conceive the concept of irreducibility of polynomials in different rings and the Fundamental Theorem of Algebra.
		CO2	Acquire knowledge in the calculus of functions of two variables and three variables.
		CO3	Visualisation of functions of several variables.
SEMESTER 5			
MM 1541	Real Analysis - I	CO1	Understand the notion of real numbers and ideas of limits in a formal manner.
		CO2	Conceive the concept of limits of sequences and series, limit of functions.
		CO3	Produce rigorous proofs of results that arise in the context of real analysis.
MM 1542	Complex Analysis – I	CO1	Understand the basic properties of complex numbers.
		CO2	Understand the definition of complex functions, power series representation of complex functions.
		CO3	Develops a knowledge about analytic functions and Cauchy-Riemann equations.
MM 1543	Differential Equations	CO1	Know how differential equations arise in various physical problems.
		CO2	Solve differential equations of first order and exact differential equations.
		CO3	Solve linear differential equations of second order.
MM 1544	VECTOR ANALYSIS	CO1	Develop the notion directional derivatives.
		CO2	Develop knowledge about vector field and its divergence and curl.
		CO3	Conceive the idea of line integrals and conservative vector fields.
MM 1545	Abstract Algebra –I	CO1	Acquire the knowledge of binary structures such as groups, subgroups, cyclic groups by using the skill of binary operations.
		CO2	Understand various properties of above said binary structures and its characterisations.

Course Code	Course Title		Course Outcomes
		CO3	Acquire the skill of problem solving.
MM 1551.1	Open Course – Operations Research	CO1	Acquire skills to formulate Linear Programming Problem and solve them using graphical method and simplex method.
		CO2	Understand variety of problems such as Assignment Problem, Transportation Problem etc.
		CO3	Acquire the knowledge to CPM and PERT techniques to plan, schedule and control project activities.
SEMESTER 6			
MM 1641	Real Analysis - II	CO1	Identify the continuity and discontinuity of various functions.
		CO2	Understand differentiation from a conceptual point of view.
		CO3	Acquire the skill of problem solving.
MM 1642	Linear Algebra	CO1	Understand the algebraic and geometric representation of vectors in Euclidean n-space.
		CO2	Learn to solve system of linear equations using the language of matrices.
		CO3	Conceive the concept of linear transformations, eigen values, eigen vectors and diagonalisations.
MM 1643	Complex Analysis - II	CO1	Represent functions as Power and Laurent series and classify isolated singular points.
		CO2	Critically evaluate application of Residue Theorem in the evaluation of some integrals.
		CO3	Evaluate improper integrals in various situations.
MM 1644	Abstract Algebra – II	CO1	Familiar with the concept of homomorphism of groups and factor groups.
		CO2	Review the concept of rings and understand the concept of factor rings
		CO3	Use the knowledge to solve different problems
MM 1645	Computer Programming	CO1	Acquire the skill of document preparation in computers using the LATEX type setting program and also the basics of computer programming using Python.
		CO2	Develop the skill for writing the elementary programs by using Python code.
MM 1661.1	Graph Theory (Elective)	CO1	Build an awareness of some of the fundamental concepts in Graph Theory.
		CO2	Study the Konigsberg Bridge Problem, The Chinese Postman Problem, and the Teleprinter's Problem and their graph models and solutions.
		CO3	Learn about trees and its properties.

Name of the Programme: BSc. CHEMISTRY

Course Code	Course Title		Course Outcomes
SEMESTER 1			
CH 1141	Inorganic Chemistry I	CO1	Helps to learn the structure of atom, periodicity and non-aqueous solvents.
		CO2	It enables them to appreciate the inner structure and chemical properties of elements
SEMESTER 2			
CH 1221	Inorganic Chemistry II	CO1	On completion of the course, the student will be able to understand, how science or in special chemistry works. They will get a basic understanding to do self-directed experimentation work and research in chemistry under the guidance and supervision of a mentor.
		CO2	Analytical chemistry helps the student to understand about the experimental parts of the theory and the safety measures which could follow when doing experiments using chemicals.

SEMESTER 3			
CH 1341	Inorganic Chemistry II	CO1	The student gets fundamental to detailed knowledge in chemical bonding,
		CO2	The student gets fundamental to detailed knowledge in compounds of non-transition elements. and nano materials.
		CO3	Students get a thorough knowledge in nuclear chemistry
SEMESTER 4			
CH 1441	Organic Chemistry Paper I	CO1	It imparts the behavior of aliphatic and aromatic compounds and introduces the concept of reaction mechanism
		CO2	It makes the student to understand the mechanism of reactions of organic compounds, steriochemical aspects, photochemical reactions and aromaticity.
SEMESTER 5			
CH 1541	Physical Chemistry I	CO1	Students will gain exposure and practice in the areas of physical chemistry which include gas and liquid properties, thermodynamics and group theory.
CH 1542	Inorganic Chemistry III	CO2	Students will gain exposure and practice in the areas og inorganic chemistry which include, Co-ordination chemistry, transition and inner transition elements. chemistry and how their elements are isolated from their ores
CH 1542	Inorganic Chemistry III	CO3	The students would be able to realise the role of organometallics in organic synthesis.
		CO4	instrumental method of analysis and general principle of isolation of elements help the students to understand about the experimental techniques used in
CH1543	Organic chemistry II	CO1	The student will get interesting idea about the preparation and properties, mechanism of reactions of many organic conversions and of organic compounds.
		CO2	They will also get sufficient knowledge to interpret spectrum of organic compounds and novel areas of organic chemistry-the supramolecular and green chemistry
SEMESTER 6			
CH1641	Physical Chemistry II	CO1	Student will able to derive essential mathematical relationships in thermodynamics, quantum mechanics and spectroscopy
		CO2	Students will evaluate physical and chemical systems by non spectroscopic techniques
CH1642	Organic Chemistry paper III	CO1	The students will get an interesting idea about the preparation and properties, mechanism of reactions of many organic conversions and of organic compounds
CH1643	Physical Chemistry paper III	CO1	Student will get an idea about the basics of electrochemistry and its importance to modern industry and technology
		CO2	the course introduce various types of reactions and different factors that determine the rate of chemical changes.
		CO1	The course also includes the study of phase diagrams of one, two and three component systems and elementary ideas of photochemistry.
		CO2	Student will get idea of recent developments in plastic and rubber technology.

Course Code	Course Title		Course Outcomes
CH1651	Polymer Chemistry	CO1	Student will get elementary idea of synthesis, chemistry, property and application of elastomers and varoius polymer processing in the polymer industry in India.

Name of the Programme: BSc. BOTANY

Course Code	Course Title		Course Outcomes
SEMESTER 1			
BO 1141	Angiosperm Anatomy, Reproductive Botany And Pali Nology	CO1	To develop skills for identification of microscopic structures.
		CO2	To distinguish various tissue systems and internal structure.
		CO3	To acquire basic knowledge about embryo development and pollen grains.
SEMESTER 2			
BO 1221	Methodology And Perspectives In Plant Sciences	CO1	To familiarize the students with the fundamental characteristics of science and significance of scientific studies.
		CO2	To apply scientific methods independently and familiarize instruments in biological labs.
		CO3	To interpret scientific data using basic statistical methods.
SEMESTER 3			
BO 1341	Microbiology, Phycology, Mycology, Lichenology And Plant Pathology	CO1	To familiarise characteristic features of microbes and their significance.
		CO2	To creates awareness about importance of microbes in environment..
		CO3	To generates idea about types of algae, fungi, lichen and their economic as well as evolutionary significance.
SEMESTER 4			
BO 1441	Bryology, Pte Ridology, Gymnosperms And Palaeo Botany	CO1	To familiarise the students characteristic features and evolutionary significance of Bryophytes, Pteridophytes and Gymnosperms.
		CO2	To generate awareness about lifecycle of Bryophytes,Pteridophytes and Gymnosperms.
		CO3	To impart knowledge about fossil formation and its significance.
SEMESTER 5			
BO 1541	Angiosperm morphology, systematic botany, Botany, ethno botany and	CO1	To introduce importance of morphological characters in classification and plant identification.
		CO2	To develop skill for herbarium preparation
		CO3	To acquire knowledge about economic,ethnobotanical significance and pharmacognosy of plants.
BO 1542	Environmental Studies And Phytogeography	CO1	To create awareness about ecosystem and Natural resources.
		CO2	To generate knowledge knowledge about importance of Biodiversity conservation.
		CO3	To understand the need to mitigate pollution and Strategies for disaster management.
BO 1543	Cell Biology, Genetics And Evolutionary Biology	CO1	To create awareness about cellular organelles.
		CO2	To develop skills to identify cell stages and workout problems in classical genetics.
		CO3	To introduce different theories of evolution.
SEMESTER 6			
BO1641	Plant Physiology And Biochemistry	CO1	To understand physiology of absorption, photosynthesis and respiration.
		CO2	To study physiological responses in growth, movements and flowering of plants

Course Code	Course Title		Course Outcomes
		CO3	To generates awareness about biomolecules.
BO 1642	Molecular Biology, General Informatics & Bioinformatics	CO1	To generate awareness of genetic material and gene expression.
		CO2	To get an overview of information technology.
		CO3	To develop skill for using internet, biological databases and molecular visualization tools.
BO 1643	Horticulture, Plant Breeding & Research Methodology	CO1	To get an awareness in principles and methods of gardening.
		CO2	To understand plant breeding techniques and develop skill for hybridization
		CO3	To get knowledge about research methodology and preparation of projects.

Name of the Programme: BCOM

Course Code	Course Title		Course Outcomes
SEMESTER 1			
CO 1141	Environmental Studies	CO1	To enable the students to acquire basic ideas about environment and emerging issues about environmental problems.
		CO2	To give awareness about the need and importance of environmental protection.
CO 1121	Methodology and Perspectives of Business Education	CO1	To create a basic awareness about the business environment and the role of business in economic development.
		CO2	To provide a holistic, comprehensive and integrated perspective to business education.
		CO3	To give a fundamental understanding about ethical practices in business.
SEMESTER 2			
CO 1221	Informatics and Cyber Laws	CO1	To review the basic concepts and fundamental knowledge in the field of informatics and to create an awareness about the nature of the emerging digital knowledge society and the impact of informatics on business decisions.
		CO2	To create an awareness about the cyber world and cyber regulations.
CO 1242	Business Regulatory Framework	CO1	To provide a brief idea about the framework of Indian business Laws.
		CO2	To enable the students to apply the provisions of business laws in business activities.
SEMESTER 3			
CO 1341	Entrepreneurship Development	CO1	To familiarize the students with the latest programmes of Government in promoting small and medium industries.
		CO2	To impart knowledge regarding starting of new ventures.
CO 1342	Advanced Financial Accounting	CO1	To create awareness of accounts related to dissolution of partnership firms.
CO 1343	Company Administration	CO2	To familiarise students with various aspects of Indian Companies ACT 2013
SEMESTER 4			
CO 1441	Indian Financial Market	CO1	To provide a clear-cut idea about the functioning of Indian Financial Market in general and Capital market operations in particular.
		CO2	To provide a clear-cut idea about the functioning of Indian Financial Market in general and Capital market operations in particular.
CO 1442	Banking Theory and Practice	CO1	To provide a basic idea about the theory and practice of banking
		CO2	To familiarise the students with the changing scenario of Indian Banking system

		CO3	To study the recent trends in banking
SEMESTER 5		
CO 1541	Fundamentals Of Income Tax	CO1	To impart the basic understanding of the concepts and practices of Income Tax Law in India
		CO2	To familiarize the students about the fundamental concepts of Income Tax
		CO3	To enable the students to acquire the skills required to compute Gross Total Income
CO 1542	Cost Accounting	CO1	To familiarise the student with cost concepts and fundementals of cost accounting
		CO2	To acquaint the students with the measures of cost control
		CO3	To make the students learn cost accounting as a separate system of accounting
SEMESTER 6		
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
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
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

Name of the Programme: Bcom Computer Application

Course Code	Course Title	Course Outcomes	
SEMESTER 1		
CO 1121	Methodology and Percpectives of Business Education	CO1	To provide the students an in depth knowledge of higher learning in business education
		CO2	To understand business and its role in society
		CO3	To understand entrepreneurship and its heuristics
CO 1141	Environmental Studies	CO1	To enable students to aquire basic ideas about environment.
		CO2	To impart knowledge about emerging issues about Industry and environmental problems
		CO3	To provide knowledge about emerging Social issues and environmental problems
CO 1142	Functional Application of Management	CO1	To familiarise students with various aspects of organisational management
		CO2	To acquaint students with the fundamental concepts of financial management
		CO3	To familiarise the students with the concepts of operations management

CO 1131	Managerial Economics	CO1	To provide the students an in depth knowledge in the context of managerial decision making
		CO2	To familiarise the students with the economic principles underlying various business decisions
		CO3	To familiarise the students with the economic theories underlying various business decisions
SEMESTER 2			
CO 1221	Informatics and Cyber Laws	CO1	To review the basic concepts and fundamental knowledge in the field of informatics.
		CO2	To create awareness about the nature of the emerging digital knowledge society
		CO3	To understand the impact of informatics on business decisions.
CO 1241	Business Communication and Office Management	CO1	To develop communication skills among students relevant to various business situations
		CO2	To impart knowledge on the management of modern offices
		CO3	To understand the principles and practices of record keeping and management
CO 1242	Financial Accounting	CO1	To impart knowledge and understanding of the principles and concepts of financial accounting
		CO2	To familiarize the students with Accounting Standards
		CO3	To develop the skill required for the preparation of financial statements
CO 1231	Business Regulatory framework	CO1	To provide brief idea about framework of Indian business laws
		CO2	To understand the provisions of Law of contract and Special Contracts
		CO3	To impart knowledge about the provisions of Sale of Goods Act 1930
SEMESTER 3			
CO 1341	Entrepreneurship Development	CO1	To understand the conceptual framework of entrepreneur
		CO2	To familiarise the students with the latest programs of the government authorities in promoting small and medium industries
		CO3	To equip the students to have a practical insight for becoming an entrepreuneur
CO 1342	Company Administration	CO1	To familiarise students with various aspects of Indian Companies ACT 2013
		CO2	To acquaint the students about Management and Administration of Companies
		CO3	To comprehend the students about Compliance requirements of a company
CO 1343	Advanced Financial Accounting	CO1	To create an awareness about various accounts of partnership branch joint venture etc
		CO2	To create awareness of accounts related to dissolution of partnership firms.
		CO3	To acquaint students with the system of accounting for different branches and departments
CO 1331	Information Technology in Business	CO1	To review basic concepts and knowledge in the field of IT
		CO2	To expose the students to the innovations in Information technology
		CO3	To familiarise the students to application of computer in the field of business.
CO 1361.5	Computer Application for Publications	CO1	To give functional knowledge in the field of free software.
		CO2	To develop practical skills in document preparation, publishing and business presentation
		CO3	To update skills in electronic data processing and computer application in business operations
SEMESTER 4			

		CO1	To provide an idea about functioning of capital market
CO 1441	Capital Market	CO2	To provide the students an indepth knowledge about Secondary market
		CO3	To familiarise the students with the concept of financial derivatives.
CO 1442	Banking Theory and Practice	CO1	To provide a basic idea about the theory and practice of banking
		CO2	To familiarise the students with the changing scenario of Indian Banking system
		CO3	To study the recent trends in banking
CO 1443	Corporate Accounting	CO1	To understand the students about the accounting practices prevailing in the corporate
		CO2	To create an awareness about various provisions of Companies Act 2013
		CO3	To enable the students to prepare and interpret Financial statements of Joint stock companies
CO 1431	Business Statistics	CO1	To provide the students an in depth knowledge of various statistical Techniques
		CO2	To enable the students to gain understanding of statistical techniques as are applicable to Business.
		CO3	To enable the students to apply statistical techniques for quantification of data in business
CO 1461.5	Software for Data Management	CO1	To familiarise students with the basics of software for datamanagement
		CO2	To develop theoretical and technical expertise in applying software for data management
		CO3	To develop practical skills in spreadsheet application

SEMESTER 5

		CO1	To impart the basic understanding of the concepts and practices of Income Tax Law in India
CO 1541	Fundamentals of Income Tax	CO2	To familiarize the students about the fundamental concepts of Income Tax
		CO3	To enable the students to acquire the skills required to compute Gross Total Income
CO 1542	Cost Accounting	CO1	To familiarise the student with cost concepts and fundementals of cost accounting
		CO2	To acquaint the students with the measures of cost control
		CO3	To make the students learn cost accounting as a separate system of accounting
CO 1543	Accounting for Specialised Institutions	CO1	To familiarise the students with accounting practices in various specialised institutions
		CO2	To develop the skill for the preparation of final accounts of specialised institutions
		CO3	To enable the students to acquire professional competence in accounting
CO 1551.2	Principles of Management	CO1	To familiarise the students with various management principles and equip them to apply in various business situations
		CO2	To develop the students the art of decision making
		CO3	To understand various control techniques and methods
CO 1561.5	Web designing and production for business	CO1	To familiarise the students with various types of websites
		CO2	To familiarise with the various methods of creating a website
		CO3	To acquaint students with mark up languages like html and xml

SEMESTER 6

		CO1	To familiarise students with the principles and procedure of auditing
CO 1641	Auditing	CO2	To understand the duties and responsibilities of auditors

Course Code	Course Title		Course Outcomes
		CO3	To familiarise the students with the audit of various types of companies
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
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 1661.6	Marketing Management	CO1	To familiarise students with the marketing function of management
		CO2	To understand the marketing mix components
		CO3	To acquaint students with the strategies pertaining to the marketing of various products
CO 1661.5	Computerised Accounting	CO1	To familiarise the students with the various modes of mechanised accounting
		CO2	To understand the students about the accounting software Tally
		CO3	To provide a practical knowledge in the preparation of final accounts using Tally
CO 1644	Project	CO1	To make the students understand the process of social science research

Name of the Programme: BSc. ZOOLOGY

Course Code	Course Title		Course Outcomes
SEMESTER 1			
ZO 1141	Animal Diversity I	CO1	To learn the basics of systematic and understand the hierarchy of different categories.
		CO2	To learn the diagnostic characters of different phyla through brief studies of examples.
SEMESTER 2			
ZO 1241	Animal Diversity II	CO1	To learn the general characteristics and classification of different classes of vertebrates.
		CO2	To understand the vertebrate evolutionary tree.
		CO3	To understand general aspects of applied interest.
SEMESTER 3			
ZO 1341	Methodology and Perspectives of Zoology	CO1	To learn the fundamental characteristics of science as a human enterprise
		CO2	To understand how science works
		CO3	To study to apply scientific methods independently
SEMESTER 4			
ZO 1441	Cell Biology	CO1	To study the ultra-structure of prokaryotic and eukaryotic cells
SEMESTER 5			
ZO 1541	Genetics and Biotechnology	CO1	To learn the mechanism of crossing over and inheritance patterns in man.
		CO2	To understand the principles and techniques involved in DNA technology and get an overview of modern techniques like PCR, Hybridoma technology, gene therapy and human cloning
ZO 1542	Immunology and	CO1	To enable the student to understand the principles and mechanisms of immunology
		CO2	To learn the malfunctioning and disorders of the immune system

Course Code	Course Title		Course Outcomes
	Microbiology	CO3	To get a broad understanding of microbes and their economic importance with special reference to pathogenic forms
ZO 1543	Physiology and Biological chemistry	CO1	To study the different systems and the inherent disorders/ deficiencies involved therein.
		CO2	To learn the structure and functions of bio-molecules and their role in metabolism
ZO 1551	Public Health and Hygiene	CO1	To learn the principles of nutrition and dietetics
		CO2	To understand the ill effects of modern lifestyle
		CO3	To study the advantages of being hygienic
SEMESTER 6			
ZO 1641	General Informatics, Bioinformatics and Molecular Biology	CO1	To review the basic concepts and functional knowledge in the field of informatics
		CO2	To create awareness about nature of the emerging digital knowledge society
		CO3	To create awareness about social issues and concerns in the use of digital technology
		CO3	To learn the nature, application and scope of Bioinformatics
ZO 1642	Developmental Biology and Experimental Embryology	CO1	To study the various stages involved in the developing embryo
		CO2	To study the initial developmental procedures involved in Amphioxus, Frog and chick
		CO3	To procure information on state- of- the art experimental procedures in embryology.
ZO 1643	Ecology, Ethology, Evolution and Zoogeography	CO1	To learn the principles, applications and management of environmental science.
		CO2	To study the inherent morphological and physiological bases of behavioral pattern exhibited by vertebrates.
		CO3	To get an exhaustive knowledge of organic evolution with special reference to man.
ZO 1644	Economic Zoology - Vermiculture and Apiculture	CO1	To learn the basic procedure and methodology of vermiculture
		CO2	To learn the scope and methodology of apiculture

Name of the Programme: BA POLITICAL SCIENCE

Course Code	Course Title		Course Outcomes
SEMESTER 1			
PS 1141	METHODOLOGY AND PERSPECTIVES OF SOCIAL SCIENCES	CO1	Identify the main concerns of social science disciplines
		CO2	Articulate the basic terminology and theories prevalent across disciplines
		CO3	Understand qualitative and quantitative models within the social sciences.
SEMESTER 2			
PS 1241	INTRODUCTION TO POLITICAL THEORY	CO1	To introduce the students Political theory and the basic concepts.
		CO2	To identify various approaches to the study of Political theory
		CO3	To impart knowledge about various theories and concepts of Political
SEMESTER 3			
PS 1321	CYBER POLITICS	CO1	To introduce the student to Information Communication Technology (ICT).
		CO2	To familiarize the importance of ICT in Governance and Development
		CO3	To make the student understand the importance of democratization of Cyber Space and its security issues

PS 1321	INDIAN CONSTITUTION	CO1	To create awareness about the political processes and the actual functioning of the political system.
		CO2	To study in detail the political structure – both constitutional and administrative.
		CO3	To study the rights and privileges granted by the constitution.
SEMESTER 4			
PS 1442	INTRODUCTION TO COMPARATIVE POLITICS	CO1	To impart skill to analyse in a comparative way political developments across world in the light of various theories.
		CO2	To familiarize the students basic features about the constitutions of major political systems.
SEMESTER 5			
PS 1542	ANCIENT AND MEDIEVAL POLITICAL THOUGHT	CO1	To familiarize the Ideas of ancient and medieval political thinkers.
		CO2	To build in the minds of students an overall outlook about political thought
		CO3	To study about the relevance of ancient and modern political thought in the modern world.
PS 1543	INTERNATIONAL RELATIONS	CO1	The course seeks to equip the students with the basic concepts, theories, ideologies and approaches to the study of International Relations.
		CO2	To familiarize the changing nature of power relations.
		CO3	To make an understanding about issues in global politics
PS 1544	RESEARCH METHODS IN POLITICAL SCIENCE	CO1	The course intend to familiarize the students with the research methods in Political Science
		CO2	To enable for the practical use of students in their Project/Dissertation in the Sixth Semester.
		CO3	To identify the different methods and techniques applicable to Political Science Research.
PS 1545	HUMAN RIGHTS IN INDIA	CO1	The course is intended to high light the concept of Human Rights, its evolution and importance in our society.
		CO2	To make an understand about various rights, including political, civil, social, economic and cultural rights
		CO3	To familiarize the Human rights condition in India including constitutional
SEMESTER 6			
PS 1641	MODERN POLITICAL THOUGHT	CO1	The course is intended to provide a detailed understanding about modern political thought.
		CO2	To equip the student to develop their own ideas about various political and social issues.
		CO3	To attempt a comparative study of eastern and western political
PS 1642	STATE AND SOCIETY IN KERALA	CO1	The course intended to provide a comprehensive analysis of the socio-political structure of Kerala
		CO2	To familiarize the students with the state and social struc
		CO3	To make a detailed analysis of the socio-political evolution of
PS 1643	DECENTRALISATION AND PARTICIPATORY DEMOCRACY	CO1	The course intends to provide a detailed understanding about democratic decentralization, participatory governance with emphasis on India
		CO2	To impart knowledge about tools of participatory democracy
		CO3	To inculcate skills for capacity building activities in local self-governing
		CO1	The course intended to offer a broad perspective on power and resistance in the era of neoliberal globalisation

Course Code	Course Title		Course Outcomes
PS 1644	NEW SOCIAL MOVEMENTS	CO2	To equip the students to understand the dynamics of social conflicts, activism and social change
		CO3	To familiarize contemporary social movements in the civil society with an emphasis on the movements by the marginalized sections in the era of neoliberal

Name of the Programme: BSc PHYSICS

Course Code	Course Title		Course Outcomes
SEMESTER 1			
PY 1141	BASIC MECHANICS & PROPERTIES OF MATTER	CO1	To understand the dynamics of Rigid bodies.
		CO2	Identify and describe oscillations of different kinds seen in physical systems.
		CO3	To acquire basic knowledge of elasticity, surface tension and fluid dynamics
SEMESTER 2			
PY 1241	HEAT AND THERMO DYNAMICS	CO1	To understand heat-transfer, Laws of thermodynamics and Entropy.
		CO2	To get preliminary understanding of Statistical Physics
SEMESTER 3			
PY 1341	ELECTRO DYNAMICS	CO1	To get detailed knowledge of Electrostatics, Magnetostatics and Electromagnetic induction.
		CO2	Thoughtful concept of Maxwell's equations and its application.
		CO3	To obtain detailed knowledge of transient currents, alternating current and circuit theory
SEMESTER 4			
PY 1441	CLASSICAL AND RELATIVISTIC MECHANICS	CO1	Develop understanding of dynamics of particles, motion under central force field and basic theory of collisions.
		CO2	Describe how the symmetries of space and time lead to conservation laws and to develop preliminary understanding of Lagrangian dynamics
SEMESTER 5			
PY 1541	QUANTUM MECHANICS	CO1	Understand the statistical interpretation of wave function and to develop knowledge of Schrodinger equation.
		CO2	To analyse and work on some exactly solvable problems in one dimension.
		CO3	To impart knowledge of the mathematical formalism of quantum mechanics
PY 1542	STATISTICAL MECHANICS RESEARCH METHODOLOGY AND DISASTER MANAGEMEN	CO1	To obtain an insight in the basics of Maxwell's, Fermi -Dirac and Bose -Einstein statistics
		CO2	To understand basics of research methodology in scientific research.
		CO3	To enable students to respond, act and mitigate natural disasters.
PY 1543	ELECTRONICS	CO1	To understand working, design and application of Diodes, Transistor circuits, Field Effect Transistors, Small and large signal amplifiers, Feedback circuits and Oscillators.
		CO2	To attain a basic knowledge level in preliminaries of modulation operational amplifiers and simple circuits using op-amps.
PY 1544	ATOMIC AND MOLECULAR PHYSICS	CO1	To understand Vector atom model, Atomic spectra, X-ray spectra, molecular spectra and resonance spectra
PY 1551.1	ENERGY PHYSICS	CO1	To understand the different forms of renewable and conventional energy
SEMESTER 6			

Course Code	Course Title		Course Outcomes
PY 1641	SOLID STATE PHYSICS	CO1	To study about Crystal structure and inter atomic forces X-ray, neutron and electron diffraction
		CO2	Free electron theory and Band theory Magnetic, Dielectric and Optical properties of materials, and basics of superconductivity
PY 1642	NUCLEAR AND PARTICLE PHYSICS	CO1	Tounder stand Nuclear structure and nuclear models, Radio-Activity, Nuclear forces Radiation detectors and particle accelerators Nuclear reactions, Nuclear fission and fusion
		CO2	Cosmic rays and elementary particles
PY 1643	CLASSICAL AND MODERN OPTICS	CO1	Detailed knowledge of Interference and Diffraction, Polarization and Dispersion. Preliminaries of Fiber optics and Lasers. Basics concepts of Holography
PY 1644	DIGITAL ELECTRONICS AND COMPUTER SCIENCE	CO1	To study and work on Number systems, Boolean algebra and logic gates and some arithmetic and sequential circuits.
		CO2	To understand basics of computers and memory systems.
		CO3	To learn and apply C programming and computer oriented numerical methods
PY1661.2	SPACE SCIENCE	CO1	To understand the Universe, Stars and earth's atmosphere
PY 1645	ADVANCED PHYSICS LAB2	CO1	Familiarization with some simple experiments in electricity and magnetism Analysis of experimental data with error calculations
PY 1646	ADVANCED PHYSICS LAB3	CO1	Experiments in Electronics. Solving some simple problems in physics using numerical methods by implementing them in C programming language

Name of the Programme: BA. ENGLISH & COMMUNICATIVE ENGLISH

Course Code	Course Title		Course Outcomes
SEMESTER 1			
CG 1141	READING POETRY	CO1	Identify the various forms and types of poetry
		CO2	Explain the diverse poetic devices and strategies employed by poets.
		CO3	Read, analyse and appreciate poetry critically.
CG 1121	WRITINGS ON CONTEMPORARY ISSUES	CO1	Have an overall understanding of some of the major issues in the contemporary world
		CO2	Respond empathetically to the issues of the society
		CO3	Read literary texts critically
CG 1171	BASICS OF COMMUNICATION	CO1	Identify the basic principles of communication
		CO2	Analyse the various types of communication
		CO3	Make use of the essential principles of communication
SEMESTER 2			
CG 1241	READING DRAMA	CO1	Identify the various forms and schools of drama
		CO2	Analyse and appreciate drama
		CO3	Write critically about and engage actively in producing / performing drama
CG 1271	PHONETICS	CO1	Develop a neutral accent and improve their general standard of pronunciation
		CO2	Speak globally intelligible English
CG 1231	HISTORY OF ENGLISH LITERATURE	CO1	Learn how people lived during various ages in Britain.
		CO2	what sort of social and political organisations evolved there
		CO3	what the beliefs and practices of the people were ie. how the culture of Britain evolved.
SEMESTER 3			
CG 1321	INFORMATICS	CO1	Update and expand their knowledge in the field of informatics
		CO2	Understand the nature of the emerging digital knowledge society
		CO3	Use digital knowledge resources effectively for their studies
CG 1331	HISTORY OF ENGLISH LITERATURE	CO1	Learn how people lived during various ages in Britain.
		CO2	what sort of social and political organisations evolved there

	LITERATURE	CO3	what the beliefs and practices of the people were ie. how the culture of Britain evolved.
CG 1341	READING FICTION	CO1	Identify different fictional forms
		CO2	Analyse and appreciate fictional writings
		CO3	Write imaginatively.
CG 1342	METHODOLOGY AND PERSPECTIVES OF HUMANITIES	CO1	Explain the key concepts in literary theory and criticism
		CO2	Make sense of literature
		CO3	Read literature critically from a theoretical perspective
CG 1371	COPY EDITING	CO1	Copy-edit non–technical materials of moderate difficulty
		CO2	Produce consistently well-organized written discourse
		CO3	Find employment in the editing field as copy-editors and sub-editors

SEMESTER 4

CG 1441	READING PROSE	CO1	Recognize various types of prose writings.
		CO2	Analyse, understand and appreciate prose writings
		CO3	Write creatively and critically in an expository or argumentative way
CG 1442	WORLD CLASSICS	CO1	Read and appreciate classical works.
		CO2	Evaluate classical texts critically.
		CO3	Place and assess their own culture and classics.
CG 1431	HISTORY OF ENGLISH LANGUAGE	CO1	Identify the various language families
		CO2	Trace the evolution of the English language
		CO3	List the changes in the different areas of the language
CG 1471	PRINT AND ONLINE WRITING	CO1	Get acquainted with print and online media and its characteristics
		CO2	Equip students with basic knowledge about news reporting and the challenges in online media
CG 1472	THEATRE STUDIES	CO1	To sensitize students that theatre is praxis
		CO2	To develop the listening and writing skill of students
		CO3	To help students appreciate theatre

SEMESTER 5

CG 1541	LITERARY CRITICISM	CO1	Trace the development of critical practices from ancient times to the present.
		CO2	Explain the critical concepts that emerged in different periods
		CO3	Analyze and appreciate texts critically, from different perspectives
CG 1542	FILM STUDIES	CO1	Discover the language of cinema; enable literature students to understand the language of cinema as also the ways in which that language is different from a literary language
		CO2	Explain the key concepts in film studies, specificities of medium, narrative and the history of cinema.
		CO3	Analyse films as texts.
CG 1543	INDIAN WRITING IN ENGLISH	CO1	Trace the development of Indian writing in English.
		CO2	Explain the Indianness in Indian literature in English.
		CO3	Read and appreciate Indian literature.
CG 1551	CREATIVE WRITING	CO1	To identify different poetic forms.
		CO2	To analyse and appreciate poems and short stories.
		CO3	To write book and film reviews
CG 1571	ENGLISH LANGUAGE TEACHING	CO1	Comprehend the concepts in language teaching.
		CO2	Understand the important psychological principles behind second language acquisition.
		CO3	Understand different approaches and methods of teaching English as second Language.
CG 1572	THE LANGUAGE OF ADVERTISING	CO1	Identify and analyse the various types of advertising.
		CO2	Make use of the essential principles of advertising in ordinary situations.
		CO3	Identify the impact of advertising in society.
CG 1573	AUDIO VISUAL WRITING	CO1	Identify and analyse the various types of television programmes.
		CO2	Identify the impact of television in society

SEMESTER 6

CG 1641	TRAVEL LITERATURE	CO1	Read and enjoy various types of travel literature.
		CO2	Analyse, understand and appreciate travel writings.
		CO3	Analyse inter-cultural crossings and perceptions in a self-reflexive and critical manner.
CG 1642	WOMEN'S WRITING	CO1	The students will have an awareness of class, race and gender as social constructs and about how they influence women's lives.
		CO2	The students will have acquired the skill to understand feminism as a social movement and a critical tool.

Course Code	Course Title		Course Outcomes
		CO3	They will be able to explore the plurality of female experiences
CG 1643	20th CENTURY MALAYALAM LITERATURE IN ENGLISH TRANSLATION	CO1	Discern the richness of twentieth century Malayalam writing
		CO2	Discern the distinctiveness of twentieth century Malayalam writing
		CO3	Discuss the salient features of the works of major twentieth century Malayalam writers
CG 1671	TECHNICAL ENGLISH	CO1	To introduce learners to Language Skills in all technical and industrial specialisations
		CO2	To develop non-verbal and verbal skills in Technical English
		CO3	To enable learners to meet their professional needs like effective inter-personal skills
CG 1645	BUSINESS COMMUNICATION IN ENGLISH	CO1	To introduce learners to Language Skills in Business English
		CO2	To develop non-verbal and verbal Business communication skills
		CO3	To equip learners with high professional expertise in Business communication

POST-GRADUATE PROGRAMMES

Name of the Programme: MSc Mathematics

Course Code	Course Title		Course Outcomes
SEMESTER 1			
MM 211	LINEAR ALGEBRA	CO1	Acquire knowledge about vector spaces , subspace, bases and dimensions.
		CO2	Understand linear maps, their algerbras, matrix of linear maps
		CO3	Find the Eigen values and Eigen vectors of linear transformations.
MM 212	REAL ANALYSIS 1	CO1	Learn about the functions of bounded variation and rectifiable curve.
		CO2	Understand the concept of Riemann- Stieltjes integral
		CO3	Understand the concept of uniform convergence of sequence of functions
MM 213	DIFFERENTIAL EQUATION	CO1	Acquire the knowledge of the existance of series solutions of differertial equations.
		CO2	Acquire the knowledge of specual functions like Legendre polynomial , Bessel's function, Gamma function and their properties.
		CO3	Acquire the knowledge of finding the solution of first order partial differential equations by different methods.
MM 214	TOPOLOGY-1	CO1	Demonstrate knowledge and understand of metric spaces.
		CO2	Undertstand terms definitions and theorems related to Topology.
		CO3	Demonstrate knowledge and understanding of concepts such as open and closed sets, interior, closure and boundary.
SEMESTER 2			
MM 221	ABSTRACT ALGEBRA	CO1	Acquire knowledge about important Mathematical concepts in Abstract Algebra such as groups , rings , integral domains and fields
		CO2	Learn applications of Algebra on irreducible polynomials.
		CO3	Apply Sylow Theorem in the study of simple groups.
MM 222	REAL ANALYSIS II	CO1	Acquire basic concepts from Measure Theory including sigma algebra, outer measure, measurable sets, measurable functions, the Lebesgue integral etc.
		CO2	Get an overview of the central results of the theory of Lebesgue integration.
		CO3	Be familiar with the concepts of convex functions in the space LP and inequalities including Jensen's inequality , Holder's inequality,Minkowski's inequality.
MM 223	TOPOLOGY II	CO1	Create new topoligical spaces by using product and quotient topologies.
		CO2	Understand separation properties and study various theorems related to them.
		CO3	Conceive the concept of nets and filters and understand nets as generalised sequence.

MM 224	SCIENTIFIC PROGRAMMING WITH PYTHON	CO1	Acquire the knowledge of defining functions and imposing functions from modules in Python.
		CO2	Acquire the knowledge of creating graphs in Phython.
		CO3	Acquire the knowledge of solving calculus problems using functions in Phython.

SEMESTER 3			
MM 231	COMPLEX ANALYSIS I	CO1	Power series of complex functions.
		CO2	Complex integration to understand analytic functions in a better way.
		CO3	Properties of Mobius transformations briefly and complex numbers as points on a sphere.
MM 232	FUNCTIONAL ANALYSIS I	CO1	Understand the basic idea on normed space through examples and study various properties and characterisation of normed space. Also understand the idea of continuity of linear maps between normed spaces.
		CO2	Understand two fundamentals results in functional analysis - Hahn-Banach Theorem and Hahn- Banach Separation Theorem and its consequences.
		CO3	Understand the idea of Banach Space (complete normed space.) through examples and its various properties.
MM 233	OPERATIONS RESEARCH	CO1	Study scientific approach to problem solving.
		CO2	Use quantitative methods and techniques for effective decision making.
		CO3	Understand the formulation of Mathematical models for decision and controls problems to deal with the situations arising out of risk and uncertainity.
MM 234	GRAPH THEORY	CO1	Understand the relation between graphs and groups.
		CO2	Provide the idea of cut vertex, blocks, connectivity, Euler graph and Hamiltonian graph and learn to identify them.
		CO3	Conceive the concept of strong digraph , tournament, matching , factorisation and their properties.

SEMESTER 4			
MM 241	COMPLEX ANALYSIS II	CO1	Demonstration of compactness and convergence in the space of analytic functions and Riemann Mapping Theorem.
		CO2	Clear understanding of Weirstass factorisation Theorem, Gamma function, Riemann Zeta function, Runge's Theorem, simple connectedness and MittagLeffler's Theorem.
		CO3	Study the notion of analytic continuation; begins with Schwarz Reflection Principle and ends in Monodromy Theorem.
MM 242	FUNCTIONAL ANALYSIS II	CO1	The idea of compact operators and the spectral theorem for compact operators.
		CO2	The notion of inner product space and learns its various properties.
		CO3	The orthogonality of two vectors in an inner product space and its various properties.
MM 243	FIELD THEORY [ELECTIVE]	CO1	Explain the concept of solvable group and acquire knowledge of properties of solvable groups
		CO2	Introduce the concept of irreducible polynomial and demonstrate the creation of field containing the roots of irreducible polynomial
		CO3	coneieve the idea of splitting field of a polynomial and understand its relationship with dimension of vector space
MM 244	ANALYTIC NUMBER THEORY (ELECTIVE)	CO1	Review some basic cocepts and results of number theory such as divisibility , greatest common divisor , prime numbers euclids algorithm etc
		CO2	Study arithmetical functions and its applications
		CO3	Learn the application of the congruence, qudratic residues and primitive roots for solving numerical problems

Name of the Programme: MSc. CHEMISTRY			
Course Code	**Course Title**		**Course Outcomes**
SEMESTER 1			
CH 211	Inorganic Chemistry I	CO1	The students get a clear idea about Co-ordination compounds, noble gase, isoploy/heteropoly acids, and interhalogens.
		CO2	The students could be able to familiarize the various analytical testing procedures.

Course Code	Course Title		Course Outcomes
		CO3	The studies on environmental aspects of chemistry enable them to face the burning environmental issues by adopting suitable ecofriendly measures.
CH 212	Organic Chemistry I	CO1	Make them aware about various reaction mechanisms, reagents and steriochemistry of organic compounds.
CH213	Physical Chemistry I	CO2	Give the students an authoritative idea on quantum mechanics, Kinetics, Thermodynamics, Photochemistry and Surface Chemistry
SEMESTER 2			
CH 221	Inorganic Chemistry II	CO1	Students get better knowledge on crysatalline compounds, Co-ordination compounds and compounds of elements such as sulphur, nitrogen, phosphorous and boron.
CH 222		CO2	Give idea about physical organic chemistry, organic photochemistry, chemistry of natural products and biomolecules.
CH 223	Physical Chemistry II	CO1	Give advanced level of knowledge on Quantum mechanics & thermodynamics.
		CO2	It also gives an elaborate idea on spectroscopy and electrochemistry.
CH 214	Inorganic Chemistry practicals I	CO1	Give practical skill on colorimetric, and complexometric estimations.
		CO2	Also equip them to identify the rare earth elements.
CH 215	Organic Practicals I	CO1	Give opportunity to separate, identify and synthesize various organic compounds.
CH 216	Physical Chemistry Practicals I	CO1	Enable the students to carry out physical chemistry experiments and thereby to verify the exactness of different theorems and laws in Chemistry
SEMESTER 3			
CH 231	Inorganic Chemistry II	CO1	Give knowledge in organometallic compounds, bioinorganic compounds, Co-ordination compounds, nuclear chemistry and spectroscopic aspects of inorganic compounds,
CH 232	Organic Chemistry III	CO1	Give an elaborate idea on methods in organic synthesis, separation techniques and structure elucidation of compounds using spectroscopic studies.
CH 233	Physical Chemistry III	CO1	Give advanced level of knowledge in quantum mechanics, statistical mechanics, spectroscopic techniques and electrochemistry.
SEMESTER 4			
CH 241	Chemistry of Advanced Materials	CO1	Give advanced knowledge on nanomaterials, smart materials and specialty polymers.
CH 242	Organic Chemistry IV	CO1	Give knowledge on medicinal chemistry, supramolecular chemistry, Green chemistry, and polymerchemistry.
CH 234	Inorganic Chemistry Practicals II	CO1	The student get practical skill on estimation of simple mixture of ions, analysis of alloys and ores.
		CO2	It also enable the students to carryout spectral interpretation of various inorganic compounds
CH 235	Organic Practicals II	CO1	Could be able to conduct volumetric and colorimetric estimations and spectral identification of various organic compounds.
CH 236	Physical practica	CO1	Enables the students to conduct potentiometric and conductometric titrations and give insight into the experiments based on the study of surface tension, viscosity, refractive index parameters.

Name of the Programme: M.COM			
Course Code	**Course Title**		**Course Outcomes**
SEMESTER 1			
CO2 11	Business Ethics and Corporate Governance	CO1	To convey basic understandings on the theories of Business Ethics
		CO2	To provide a understanding on Corporate Governance practices and the provisions of the Companies Act relating to corporate governance
		CO1	To enable student acquire updated knowledge and develop understanding of the regulatory framework for business

CO2 12	Legal Framework for Business	CO2	To make students aware of opportunities available in various legal compliances so as to enable them employable.
		CO3	To expose students in emerging trends in good governance practices including governance.
CO2 13	Research Methodology	CO1	To provide an insight into the fundamentals of social science research.
		CO2	To understand the need, significance and relevance of research and research design.
		CO3	To acquire practical knowledge and required skills in carrying out research.
CO2 14	Planning and Development Administration	CO1	To generate an overall insight on planning process in Indian Economy
		CO2	To make the students aware about new planning initiatives in India
CO2 15	Advanced Corporate Accounting and Reporting	CO1	To acquaint the students about important accounting standards
		CO2	To gain ability to prepare financial statements including consolidated financial statements of group companies and financial reports of various types of entities by applying relevant accounting standards.
		CO3	To expose the students to advanced accounting issues and practices such as insurance claims, investment accounting and liquidation of companies

SEMESTER 2

CO2 21	E -Business and Cyber laws	CO1	To equip the students with the emerging trends in business
		CO2	To equip the students to introduce and explore the use of information technology in all aspects of business
		CO3	To familiarise with the students cyber world and cyber regulations
CO2 22	Strategic Management	CO1	To create a conceptual awareness on various strategies
		CO2	To familiarise students with the formulation, implementation and evaluation of strategies
CO2 23	Quantitative Techniques	CO1	To familiarise the students with the various techniques used in data analysis
		CO2	To create an awareness about statistical quality control
		CO3	To understand the use of SPSS software in processing and analysis of data
CO2 24	International Business	CO1	To understand the students regarding the origin and development of international Trade
		CO2	To understand the students with the various theories of International Trade
		CO3	To familiarise the students with the capital flow between countries
CO2 25	Investment Management	CO1	To provide a general understanding about investment avenues and personal finance.
		CO2	To give a broader understanding about behavioural finance and how it equip to decide personal investment

SEMESTER 3

CO2 31U	Income tax Planning and Management	CO1	To provide the students an in depth knowledge of the provisions relating to computation of income tax
		CO2	To gain knowledge on fundamental priciples and practices on Income Tax Laws
		CO3	To familiarise with tax planning principles
CO2 32F	Security Analysis and Portfolio Management	CO1	To help the students to understand various issues in Security Analysis and Portfolio Management
		CO2	To equip the students to value the real worth of securities
		CO3	To provide a comprehensive understanding on the principles of Security analysis
CO2 33F	International Financial Management	CO1	To familiarise the students with the international financial markets and instruments
		CO2	To convey an understanding about foreign exchange risk management

CO2 34F	Strategic Cost and Management Accounting	CO1	To comprehend and familiarize the established techniques, methods and practices in Strategic Cost and Management Accounting to the students
		CO2	To introduce the evolving Strategic approaches and techniques in Cost and Management field and to developed industrial behaviour among the students in the emerging business areas.

	SEMESTER 4		
CO2 41W	GST and Customs Duty	CO1	To gain expert knowledge of the principles and laws relating to indirect taxes
		CO2	To impart skill in applying and analysing the provisions of Goods and Service Tax Act and Customs Act in handling practical situations
CO2 42F	Risk Management and Derivatives	CO1	To understand the risk management process and its application
		CO2	To give a broader awareness on derivatives and its applications
CO2 43F	Accounting Standards	CO1	To acquaint the students to understand the structure, process and organizational set up involved in evolving accounting standards in India
		CO2	To enable the students to apply some key standards while preparing and presenting the financial statements Course
CO2 44S	Management Optimization Techniques	CO1	To convey basic principles and application of optimization tools of resource utilization.
		CO2	To provide an insight into optimal project implementation Techniques under deterministic and probabilistic conditions
CO2 25	Project Report	CO1	To make the students understand the process of social science research

Name of the Programme: MSc Physics

Course Code	Course Title		Course Outcomes
	SEMESTER 1		
PH 211	CLASSICAL MECHANICS	CO1	Learn Lagrangian mechanics, analyse two-body central force problem, small oscillations and rigid body dynamics.
		CO2	Learn Hamiltonian mechanics and Hamilton-Jacobi method Learn Special and General theories of Relativity.
		CO3	Acquire preliminary knowledge of nonlinear dynamics and chaos
PH 212	MATHEMATICAL PHYSICS	CO1	Develop detailed knowledge of Linear algebra, Complex analysis, Fourier Series and Tensor analysis.
		CO2	Learn Probability theory, Group Theory and Special Functions. Develop in-depth knowledge of Differential equations and solution methods.
PH 213	BASIC ELECTRON	CO1	Know common electronic circuits using Diodes, BJTs, FETs, OPAMPs and 555 timer ICs.
		CO2	Familiarization with solid- state devices. Preliminaries of Digital Electronics , Optoelectronics and instrumentations.
	SEMESTER 2		
PH 221	MODERN OPTICS AND ELECTROMAGNETIC THEORY	CO1	Understand and comprehend common topics in modern optics and preliminaries of nonlinear optics, Electromagnetic waves and Relativistic electrodynamics, Radio wave propagation, Transmission lines, waveguides and antennas.
PH 222	THERMODYNAMICS, STATISTICAL PHYSICS AND BASIC QUANTUM	CO1	Assimilate and comprehend Thermodynamic relations and Classical and Quantum statistics and understand Phase transitions.
		CO2	Learn Foundations of quantum mechanics, the paradoxes and some exactly solvable problems in quantum mechanics.
PH 223	COMPUTER SCIENCE AND NUMERICAL TECHNIQUES	CO1	Learn basic computer architecture and microprocessors. To attain working knowledge on Python and C++ programming languages.
		CO2	To implement numerical methods in problem solving in physics
PH 251	GENERAL PHYSICS PRACTICALS	CO1	Learn experimental techniques in general physics
		CO2	Learn analysis of data and error estimation

PH 252	ELECTRONICS AND COMPUTER	CO1	Learn construction of analog electronic circuits and c ++programming
SEMESTER 3			
PH231	ADVANCED QUANTUM MECHANICS	CO1	Learn approximation methods in quantum mechanics, the connection between symmetry and conserved quantities, the angular momentum, and the properties of systems of identical particles.
		CO2	To understand the theory of quantum scattering and learn topics in relativistic quantum mechanics and preliminaries of quantum field theory
PH 232	ATOMIC & MOLECULAR SPECTROSCOPY	CO1	Learn and apply general tools of spectroscopy.
		CO2	To enhance understanding of Molecular, rotational, IR, Electronic, Raman, ESR , NMR, Mossbauer, Photo electron and Photo acoustic spectroscopy
PH 233E	ADVANCED ELECTRONICS -I	CO1	To summarize various techniques of digital and analog communication systems.
		CO2	Illustrate various techniques for digital signal processing based Fourier and Z transform
SEMESTER 4			
PH 241	CONDENSED MATTER PHYSICS	CO1	Learn crystal structure, lattice vibrations and free electron and band theories. Learn semiconductors, Dielectric and Magnetic properties of matter and superconductivity.
PH242	NUCLEAR AND PARTICLE PHYSICS	CO1	Learn Nuclear forces, nuclear models and nuclear reactions
		CO2	To understand details of Nuclear fission and fusion, Nuclear detectors, particle accelerator and Elementary particle physics
PH243E	ADVANCED ELECTRONICS - II	CO1	Outline the basic concepts of embedded systems, artificial intelligence and neural networks.
		CO2	Illustrate fundamental data communications codes, radar and satellite communication systems.
PH 261	ADVANCED PHYSICS	CO1	Learn advanced experimental techniques in general physics
PH 262	ADVANCED ELECTRONICS PRACTICALS	CO1	Learn construction an implementation of analog and digital circuits along with microprocessors.