St Thomas College
Kozhencherry

Programme Outcomes
Programme Specific Outcomes
Course Outcomes
2020-2021

UNDERGRADUATE PROGRAMME OUTCOMES

PO1. Domain Knowledge: Capability of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.

PO2. Critical Thinking: Capability to analyse evidence, arguments, claims, beliefs on the basis of empirical evidence.

PO3. Problem Solving: Capacity to apply effective, creative and innovative methods to find solutions both independently and cooperatively to real life situations.

PO4. Effective Communication: Communicate effectively with others using appropriate media.

PO5. Digital Literacy: Capability to use ICT in a variety of learning situations.

PO6. Moral and Ethical Values: Ability to embrace moral/ethical values in conducting one's life.

PO7. Teamwork: Ability to work effectively and respectfully with others for a common cause and work efficiently as a member of a team.

PO8. Life-long Learning: Ability to acquire knowledge and skills that are necessary for participating in learning activities throughout life.

PO9. Human Values: Practice of respect for the dignity of each individual and for human diversity.

PO10. Environment and Sustainability: Understand the significance of environmental issues and be proactive towards sustainable development.

COURSE OUTCOMES - COMMON COURSES

ENGLISH

SEMESTER 1

EN1CCT01 FINE-TUNE YOUR ENGLISH (BA/BSc/BCom Model 1&2)

CO1. Use English confidently in both spoken and written forms.

CO2. Use English for formal communication effectively.

EN1CCT02 PEARLS FROM THE DEEP (BA/BSc)

CO1. Appreciate and enjoy works of literature.

CO2. Appreciate the aesthetic and structural elements of literature.

SEMESTER 2

EN2CCT03 ISSUES THAT MATTER (BA/BSc/BCom Model 1&2)

CO1. Identify major issues of contemporary significance.

CO2. Respond rationally and positively to the issues raised.

CO3. Internalise the values imparted through the excerpts.

CO4. Re-orient himself/ herself as conscious, cautious, concerned, conscientious and concerned human being.

CO5. Articulate these values in error free English.

EN2CCT04 SAVOURING THE CLASSICS (BA/BSc)

CO1. Become familiar with the classics from various lands.

CO2. Understand the features that go into the making of a classic.

SEMESTER 3

EN3CCT05 LITERATURE AND/AS IDENTITY (BA/BSc/BCom Model 2)

CO1. Become aware of the subtle negotiations of Indigenous and Diasporic identities within literature.

CO2. Become aware of the fissures, the tensions and the interstices present in South Asian regional identities.

CO3. Become aware of the emergence of Life Writing and alternate/alternative/marginal identities.

EN3CCT07 GEMS OF IMAGINATON (BCom Model 1)

CO1. Appreciate and enjoy works of literature.

CO2. Appreciate the aesthetic and structural elements of literature.

SEMESTER 4

EN4CCT06 ILLUMINATIONS (BA/BSc/BCom Model 2)

CO1. Maintain a positive attitude to life.

CO2. Evaluate and overcome setbacks based on the insights that these texts provide.

EN4CCT08 REVISITING THE CLASSICS (BCom Model I)

CO1. Sensitise to the aesthetic, cultural and social aspects of literature.

CO2. Develop an appreciation of the subtle nuances of literary expression.

CO3. Revalue literature as cultural and communicative events.

CO4. Use language as a means of subjective expression.

MALAYALAM

SEMESTER 1

ML1CCT01 KATHA SAHITHYAM (BA/BSc)

CO1. Read, understand, appreciate, and critically analyse short stories.

CO2. Identify the evolutionary changes in the literary sentimentalism in Malayalam short stories.

CO3. Identify and analyse how the common trends and views of the people reflect in contemporary Malayalam stories.

CO4. Write stories and depict the current world, its views and values.

ML1CCT05 KATHAYUM KAVITHAYUM (Model 1 BCom)

CO1. Read, understand, appreciate, and critically analyse short stories.

CO2. Identify the evolutionary changes in the literary sentimentalism in Malayalam short stories.

CO3. Identify and analyse how the common trends and views of the people reflect in contemporary writings, especially in Malayalam story writings.

ML1CCT11 KATHA, KAVITHA, NADAKAM (Model 2 BCom)

CO1. Read, understand, appreciate and critically analyse short stories, poems and dramas.

CO2. Identify the evolutionary changes in the literary sentimentalism in Malayalam writings.

CO3. Identify and analyse how the common trends and views of the people reflect in contemporary writings, especially in Malayalam story writings.

SEMESTER 2

ML2CCT02 KAVITHA (BA/BSc)

CO1. Read and appreciate poems.

CO2. Identify the evolutionary changes in the literary sentimentalism in Malayalam poetry.

CO3. Identify and analyse how the common trends and views of the people reflect in contemporary. Malayalam poetry.

ML2CCT06 ATHMAKATHA, LEKHANAM (Model 1 BCom)

CO1. Read and understand the strength and beauty of Malayalam.

CO2. Closely understand the celebrated writers in Malayalam and the views and values presented by them through their writings and autobiographies.

CO3. Get acquainted with the current social issues in the mother tongue.

ML2CCT 12 GADYAM, YAATHRA VIVARANAM (Model 2 BCom)

CO1. Understand the art of writing with special emphasis on prose and travelogues.

SEMESTER 3

ML3CCT03 DRISHYAKALA SAHITHYAM (BA/BSc)

CO1. Know about the fabulous tradition of theatre arts in Kerala.

CO2. Understand the classical and cultural aspects of Sanskrit dramas, Aattakkatha, Thullal, Malayalam drama and Malayalam cinema.

SEMESTER 4

ML4CCT04 MALAYALA GADYA RACHANAKAL (BA/BSc)

CO1. Read and critically understand the strength and scope of Malayalam prose in presenting contemporary issues.

CO2. Understand the celebrated writers in Malayalam and the views and values presented by them.

CO3. Picturise the world around the authors by analysing their writings and understand the social ethos that formulated the writers in them.

HINDI

SEMESTER 1

HN1CCT01 PROSE AND ONE ACT PLAYS (BA/BSc)

CO1. Get general information about Hindi literature through prose and one act plays.

HN1CCT01 PROSE AND MASS MEDIA (BCom Model 1)

CO1. Become familiar with Hindi literature through prose.

HN1CCT01 PROSE, COMMERCIAL CORRESPONDENCE AND TRANSLATION (BCom Model 2)

CO1. Write official letters, translate and to become familiar with Hindi prose.

SEMESTER 2

HN2CCT02 SHORT STORIES AND NOVEL (BA/BSc)

CO1. Activate the consciousness and enable to search new horizons of life in one's own way.

HN2CCT02 POETRY, COMMERCIAL CORRESPONDENCE AND TRANSLATION (BCom Model 1)

CO1.Write official letters, translate and become familiar with Hindi prose.

HN2CCT02 POETRY AND MASS MEDIA (BCom Model 2)

CO1. Know more about the notable poets and their poems.

SEMESTER 3

HN3CCT03 POETRY, GRAMMAR AND TRANSLATION (BA/BSc)

CO1. Learn Hindi for effective communication in different fields like administration, media and business.

CO2. Analyse the problems and challenges of effective communication in Hindi.

SEMESTER 4

HN4CCT04 DRAMA AND LONG POEM (BA/BSc)

CO1. Awaken the aesthetic vision.

CO2. Enhance the feeling of humanity among the students.

CORE AND COMPLEMENTARY CORSES

DEPARTMENT: ENGLISH

PROGRAMME: BA ENGLISH

PROGRAMME SPPECIFIC OUTCOMES

PSO1. Inculcate interest in various literatures.

PSO2. Gain proficiency in English.

PSO3. Understand the link between language, history and culture.

PSO4. Prepare for careers in secondary and higher education, content development, creative visualisations, publishing and translations.

PSO5. Introduce to different genres in literature.

PSO6. Become aware of social, political and cultural aspects of literature.

PSO7. Understand the different movements in literature.

SEMESTER 1

CORE COURSE

EN1CRT01 METHODOLOGY OF LITERARY STUDIES

CO1. Discern the emergence of literature as a specific discipline within the humanities.

CO2. Discern the tenets of what is now known as traditional approaches and also that of formalism.

CO3. Discern the shift towards contextual-political critiques of literary studies.

CO4. Discern the questions raised by Cultural Studies and Feminism(s).

CO5. Discern the issues of subalternity and regionality in the literary domain.

COMPLEMENTARY COURSE

PS3CMT01 AN INTRODUCTION TO POLITICAL SCIENCE (POLITICAL SCIENCE)

CO1. Understand historical-analytical framework of the discipline of Political Science.

CO2. Understand the constitutional design and institutional framework of government.

CO3. Understand the ideas of democracy and freedom and corresponding social relations and political and institutional practices.

CO5. Develop the ability to comprehend contemporary politics as a relationship between institutional structures and historically constituted political processes.

SEMESTER 2

CORE COURSE

EN2CRT02 INTRODUCING LANGUAGE AND LITERATURE

CO1. Discern the evolution and the differential traits of the English language till the present time.

CO2. Discern the evolution of literature from antiquity to postmodern times.

CO3. Discern the diversity of genres and techniques of representation and narration.

CO4. Discern the links between literature and film as narrative expressions.

CO5. Discern the emergence of British and American Literature through diverse periods.

COMPLEMENTARY COURSE

PS4CMT04 RIGHTS AND HUMAN RIGHTS IN INDIA (POLITICAL SCIENCE)

CO1. Acquire comprehensive knowledge of the concept of Human Rights.

CO2. Understand the origin, evolution of rights and various steps taken by the national and international agencies for the protection and promotion of Human Rights.

SEMESTER 3

CORE COURSES

EN3CRT03 HARMONY OF PROSE

CO1. Become familiar with varied prose styles of expression.

CO2. Be aware of eloquent expressions, brevity and aptness of voicing ideas in stylish language.

EN3CRT04 SYMPHONY OF VERSE

CO1. Understand the representation of poetry in various periods of the English tradition.

CO2. Have awareness of the emerging cultural and aesthetic expressions that poetry makes possible.

COMPLEMENTARY COURSE

EN3CMTO3 EVOLUTION OF LITERARY MOVEMENTS: THE SHAPERS OF DESTINY (BRITISH HISTORY)

CO1. Understand the evolution of literature.

CO2. Perceive the interplay of social processes and literature.

CO3. Understand literature against the backdrop of history.

CO4. Contribute dynamically to historical and literary processes.

SEMESTER 4

CORE COURSES

EN4CRT05 MODES OF FICTION

CO1. Comprehend the categories of British and non-British short fiction.

CO2. Comprehend the novel as a form of literary expression.

EN4CRT06 LANGUAGE AND LINGUISTICS

CO1. Understand the various organs and processes involved in the production of speech, the types and typology of speech sounds, segmental and suprasegmental features of the English language.

COMPLEMENTARY COURSE

EN4CMTO4 EVOLUTION OF LITERARY MOVEMENTS: THE CROSS CURRENTS OF CHANGE (BRITISH HISTORY)

CO1. Understand the evolution of literature.

CO2. Perceive the interplay of social processes and literature.

CO3. Understand literature against the backdrop of history.

CO4. Contribute dynamically to historical and literary processes.

SEMESTER 5

CORE COURSES

EN5CRT07 ACTS ON THE STAGE

CO1. Become familiar with the works of the play wrights included in the course.

CO2. Understand the broad genre-based nuances in the realm of drama.

CO3. Appreciate and critique drama as an art form.

EN5CRT08 LITERARY CRITICISM AND THEORY

CO1. Have awareness about the major developments in literary criticism from the ancient times to the twentieth century.

CO2. Know the realm of literary theory and major theoretical schools.

CO3. Have awareness about the chief strains of Indian literary criticism.

CO4. Analyse short poetical pieces critically.

EN5CRT09 INDIAN WRITING IN ENGLISH

CO1. Become aware of the subtle flavours that distinguish the Indian quotient in English writings from India.

CO2. Become aware of the different concerns that Indian English writers share, cutting across sub-nationalities and regionalities.

CO3. Understand the locus standi of diasporic Indian writers.

EN5CRENT01 ENVIRONMENTAL SCIENCE AND HUMAN RIGHTS

CO1. Foster a new generation of informed consumers, workers, as well as policy or decision makers.

CO2. Develop positive attitudes and values.

CO3. Develop the sense of awareness among the students about the environment and its various problems.

OPEN COURSE

EN5CROP03 ENGLISH FOR CAREERS

CO1. Develop communicative skills, which will enable students to prepare for a career and function effectively in it.

CO2. Equip themselves in oral and written communication to enhance their academic and professional use of language.

CO3. Make effective presentations.

SEMESTER 6

CORE COURSES

EN6CRT10 POSTCOLONIAL LITERATURES

CO1. Be aware of the social, political, cultural aspects of postcolonial societies.

CO2. Realise the impact of colonialism and imperialism on native cultural identities.

CO3. Get an insight into the links between language, history and culture.

EN6CRT11 WOMEN WRITING

CO1. Respond critically to literature from a feminist perspective.

CO2. Realise how the patriarchal notions pervade in the social and cultural scenario and how feminism exposes these notions.

CO3. Identify how stereotypical representations of women were constructed and how these are subverted by feminist writing.

EN6CRT12 AMERICAN LITERATURE

CO1. Understand the evolution of various literary movements in American literature.

CO2. Acquaint with the major authors in American Literary History.

EN6CRT13 MODERN WORLD LITERATURE

CO1. Discern that literatures the world over engage in very deep way with the vicissitudes of life.

CO2. Discern that World literatures often defy genres /regionalities and canonical assumptions to emerge as a platform where poetics and politics fuse.

CO3. Discern that the notion of Major and Minor, Central and Peripheral literatures is a myth.

CO4. Get an insight into the links between language, history and culture.

EN6CBT02 MODERN MALAYALAM LITERATURE IN TRANSLATION ((ELECTIVE COURSE)

CO1. Attain an understanding of a selection of much discussed writers/literary pieces in Malayalam.

CO2. Identify the different genres in Malayalam.

CO3. Identify the modern trends in Malayalam literature.

DEPARTMENT: MALAYALAM AND SANSKRIT

PROGRAMME: BA MALAYALAM

PROGRAMME SPECIFIC OUTCOMES

PSO1. Analyse the social and aesthetic aspects of Malayalam language and literature.

PSO2. Achieve proficiency in language.

PSO3. Lay foundation for language research.

PSO4. Develop creative writing skills.

PSO5. Develop competence for different careers, home and abroad, especially with regard to Malayalam language, literature and journalism.

COURSE OUTCOMES

SEMESTER 1

CORE COURSE

ML1CRT01 NAVEENA KAVITHA

CO1. Develop a deep understanding of the transition processes in Malayalam poetry from old to new.

CO2. Understand the changes occurred in the poetic languages used in Malayalam poems of different times and in the selection of themes.

CO3. Assimilate knowledge about how the concepts of Environmental, Dalit, Feminist and Minority

thoughts had opened the doors of Malayalam poetry to a world of composite and multifarious literary arena.

CO4. Understand how Malayalam poetry has assimilated into it the old and new poetic trends.

CO5. Analyse and re-read poems by applying principles of literary criticism in poetry.

COMPLEMENTARY COURSES

ML1CMT01 MALAYALA PADANATTHINTE REETHISHASTHRAM

CO1. Understand the methodology of Malayalam language study and Malayalam literary study.

CO2. Discuss the various theories relating the methodology of language study in the vernacular language itself.

CO3. Prepare short thesis in the light of the studies made herein.

ML1CMT02 NADAKAVUM CINEMAYUM

CO1. Anaylse the cultural and literary aspects of theatre arts of cinema and drama.

CO2. Make a comparative study of theatre language and cinemalogue.

SEMESTER 2

CORE COURSE

ML2CRT02 MALAYALAKAVITHA-EZHUTHACHAN MUTHAL KAVITHRAYAM VARE

CO1. Learn the growth of Malayalam poetic literature from the medieval ages to that of the poetic trios.

CO2. Learn the transition of Malayalam poetry from ages to ages.

COMPLEMENTARY COURSES

ML2CMT03 ADHUNIKALOKA KAVITHA

CO1. Understand the theoretical aspects, usages, cultural ethos and literary beauty of poems of different parts of the world.

CO2. Understand the influence of colonial literature over the indigenous poetic literature and how it shaped the destiny of vernacular writings.

CO3. Make comparative study of our literary /poetic works with that of other cultural segments.

CO4. Understand the western, colonial movements in literature and its adaptation to Malayalam poetry.

ML2CMT04 FOLKLORE VIJNANAM (FOLKLORISTICS)

CO1. Understand local history and culture of each land.

CO2. Appreciate the historical and cultural traditions hidden in the folklore forms of each place while appreciating their literary beauty.

SEMESTER 3

CORE COURSE

ML3CRT03 KERALA SAMSKARAM-POORVA GHATTAM

CO1. Understand the formation and evolution of Kerala community as an independent cultural unit, influenced by several historical elements.

COMPLEMENTARY COURSES

ML3CMT05 ORU EZHUTHUKARAN /EZHUTHUKARI- MADHAVIKKUTTY

CO1. Study an author through his/her works.

SC3CMT01 POETRY, RHETORICS AND BASICS OF GRAMMAR (SANSKRIT)

CO1. Become familiar with the basics of Sanskrit grammar.

CO2. Get introduced to ancient literature and dictionaries.

SEMESTER 4

CORE COURSE

ML4CRT04 KERALASAMSKARAM -UTHARA GHATTAM

CO1. Study of the historical and cultural development of Kerala.

COMPLEMENTARY COURSES

ML4CMT06 ADHUNIKA MALAYALA BHASHA

CO1. Understand the development of Malayalam language and literature in tune with the modern world and its literary outlook.

SC3CMT02 PROSE, VRUTHA, ALANKARA, THEORIES OF POETICS AND GRAMMAR (SANSKRIT)

CO1. Develop poetic skills by getting familiar with the theories of poetics.

CO2. Understand the scientific techniques of literature by studying Panini.

SEMESTER 5

CORE COURSES

ML5CRT05 PARISTHITHI SAUNDARYA DARSHANAVUM, MANUSHYAVAKASHA PADANAVUM

CO1. Understand the need for environment protection through the study of literary works.

CO2. Understand the various aspects of environmental pollution, destruction of various life species etc.

CO3. Know about human rights available to each individual human being as a citizen of this universe.

ML5CRT06 SAHITHYA MEEMAMSA

CO1. Understand the theoretical aspects if literary studies under Indian and foreign schools of literary thoughts.

CO2. Compare and discuss the philosophical, political and aesthetic views of various people.

CO3. Get theoretical base to pursue studies further in Malayalam Literature.

ML5CRT07 CHERUKATHA, NOVEL

CO1. Understand the growth of prose in Malayalam Literature which special focus on short stories and novels.

CO2. Get insight regarding environmental issues, Dalit, feminist aspects in Malayalam stories and novels.

ML5CRT08 BHASHA SHASTHRAM

CO1. Know about language science, linguistics and its various theories.

CO2. Understand how language serves as the best tool of communication.

CO3. Get better insight about the theories of linguistics to conduct research and pursue higher studies.

OPEN COURSE

ML5OPT02 MADHYAMA PADANAM

CO1. Develop journalistic traits in the students.

SEMESTER 6

CORE COURSES

ML6CRT09 KERALEEYA DRISHYAKALA

CO1. Know about the literary aspects of Kerala's traditional visual arts/ performing arts.

ML6CRT10 PRACHEENA SAHITHYAM

CO1. Understand the development of traditional Malayalam Literature as a separate cultural entity.

ML6CRT11 GADYA SAHITHYAM, NIROOPANAM

CO1. Understand the theories and principles of literary criticism.

CO2. Evaluate literary works critically.

ML6CRT12 VYAKARANAM, BHASHA CHARITHRAM

CO1. Understand and apply the principles of grammar.

CO2. Understand the milestones which the Malayalam language and literature had crossed.

ML6CBT02 MADHYAMA VIJNANEEYAM (ELECTIVE COURSE)

CO1. Understand the modern trends in journalism.

DEPARTMENT: HINDI

PROGRAMME: BA HINDI

PROGRAMME SPECIFIC OUTCOMES

PSO1. Get awareness about the Hindi Literature.

PSO2. Get equipped to become Hindi officers, translators, Hindi teachers, Bank officers, journalists etc.

PSO3. Come in contact with the social, cultural, scientific and environmental issues of the country.

PSO4. Create more job opportunities in IT field.

COURSE OUTCOMES

SEMESTER 1

CORE COURSE

HNICRT01 METHODOLOGY AND DEVELOPMENT OF HINDI LANGUAGE

CO1. Generate a systematic view about the possibilities of Hindi Language, its functions and to convey the social and cultural importance of the Hindi language.

COMPLEMENTARY COURSES

HN1CMT01 FUNCTIONAL ASPECTS OF HINDI LANGUAGE (FUNCTIONAL HINDI)

CO1. Understand the meaning, expression and the scope of functional Hindi.

HN1CMT02 AN INTRODUCTION TO JOURNALISM (JOURNALISM)

CO1. Use pen for the uplift of the society and the nation.

SEMESTER 2

CORE COURSE

HN2CRT02 HINDI GRAMMAR AND SHORT STORIES

CO1. Have a good base in language and be aware of the new changes happening in the language.

CO2. Develop communication skills.

CO3. Improve creativity in Hindi language.

COMPLEMENTARY COURSES

HN2CMT01 ADMINISTRATIVE NOTING AND DRAFTING (FUNCTIONAL HINDI)

CO1. Be able to handle Hindi in almost all official fields.

HN2CMT02 THE ART OF EDITING (JOURNALISM)

CO1. Use the sense of right and wrong, and justice and injustice to analyse the importance of newspaper and editing in today's changing world.

SEMESTER 3

CORE COURSE

HN3CRT03 HISTORY OF HINDI LITERATURE UPTO RITIKAAL

CO1. Develop an outlook about the history of Hindi literature.

CO2. Create an awareness of the famous writers of this period.

CO3. Know about the culture of our country through the famous works of the poets.

COMPLEMENTARY COURSES

HN3CMT01 FUNCTIONAL HINDI AND TRANSLATION (FUNCTIONAL HINDI)

CO1. Develop and independent outlook towards the study of language and communication.

CO2. Understand translation as a linguistic, cultural, economic and professional activity.

HN3CMT02 JOURNALISM AND THE ART OFADVERTISING (JOURNALISM)

CO1. Training the students in such a way that threat faced by newspapers are solved by creating bright future for newspapers which otherwise remain dull.

SEMESTER 4

CORE COURSE

HN4CRT04 ANCIENT HINDI POETRY

CO1. Enjoy ancient Hindi poems and get awareness about the ancient trends.

COMPLEMENTARY COURSES

HN4CMT01 FUNCTIONAL HINDI AND INFORMATIONTECHNOLOGY (FUNCTIONAL HINDI)

CO1. Learn the fundamentals of computer in Hindi to use Hindi software in computer very well.

HN4CMT02 JOURNALISM AND MASS COMMMUNICATION (JOURNALISM)

CO1. Understand the challenges faced by mass communication and electronic media and rise to the situation to promote it to healthy benefit for the society and the nation as a whole.

SEMESTER 5

CORE COURSES

HN5CRT05 ECOLOGY AND HUMAN RIGHTS IN HINDI

CO1. Get awareness about the rights of the human, rules of child safety etc.

HN5CRT06 DEVELOPMENT OF MODERN HINDI LITERATURE

CO1. Develop skills in literature and create a wide outlook about our national language.

HN5CRT07 MODERN HINDI FICTION

CO1. Understand the stream of fiction in Modern period and the movement of literature.

HN5CRT08 MODERN POETRY IN HINDI

CO1. Understand the   notable poets and their works from the very beginning.

OPEN COURSE

HN5OPT02 COMMUNICATIVE HINDI

CO1. Communicate effectively in Hindi.

SEMESTER 6

CORE COURSES

HN6CRT09 LITERARY CRITICISM

CO1. Become familiar with the world of poetics.

CO2. Explore into the theoretical and applied aspects of the eastern and western literary theory.

HN6CRT10 FEMINIST LITERATURE IN HINDI

CO1. Understand the history of women's writing in Hindi.

HN6CRT11 DIFFERENT FORMS OF HINDI PROSE

CO1. Get information about the prose literature in Hindi.

HN6CRT12 DRAMA AND ONE ACT PLAYS IN HINDI

CO1. Develop conversation skills and encourage students to act in Hindi drama.

HN6CBTO1 SATIRE (ELECTIVE COURSE)

CO1. Develop a positive approach to the problems of modern world and solve them.

DEPARTMENT: MATHEMATICS

PROGRAMME: BSc MATHEMATICS

PROGRAMME SPECIFIC OUTCOMES

PSO1. Demonstrate basic manipulative skills in algebra, geometry, trigonometry, and calculus.

PSO2. Apply the underlying unifying structures of Mathematics (i.e. sets, relations and functions, logical structure) and the relationships among them.

PSO3. Become familiar with the powerful tools for tackling a wide range of topics in Calculus, Theory of Equations and Numerical methods.

PSO4. Demonstrate proficiency in writing proofs.

PSO5. Communicate Mathematical ideas both orally and in writing.

PSO6. Investigate and apply mathematical problems and solutions in a variety of contexts related to science, technology, business and industry, and illustrate these solutions using symbolic, numeric, or graphical methods.

PSO7. Investigate and solve unfamiliar math problems.

PSO8. Become familiar with additional relevant mathematical techniques and other relevant subjects to complement the core subject.

PSO9. Gain experience of independent works such as project, seminar etc.

COURSE OUTCOMES

SEMESTER I

CORE COURSE

MM1CRT01 FOUNDATION OF MATHEMATICS

CO1. Understand the concepts of basic logic and analyse statements using truth tables.

CO2. Become familiar with standard methods of proofs.

CO3. Understand the fundamental idea of sets, set operations, functions, relations and partial orderings.

CO4. Get an introduction to the theory of equations.

COMPLEMENTARY COURSES

ST1CMT01 DESCRIPTIVE STATISTICS (STATISTICS)

CO1. Understand the usefulness of various statistical tools in making everyday life useful.

CO2. Solve every day problems by analysing real data.

PH1CMT01 PROPERTIES OF MATTER ANDERROR ANALYSIS (PHYSICS)

CO1. Provide a theoretical knowledge on elasticity and its applications.

CO2. Learn different laws governing the flow of liquids and also learn Viscosity, Surface

Tension and Hydrodynamics.

CO3. Impart a broad knowledge on error analysis during physical measurements.

SEMESTER 2

CORE COURSE

MM2CRT01 ANALYTIC GEOMETRY, TRIGONOMETRY AND DIFFERENTIAL CALCULUS

CO1. Understand more ideas of conics.

CO2. Find the equation to tangent, normal at a point on a conic.

CO3. Find the polar equation of a line, circle, tangent and normal to conics.

CO4. Learn circular and hyperbolic functions of a complex variable.

CO5. Become familiar with the real and imaginary parts of circular and hyperbolic functions of a complex

variable.

CO6. Perform successive differentiation.

COMPLEMENTARY COURSES

ST2CMTO2 PROBABILITY THEORY (STATISTICS)

CO1. Introduce standard statistical science and techniques like probability, random variable

and its applications in real life.

CO2. Continue future study or employment in a very competing manner.

PH2CMT01 MECHANICS AND ASTROPHYSICS (PHYSICS)

CO1. Have better knowledge on physical quantities and their importance in various physical motions.

CO2. Understand the physics of small oscillations and wave propagation through matter.

CO3. Have broad knowledge on different types of stars and their evolution.

PH2CMP01 COMPLEMENTARY PHYSICS PRACTICAL 1 (Semester 1&2)

CO1. Develop experimental skills through series of oriented lab sessions.

CO2. Perform basic physics experiments learnt during the semesters.

CO3. Learn to build basic electronic circuits and optical experiments using Spectrometer.

SEMESTER 3

CORE COURSES

MM3CRT01 CALCULUS

CO1. Find the higher order derivatives

CO2. Expand a function using Taylor's and Maclaurin's series.

CO3. Conceive the concept of asymptotes and obtain their equations.

CO4. Learn about partial derivatives and its applications.

CO5. Compute multiple integrals and its applications.

CO6. Find the area and volume by applying the techniques of double and triple integrals

COMPLEMENTARY COURSES

ST3CMT03 PROBABILITY DISTRIBUTIONS (STATISTICS)

CO1. Understand the concept of probability distributions.

CO2. Understand the applications of probability theory in real life satiations.

PH3CMT01 MODERN PHYSICS AND ELECTRONICS (PHYSICS)

CO1. Get a theoretical idea on atomic models and principles. They also attain a good knowledge on nucleus and nuclear particles.

CO2. Learn the development of quantum mechanics, wave functions and Schrodinger equation. They also have an idea on physics of molecular spectroscopy.

CO3. Gain basic knowledge on analog and digital electronics.

SEMESTER 4

CORE COURSE

MM4CRT01 VECTOR CALCULUS, THEORY OF NUMBERS AND LAPLACE TRANSFORM

CO1. Interpret equations of lines and planes in space. Explains integration in vector fields.

CO2. Calculate directional derivatives and gradients.

CO3. Verify Stoke's Theorem, Gauss Divergence Theorem and Green's Theorem.

CO4. Understand the basic properties of congruence and its applications.

CO5. Get introduced to Laplace transforms, properties, their differentiation and integration, application in solving ordinary differential equations.

COMPLEMENTARY COURSES

ST4CMT04 STATISTICAL INFERENCE (STATISTICS)

CO1. Understand that statistical conclusions are possible from every day data from everybody's life.

CO2. Understand the rationality behind every technique.

CO3. Apply appropriate statistical tools in a given context and arrive at valid and reasonable conclusions.

PH4CMT01 OPTICS AND ELECTRICITY (PHYSICS)

CO1. Attain a better understanding on optical phenomena Interference, Diffraction and Polarization.

CO2. Understand the application of light in the field of fibre optics and lasers.

CO3. Have knowledge on dielectrics and time varying currents in electrical circuits.

PH4CMP02 COMPLEMENTARY PHYSICS PRACTICAL- 2 (Semester 3&4)

CO1. Know about practical application of theory.

CO2. Know about physics experiments like rectifier using diodes, conversion of galvanometer to voltmeter, calibration of ammeter and voltmeter, digital circuits etc.

SEMESTER 5

CORE COURSES

MM5CRT01 MATHEMATICAL ANALYSIS

CO1. Understand real-valued functions of a real variable.

CO2. Understand several fundamental concepts of Analysis including the well-ordering principle, the completeness axiom, the Archimedean property etc.

CO3. Understand the properties of real functions and sequences, including convergence and limits of sequences of real numbers, the calculus of the real numbers, and continuity, smoothness and related properties of real-valued functions.

MM5CRT02 DIFFERENTIAL EQUATIONS

CO1. Solve first and second order linear equations.

CO2. Find power series solutions.

CO3. Solve partial differential equations.

MM5CRT03 ABSTRACT ALGEBRA

CO1. Apply algebraic ways of thinking.

CO2. Demonstrate knowledge and understanding of fundamental concepts including groups, subgroups, normal subgroups, homomorphisms and isomorphism.

CO3. Demonstrate knowledge and understanding of rings, fields and their properties.

CO4. Understand and prove fundamental results and solve algebraic problems using appropriate techniques.

MM5CRT04 HUMAN RIGHTS AND ENVIRONMENTAL MATHEMATICS

CO1. Acquire basic knowledge about the environment.

CO2. Develop the sense of awareness about the environment.

CO3. Create a positive attitude towards the environment.

CO4. Understand how Fibonacci numbers and golden ratio are found in nature.

CO5. Create an awareness on human rights.

OPEN COURSE

MM5GET02 APPLICABLE MATHEMATICS

CO1. Become familiar with basic operations on real numbers, logarithms and quadratic equations.

CO2. Apply critical thinking and communication skills to solve applied problems.

CO3. Acquire the basic arithmetic skills involving percentages, averages, time and rates, elementary algebra and geometry.

CO4. Analyse functions and their graphs.

CO5. Compute limits, derivatives, and definite and indefinite integrals of algebraic, logarithmic and exponential functions.

CO6. Acquire basic ideas of derivatives, standard results and various rules for finding the derivatives of functions.

CO7. Understand the definitions of trigonometric ratios and their applications to problems involving heights and distances.

CO8. Apply short-cut methods for solving problems.

CO9. Use various methods to compute the probabilities of events.

SEMESTER 6

CORE COURSES

MM6CRT01 REAL ANALYSIS

CO1. Explain continuity and discontinuity of various functions in different contexts.

CO2. Differentiate uniform continuity from continuity and related theorems.

CO3. Acquire skill in applying the various techniques of differentiation and applications.

CO4. Expand functions using Taylor series.

CO5. Understand integrability and theorems on integrability.

CO6. Acquire the idea about Riemann integrability and Riemann integration.

CO7. Develop skill in checking the uniform convergence of series using various tests of convergence.

CO8. Illustrate the effect of uniform convergence on the limit function with respect to continuity, differentiability, and integrability.

CO9. Determine the limit point of a series of functions.

CO10. Apply the theory in the course to solve a variety of problems at an appropriate level of difficulty.

MM6CRT02 GRAPH THEORY AND METRIC SPACES

CO1. Acquire a basic idea of graph, various terms associated and matrix representations of graphs.

CO2. Become familiar with different types of graphs.

CO3. Identify vertices, edges and paths with specific properties such as cut vertices, bridges, Eulerian, etc.

CO4. Check for solutions of famous basic problems in Graph Theory such as Travelling Salesman Problem and Chinese Postman Problem.

CO5. Define Metric spaces and its properties.

MM6CRT03 COMPLEX ANALYSIS

CO1. Gain a fundamental understanding of the theory of analytic functions.

CO2. Acquire knowledge about the concepts of derivation of an analytic function and also about the use of Cauchy Riemann equations.

CO3. Become proficient in the theory of elementary functions.

CO4. Become competent in integrating complex functions using various techniques.

CO5. Become expert in basic theorems related to integration of complex functions.

CO6. Acquire skill in applying Taylor's theorem and Laurent's theorem.

CO7. Get the point of the theory of residues.

CO8. Become well-trained in evaluating improper integrals using the theory of residues.

MM6CRT04 LINEAR ALGEBRA

CO1. Understand the concepts of Matrices in terms of vectors and to know its applications.

CO2. Introduce Rank of matrices, Hermite forms and hence to solve linear equations.

CO3. Use matrix algebra and the related matrices to linear transformations and applications.

CO4. Understand the concept of Basis, Dimension, linear transformations and their properties.

CO5. Know Eigen values, Eigen vectors and their applications.

MM6CBT03 NUMERICAL ANALYSIS (ELECTIVE COURSE)

CO1. Understand the various methods to find approximate solutions of an equation.

CO2. Find errors in polynomial interpolation.

CO3. Determine Fourier approximations.

CO4. Perform numerical differentiation and integration.

DEPARTMENT: PHYSICS

PROGRAMME: BSc PHYSICS

PROGRAMME SPECIFIC OUTCOMES

PSO1. Provide a firm foundation in every aspect of Physics and to explain a broad spectrum of modern trends in physics and to develop experimental, computational and mathematical skills.

PSO2. Read, understand and interpret physical information by verbal, mathematical and graphical methods.

PSO3. Bridge the gap between the plus two and postgraduate levels by providing a more complete and logical frame work in almost all areas of basic physics.

PSO4. Have a good idea on most of the areas in the physics.

PSO5. Enhance experimental skills through a series of experiments.

COURSE OUTCOMES

SEMESTER 1

CORE COURSE

PH1CRT01 METHODOLOGY AND PERSPECTIVE OF PHYSICS

CO1. Develop the concept of physics and advances in physics.

CO2. Improve the mathematical, experimental skills of students.

CO3. Motivate interest in Physics.

PH2CRP01 MECHANICS AND PROPERTIES OF MATTER-CORE PRACTICAL- 1 (Semester 1&2)

CO1. Apply the theory learnt at an experiment level to determine the properties of materials.

CO2. Develop experimental skills through series of oriented lab sessions.

COMPLEMENTARY COURSES

MM1CMT01 PARTIAL DIFFERENTIATION, MATRICES, TRIGONOMETRY AND NUMERICAL METHODS (MATHEMATICS)

CO1. Find partial derivatives of a function of several variables and apply chain rule

CO2. Understand the concept of rank of a matrix, elementary transformations and solution of system of equations, eigenvalues and eigenvectors and Cayley Hamilton Theorem.

CO3. Expand $\sin n\theta$, $\cos n\theta$ and $\tan n\theta$ by using Demoivre's theorem.

CO4. Define hyperbolic functions and inverse hyperbolic functions.

CO5. Separate functions into real and imaginary parts.

CO6. Find the Summation of infinite series by C +iS method.

CO7. Apply various numerical methods to obtain approximate roots of an equation.

CH1CMT01 BASIC THEORETICAL AND ANALYTICAL CHEMISTRY (CHEMISTRY)

CO1. Get a basic idea on atomic structure and chemical bonding.

CO2. Develop knowledge on fundamental concepts in chemistry like periodic properties of elements, mole concept and define the different terms used for expressing concentration of solutions.

CO3. Explain the theories and principles like Hunds rule, Aufbau Principle, Paui's exclusion principle, VSEPR theory etc.

CO4. Understand basic principles of analytical chemistry including qualitative and quantitative analysis conducted in the laboratory.

CO5. Explain the different types of chromatographic techniques.

SEMESTER 2

CORE COURSE

PH2CRT02 MECHANICS AND PROPERTIES OF MATTER

CO1. Provide an overall idea on various physical motions and governing parameters.

CO2. Build an information about the application of material properties in a real-world -Elasticity, Hydrodynamics, Oscillations.

COMPLEMENTARY COURSES

MM2CMT02 INTEGRAL CALCULUS AND DIFFERENTIAL EQUATIONS (MATHEMATICS)

CO1. Evaluate the volumes of solids using cross-sections, the area of surfaces of revolution.

CO2. Calculate the length of an arc of a curve whose equations are given in parametric and polar form.

CO3. Determine the area and volume by applying the techniques of double and triple integrals

CO4. Identify different types of differential equations and solve them.

CO5. Describe the origin of partial differential equation and distinguish the integrals of first order linear partial differential equation into complete, general and singular integrals.

CO6. Become familiar with the various techniques of finding the solution of the differential equation $dx/P=dy/Q=dz/R$.

CO7. Acquire the idea of Lagrange's method for solving the first order linear partial differential equations.

CH2CMT02 BASIC ORGANIC CHEMISTRY (CHEMISTRY)

CO1. Understand fundamental concepts of organic chemistry like origin of organic chemistry, uniqueness of carbon, IUPAC nomenclature and different organic species and reactions.

CO2. Develop a basic idea about different mechanisms of organic reactions.

CO3. Understand about stereochemistry of organic compounds including isomerism, definition and classification.

CO4. Develop knowledge on natural and synthetic polymers -their synthesis, properties and applications.

CH2CMP01 VOLUMETRIC ANALYSIS- CHEMISTRY PRACTICAL-I (Semester I and II)

CO1. Develop skills for quantitative estimation using the different branches of volumetric analysis.

CO2. Study the theory and principles of acid-base, redox titrations.

CO3. Develop laboratory skills to prepare solutions and handle the apparatus.

SEMESTER 3

CORE COURSES

PH3CRT03 OPTICS, LASER AND FIBRE OPTIC

CO1. Build interest to learn next advanced topics.

CO2. Give fundamental knowledge on light interaction with matter and its applications.

PH4CRP02 CORE PRACTICAL II OPTICS AND SEMICONDUCTOR PHYSICS (Semester 3 &4)

CO1. Enhance experimental skills.

CO2. Provide an adequate knowledge to build basic electronic circuits and also on optical experiments-Spectrometer, Lens, Newton's Rings.

COMPLEMENTARY COURSES

MM3CMT01 VECTOR CALCULUS, ANALYTIC GEOMETRY AND ABSTRACT ALGEBRA (MATHEMATICS)

CO1. Acquire the basic knowledge of vector differentiation and vector integration.

CO2. Calculate line integrals along piecewise smooth paths.

CO3. Evaluate line, double and triple integrals and use these integrals to verify the seminal integral theorems (Green's theorem in the plane, Gauss' divergence theorem and Stokes' theorem).

CO4. Understand conic sections, the relation between polar and cartesian coordinates of conic sections.

CO5. Introduce the basics of group theory.

CH3CMT03 PHYSICAL CHEMISTRY – I

CO1. Develop a basics idea on solids and crystalline state with classification of solids and molecular symmetry.

CO2. Explain liquid state, gaseous states, solid state and different solutions.

CO3. Get an idea about surface chemistry and colloids.

CO4. Explain the phase rule, definition, equilibrium between phases, types of component system.

SEMESTER 4

CORE COURSE

PH4CRT04 SEMICONDUCTOR PHYSICS

CO1. Learn the theory of basic electronic components like diode, Transistor, FET and conduct electronic circuit applications.

COMPLEMENTARY COURSES

MM4CMT01FOURIER SERIES, LAPLACE TRANSFORM AND COMPLEX ANALYSIS (MATHEMATICS)

CO1. Express periodic functions as Fourier series.

CO2. Get introduced to Laplace transforms, properties, their differentiation and integration, application in solving ordinary differential equations.

CO3. Conceive the concept of analytic functions and will be familiar with the elementary complex functions and their properties.

CO4. Become familiar with the theory and techniques of complex integration.

CO5. Become familiar with the theory and application of the power series expansion of analytic functions.

CH4CMT05 PHYSICAL CHEMISTRY – II (CHEMISTRY)

CO1. Develop a basic idea on UV-Visible, Infrared and Microwave spectroscopy.

CO2. Have basic knowledge on nanomaterials-synthesis-chemical precipitation and applications.

CO3. Explain the chemical kinetics, catalysis and photochemistry.

CO4. Have basic knowledge on electrochemistry, electrochemical theories, cells and corrosion.

CH4CMP02 PHYSICAL CHEMISTRY PRACTICALS (CHEMISTRY PRACTICAL – II Semesters 3&4)

CO1. Study the heat of solution, heat of neutralization and CST, colligative properties.

CO2. Study ionic equilibria and electrical properties of ions in solution.

CO3. Study the concepts of acids and bases, pH and buffer solutions.

CO4. Do practical works in potentiometric and conductometric titrations.

SEMESTER 5

CORE COURSES

PH5CRT05 ELECTRICITY AND ELECTRODYNAMICS

CO1. Know about the fundamental laws and concepts in Electricity and Magnetism-Maxwell's equations.

CO2. Develop skills to analyse the role of voltage and current in AC and DC circuits.

PH5CRT06 CLASSICAL AND QUANTUM MECHANICS

CO1. Learn Lagrangian and Hamiltonian principles and its applications to simplify the problems in classical physics.

CO2. Identify the limitations of classical physics and the application of quantum theory to the experimental results.

CO3. Learn the concept of wave function, measurable quantity, Schrodinger equation, its applications-particle in a box.

PH5CRT07 DIGITAL ELECTRONICS AND PROGRAMMING

CO1. Understand the basic Digital Operation principles and various Digital Gates performing the Digital Operations.

CO2. C++ programming builds computational skill along with numerical solutions to physical problems.

PH5CRT08 ENVIRONMENTAL PHYSICS AND HUMAN RIGHTS

CO1. Develop the sense of awareness among the students about the environment and its various problems and helps to protect the nature and natural resources.

CO2. Acquire the basic knowledge about environment and the social norms that provides unity with environmental characteristics and create positive attitude about the environment.

PRACTICAL COURSES

PH6CRP03 CORE PRACTICAL III ELECTRICITY, MAGNETISM, LASER (Semester 5&6)

CO1. Gain practical knowledge on the generation of Magnetic Fields and determination of Magnetic Moments.

CO2. Attain a practical knowledge on the conversion of Galvanometer to Voltmeter and Ammeter, calibration of measuring instruments and practical verifications of Electric Network Theorems.

CO3. Learn the application of Laser to determine the wavelength of light.

PH6CRP04 CORE PRACTICAL IV DIGITAL ELECTRONICS (Semester 5&6)

CO1. Learn the function of digital IC, input and output relation of Digital Gates, Digital Circuits and the methods to build a Digital Circuit.

PH6CRP05 CORE PRACTICAL V THERMAL-PHYSICS, SPECTROSCOPY AND C++ (Semester 5 & 6)

CO1. Learn the electrical resistance variation of materials with temperature and temperature characteristics.

CO2. Identify the variation of refractive index with materials and learns the resolving power of optical experiments.

CO3. Have practical knowledge on C++ programming and its application to numerical problems.

PH6CRP06 CORE PRACTICAL VI ACOUSTICS, PHOTONICS AND ADVANCED SEMICONDUCTOR PHYSICS

CO1. Learn the application of vibration of strings to determine the material properties.

CO2. Understand the basic knowledge on the Current-Voltage Characteristics of semiconductor devices and its measurements to determine the physical constants.

CO3. Get practical knowledge on advanced electronic circuits.

OPEN COURSE

PH5OPT02 PHYSICS IN DAILY LIFE

CO1. Understand the use of Physics in everyday life.

CO2. Develop scientific aptitude.

SEMESTER 6

CORE COURSES

PH6CRT09 THERMAL AND STATISTICAL PHYSICS

CO1. Have deep knowledge in laws of thermodynamics and its application to real system.

CO2. Learn to calculate the efficiency of heat engines.

CO3. Gain a broad knowledge on different statistical approach in thermodynamics.

CO4. Learn the fundamental concept of bosons and fermions.

PH6CRT10 RELATIVITY AND SPECTROSCOPY

CO1. Learn the effect of motion relative to reference frames and Einstein special theory of relativity.

CO2. Have basic understanding on the interaction of electromagnetic radiation with molecules-Raman Scattering, NMR, ESR, IR and Microwave spectrums.

PH6CRT11 NUCLEAR, PARTICLE PHYSICS AND ASTRO-PHYSICS

CO1. Get a deep understanding on the nucleus of atom and its stability.

CO2. Learn more about the nuclear detectors, nuclear transformation, elementary particles, cosmic rays.

CO3. Obtain a general idea on stellar position, Stellar intensity, birth and death of a star.

PH6CRT12 SOLID STATE PHYSICS

CO1. Learn the basics of crystal structure and its determination.

CO2. Attain a good knowledge on the bonding in materials, free electron band theory and semiconductor Physics.

CO3. Learn the properties of materials--Dielectric, Magnetic and superconductors.

PH6CBT02 MATERIAL SCIENCE (ELECTIVE COURSE)

CO1. Have a broad knowledge on classification of materials, its thermal and mechanical properties.

CO2. Learn the optical absorption process in materials and display property of materials.

CO3. Learn the importance of nanoscience in daily life, basic fundamentals, different types of

nanomaterials, preparation and its characterisation.

PH6PRO01 PROJECT AND INDUSTRIAL VISIT

CO1. Develop their experimental skills through a series of experiments.

CO2. Obtain an exposure to the real application of physics and learns how the instruments works in a industry/organisation.

DEPARTMENT: CHEMISTRY

PROGRAMME: BSc CHEMISTRY (Model 1)

PROGRAMME SPECIFIC OUTCOMES

 PSO1. Understand basic facts and concepts in Chemistry so as to develop interest in the study of

chemistry as a discipline.

PSO2. Develop the ability to apply the basic concepts and principles of science in daily life.

PSO3. Know the developments in Chemistry.

PSO4. Develop knowledge about food, nutrition, diseases and medicine.

PSO5. Understand the importance of Chemistry in nature and in society.

PSO6. Develop problem solving skills.

PSO7. Become familiar with the emerging areas of Chemistry and their applications and to apprise

its relevance in future studies.

PSO8. Develop skills in handling of apparatus and chemicals.

PSO9. Become familiar with the different in industrial processes.

COURSE OUTCOMES

SEMESTER 1

CORE COURSE

CH1CRT01 GENERAL AND ANALYTICAL CHEMISTRY

CO1. Study about the developments in science.

CO2. Understand about different areas of science.

CO3. Learn about the periodic properties of elements.

CO4. Study about different laboratory analysis and the theory behind titrimetric analysis.

CO5. Understand various chromatographic techniques employed.

CO6. Develop basic knowledge in scientific analysis of analytical data.

COMPLEMENTARY COURSES

MM1CMT01 PARTIAL DIFFERENTIATION, MATRICES, TRIGONOMETRY AND NUMERICALMETHODS (MATHEMATICS)

CO1. Find partial derivatives of a function of several variables and apply chain rule.

CO2. Understand the concept of rank of a matrix, elementary transformations and solution of system of

equations, eigenvalues and eigenvectors and Cayley Hamilton Theorem.

CO3. Expand $\sin n\theta$, $\cos n\theta$ and $\tan n\theta$ by using Demoivre's theorem.

CO4. Define hyperbolic functions and inverse hyperbolic functions.

CO5. Separate functions into real and imaginary parts.

CO6. Find the Summation of infinite series by C +iS method.

CO7. Apply various numerical methods to obtain approximate roots of an equation.

PH1CMT02 PROPERTIES OF MATTER AND THERMODYNAMICS (PHYSICS)

CO1. Get a theoretical knowledge on elasticity and its applications.

CO2. Learn different laws governing the flow of liquids and also obtain a good knowledge on

Viscosity, Surface Tension and Hydrodynamics.

CO3. Learn the laws of thermodynamics, its applications and the Maxwell's equations.

SEMESTER 2

CORE COURSE

CH2CRT02 THEORETICAL AND INORGANIC CHEMISTRY

CO1. Study the various atom models.

CO2. Understand the important features of quantum mechanical model of atom.

CO3. Study the periodic properties of elements.

CO4. Develop a basic idea about different types of bonds.

CO5. Predict the geometry of simple molecules.

CO6. Explain the different types of hybridization and draw shapes of molecules.

C07. Understand the molecular orbital theory and MO diagrams of diatomic molecules.

C08. Study about s, p, d and f block elements.

CH2CRP01 VOLUMETRIC ANALYSIS (Semester 1& 2 Practical)

CO1. Develop skills for quantitative estimation using the different branches of volumetric analysis.

CO2. Study the theory and principles of acid-base, redox, EDTA titrations.

CO3. Develop laboratory skills to prepare solutions and handle the apparatus.

COMPLEMENTARY COURSES

MM2CMT02 INTEGRAL CALCULUS AND DIFFERENTIAL EQUATIONS (MATHEMATICS)

CO1. Evaluate the volumes of solids using cross-sections, the area of surfaces of revolution.

CO2. Calculate the length of an arc of a curve whose equations are given in parametric and polar form.

CO3. Determine the area and volume by applying the techniques of double and triple integrals.

CO4. Identify different types of differential equations and solve them.

CO5. Describe the origin of partial differential equation and distinguish the integrals of first order linear partial differential equation into complete, general and singular integrals.

CO6. Become familiar with the various techniques of finding the solution of the differential equation dx/P=dy/Q=dz/R.

CO7. Acquire the idea of Lagrange's method for solving the first order linear partial differential equations.

PH2CMT02 MECHANICS AND SUPERCONDUCTIVITY (PHYSICS)

CO1. Have a better knowledge on physical quantities and their importance in various physical motions.

CO2. Understand the physics of small oscillations and wave propagation through matter.

CO3. Learn the superconducting phenomena and its applications.

PH2CMP01 COMPLEMENTARY PHYSICS PRACTICAL 1 (Semester 1 & 2)

CO1. Develop experimental skills through series of oriented lab sessions.

CO2. Learn to perform basic physics experiments learned during the semester.

CO3. Learn to build basic electronic circuits and optical experiments using Spectrometer.

SEMESTER 3

CORE COURSE

CH3CRT03 ORGANIC CHEMISTRY-I

CO1. Develop basic understanding about the classification and nomenclature of organic compounds.

CO2. Study fundamentals of organic reaction mechanism, aromaticity and stereochemistry.

CO3. Understand stereochemistry of molecules.

CO4. Have exposure to various emerging new areas of organic chemistry.

CO5. Study about different organic halides and pericyclic reactions.

COMPLEMENTARY COURSES

MM3CMT01 VECTOR CALCULUS, ANALYTIC GEOMETRY AND ABSTRACT ALGEBRA (MATHEMATICS)

CO1. Acquire the basic knowledge of vector differentiation and vector integration.

CO2. Calculate line integrals along piecewise smooth paths.

CO3. Evaluate line, double and triple integrals and use these integrals to verify the seminal integral theorems (Green's theorem in the plane, Gauss' divergence theorem and Stokes' theorem).

CO4. Understand conic sections, the relation between polar and cartesian coordinates of conic sections.

CO5. Get introduced to the basics of group theory.

PH3CMT02 MODERN PHYSICS AND MAGNETISM (PHYSICS)

CO1. Get a theoretical idea on atomic models and principles and attain a good knowledge on nucleus and nuclear particle emission.

CO2. Learn the development of quantum mechanics, wave functions and Schrodinger equation. Have an idea on physics of molecular spectroscopy.

CO3. Gain basic knowledge on electronics and magnetic properties of matter.

SEMESTER 4

CORE COURSE

CH4CRT04 ORGANIC CHEMISTRY –II

CO1. Study the chemistry of some selected functional groups.

CO2. Develop proper aptitude towards the study of organic compounds and their reactions.

CO3. Learn the chemistry of alcohols, phenols, carboxylic acids, derivatives of Carboxylic acids,

Sulphonic acids, carbonyl compounds, poly nuclear hydrocarbons, active methylene compounds and

Grignard reagents.

CO4. Understand and study organic reaction mechanisms.

CH4CRP02 QUALITATIVE ORGANIC ANALYSIS (Semester 3 & 4 Practical)

CO1. Develop skills required for the qualitative analysis of organic compounds.

CO2. Study the identification of different groups and elements in an organic compound.

CO3. Develop knowledge about physical constants of organic compounds–melting and boiling points.

COMPLEMENTARY COURSES

MM4CMT01 FOURIER SERIES, LAPLACE TRANSFORM AND COMPLEX ANALYSIS (MATHEMATICS)

CO1. Express periodic functions as Fourier series.

CO2. Get introduced to Laplace transforms, properties, their differentiation and integration, application in solving ordinary differential equation.

CO3. Conceive the concept of analytic functions and will be familiar with the elementary complex functions and their properties.

CO4. Become familiar with the theory and techniques of complex integration.

CO5. Become familiar with the theory and application of the power series expansion of analytic functions.

PH4CMT02 OPTICS AND SOLID STATE PHYSICS (PHYSICS)

CO1. Attain a better understanding on optical phenomena Interference, Diffraction and Polarization.

CO2. Learn the application of light in the field of fibre optics and lasers.

CO4. Have knowledge on dielectrics and crystal structures of solids.

PH4CMP02 COMPLEMENTARY PHYSICS PRACTICAL-2 (Semester 3 & 4)

CO1. Acquire knowledge on practical application of theory they learned during the semester.

CO2. Acquire knowledge on physics experiments like rectifier using diodes, conversion of

galvanometer to voltmeter, calibration of ammeter and voltmeter, digital circuits etc.

SEMESTER 5

CORE COURSES

CH5CRT05 ENVIRONMENTAL STUDIES AND HUMAN RIGHTS

CO1. Develop an idea about Multidisciplinary Nature of Environmental studies.

CO2. Study about different ecosystems and its importance.

CO3. Understand ecological related social issues.

CO4. Understand the different types of pollutions and different toxins related to it.

CO5. Develop knowledge about human rights and laws related to it.

CH5CRT06 ORGANIC CHEMISTRY - III

CO1. Develop a deep knowledge about nitrogen containing organic compound.

CO2. Study the structure and properties of heterocyclic compounds.

CO3. Learn the chemistry of drugs, dyes, organic polymers, soaps, detergents and organic reagents.

CO4. Study the structure reaction and preparation of carbonyl compounds.

CH5CRT07 PHYSICAL CHEMISTRY -I

CO1. Study the intermolecular forces in gases and liquids.

CO2. Understand the dynamics of the molecules in the gases and liquids.

CO3. Study the liquefaction of gases.

CO4. Learn the structures of solids.

CO5. Study defects in crystals.

CO6. Study adsorption.

CH5CRT08 PHYSICAL CHEMISTRY – II

CO1. Differentiate between classical and quantum mechanics.

CO2. Study the postulates of quantum mechanics and the quantum mechanical model of the hydrogen atom.
CO3. Study valence bond and molecular orbital theory.

CO4. Study the principle and applications of microwave, infra-red, Raman, electronic and magnetic resonance spectroscopy.

CO5. Study the fundamentals of mass spectrometry.

OPEN COURSE

CH5OPT01 CHEMISTRY IN EVERYDAY LIFE

CO1. Understand chemistry as an integral part of everyday life.

CO2. Study about food and nutrition.

CO3. Develop a basic idea on drugs, dyes, organic polymers, soaps and detergents.

CO4. Understand the fundamentals of agricultural and nano chemistry.

SEMESTER 6

CORE COURSES

CH6CRT09 INORGANIC CHEMISTRY

CO1.Study the fundamentals of organometallic chemistry.

CO2. Study in coordination chemistry Boron cage compounds and bio-inorganic chemistry.

CH6CRT10 ORGANIC CHEMISTRY - IV

CO1. Learn in detail the chemistry of carbohydrates, heterocyclic compounds, amino acids, proteins and nucleic acids.

CO2. Have a thorough idea on the structures of carbohydrates and some heterocyclic compounds.

CO3. Understand the structure and functions of enzymes, proteins and nucleic acids.

CO4. Study the fundamentals of terpenoids, alkaloids, vitamins, lipids and steroids.

CO5. Have an elementary idea of supramolecular chemistry and Green Fluorescent Proteins.

CH6CRT11 PHYSICAL CHEMISTRY – III

CO1. Study the laws of thermodynamics.

CO2. Derive Gibbs-Helmholtz, Clausius-Clapeyron, Gibbs-Duhem equations.

CO3. Derive the relation between K_p, K_c and K_x.

CO4. Derive the phase rule.

CO5. Derive the rate equations for zero, first and second order reactions.

CO6. Study the phase diagrams of one and two component systems.

CO7. Understand the theories of chemical kinetics.

CO8. Get an elementary idea of catalysis including enzyme catalysis.

CH6CRT12 PHYSICAL CHEMISTRY – IV

CO1. Study the behaviour of binary liquid mixtures, CST, azeotropes, colligative properties.

CO2. Study solubility of gases in liquids.

CO3. Study ionic equilibria and electrical properties of ions in solution.

CO4. Study the concepts of acids and bases, pH and buffer solutions.

CH6CBT02 NANOCHEMISTRY AND NANOTECHNOLOGY (ELECTIVE COURSE)

CO1. Get an idea about newly emerging inter-disciplinary scientific branch Nanotechnology.

CO2. Get introduced to nanomaterials including history, Feynman's hypothesis, classification, application and synthesis of nanomaterial.

CO3. Develop a basic knowledge on different characterisation techniques like SEM, TEM, STEM, ETEM, SPL, SIM, XPES, UPES.

CO4. Understand electrical and optical properties of different nanomaterials.

PRACTICAL COURSES (Semesters 5&6)

CH6CRP03 QUALITATIVE INORGANIC ANALYSIS

CO1. Study the reactions of the different inorganic acids and two basic radicals.

CO2. Develop knowledge on systematic identification and confirmation of different cationic and anionic inorganic species.

C03. Do systematic qualitative analysis of mixtures containing two acids and two basic radicals without interfering radical and with one interfering radical.

CH6CRP04 ORGANIC PREPARATIONS AND LABORATORY TECHNIQUES

CO1. Develop a skill in crystallisation of compounds using ethyl acetate, ethanol, and water.

CO2. Separate water and ethyl acetate mixture by distillation.

CO3. Do solvent extraction of aniline from water.

CO4. Do organic preparations using oxidation, hydrolysis, nitration, halogenation, acylation, esterification, iodoform, Claisen-Schmidt reactions.

CO5. Understand about TLC and column chromatographic techniques.

CH6CRP05 PHYSICAL CHEMISTRY PRACTICALS

CO1. Understand the viscosity, heat of solution, heat of neutralization experiments.

CO2. Develop a basic knowledge on conductometric titration chemical kinetics, potentiometric titration.

CO3. Transition temperature of salt hydrates and determination of the surface tension of a liquid.

CO4. Acquire knowledge on critical solution temperature of phenol-water system and molecular weight determination by Rast's method.

CH6CRP06 GRAVIMETRIC ANALYSIS

CO1. Develop knowledge on gravimetric estimation of Barium as Barium sulphate, iron as Fe_2O_3 and sulphate as barium sulphate.

CO2. Do quantitative determination of copper as cuprous thiocynate and nickel as nickeldimethyl glyoxime.

DEPARTMENT: BOTANY

PROGRAMME: BSc BOTANY

PROGRAMME SPECIFIC OUTCOMES

PSO1. Know the importance and scope of Botany.

PSO2. Inculcate interest in and love of nature with its myriad living forms.

PSO3. Impart knowledge of science as the basic objective of education.

PSO4. Develop a scientific aptitude to make students open minded, critical and curious.

PSO5. Develop an ability to work on their own and make them fit for the society.

PSO6. Expose themselves to the diversity amongst life forms.

PSO7. Develop skill in practical work, experiments, equipment and laboratory use along with collection and interpretation of biological materials and data.

PSO8. Become aware of natural resources and environment and importance of conserving it.

PSO9. Develop ability for the application of the acquire knowledge in the fields of life so that to make our country self-reliant and self-sufficient.

PSO10. Appreciate and apply ethical principles to biological science, research and study.

COURSE OUTCOMES

SEMESTER 1

CORE COURSE

BO1B01U METHODOLOGY AND PERSPECTIVES OF SCIENCE & AN INTRODUCTION TOTHE WORLD OF PLANT DIVERSITY

CO1. Inculcate awareness in different methods of science.

CO2. Understand plant diversity.

CO3. Create a scientific aptitude.

COMLEMENTARY COURSES

CH1CMT01 BASIC THEORETICAL AND ANALYTICAL CHEMISTRY (CHEMISTRY)

CO1. Get a basic idea on atomic structure and chemical bonding.

CO2. Develop knowledge on fundamental concepts in chemistry like periodic properties of elements, mole concept and define the different terms used for expressing concentration of solutions.

CO3. Explain the theories and principles like Hunds rule, Aufbau Principle, Paui's exclusion principle, VSEPR theory etc.

CO4. Understand basic principles of analytical chemistry including qualitative and quantitative analysis conducted in the laboratory.

CO5. Explain the different types of chromatographic techniques.

ZY1CMT01 NON-CHORDATE DIVERSITY (ZOOLOGY)

CO1. Learn the physiological and anatomical peculiarities of some invertebrate phyla through type study and study the scientific classification of invertebrate fauna.

CO2. Learn the unity of life with rich diversity of organisms and evolutionary significance of certain invertebrate fauna.

CO3. Stimulate the curiosity in the biota living around the students.

SEMESTER 2

CORE COURSE

BO2B02U GENERAL INFORMATICS AND METHODOLOGIES IN PLANT SCIENCES

CO1. Amalgamate the knowledge of biology and computer.

CO2. Understand different methodologies in plant science research.

COMLEMENTARY COURSES

ZY2CMT02 CHORDATE DIVERSITY (ZOOLOGY)

CO1. Observe the diversity in chordates and their systematic position.

CO2. Become aware of the economic importance of some chordates.

CO3. Stimulate curiosity in vertebrates living associated with them

CO4. Learn the physiological and anatomical peculiarities of some vertebrate species through type study.

CH2CMT02 BASIC ORGANIC CHEMISTRY (CHEMISTRY)

CO1. Understand fundamental concepts of organic chemistry like origin of organic chemistry, uniqueness of carbon, IUPAC nomenclature and different organic species and reactions.

CO2. Develop a basic idea about different mechanisms of organic reactions.

CO3. Understand about stereochemistry of organic compounds including isomerism, definition and classification.

CO4. Develop knowledge on natural and synthetic polymers -their synthesis, properties and applications.

CH2CMP01 VOLUMETRIC ANALYSIS (CHEMISTRY PRACTICAL-I (Semester 1& 2)

CO1. Develop skills for quantitative estimation using the different branches of volumetric analysis.

CO2. Study the theory and principles of acid-base, redox titrations.

CO3. Develop laboratory skills to prepare solutions and handle the apparatus.

SEMESTER 3

CORE COURSE

BO3B03U MICROBIOLOGY AND PHYCOLOGY

CO1. Understand the world of microbes.

CO2. Understand the identifying characters of the lower groups of plants.

CO3. Get an idea on diverse groups of plants.

CO4. Understand the application of microbiology in different fields.

COMLEMENTARY COURSES

ZY3CMT03 PHYSIOLOGY AND IMMUNOLOGY (ZOOLOGY)

CO1. Appreciate the correlation between structure and function of organisms.

CO2. Become aware of the health-related problems, their origin and treatment.

CO3. Acquire knowledge about preventing common diseases rather than curing.

CO4. Understand how efficiently our immune system work in our body.

CH3CMT04 INORGANIC AND ORGANIC CHEMISTRY (CHEMISTRY)

CO1. Develop a basic idea on Nuclear Chemistry.

CO2. Study the bioinorganic chemistry with thermodynamics of living cell, metal ions in different

biological molecules and systems.

CO3. Have a basic idea on agricultural chemistry including fertilizers, pesticides and environmental

hazards with their uses.

CO4. Have basic knowledge on heterocyclic compounds like furan, pyrrole, pyridine and indole.

CO5. Understand classification of drugs, structure, therapeutic uses and mode of action.

CO6. Know about food additives and cosmetics.

SEMESTER 4

CORE COURSE

BO4B04U ANATOMY AND REPRODUCTIVE BOTANY OF ANGIOSPERMS

CO1. Impart an insight into the internal structure and reproduction of the most evolved group of plants, the angiosperm.

CO2. Identify role of anatomy in solving taxonomic and phylogenetic problems.

CO3. Understand the structural adaptations in plants growing in different environment.

CO4. Understand the life cycle pattern of angiosperms.

CO5. Understand the morphology and development of reproductive parts.

CO6. Get an insight in to the fruit and seed development.

COMLEMENTARY COURSES

ZY4CMT04 APPLIED ZOOLOGY (ZOOLOGY)

CO1. Acquire basic knowledge and skills in applied branches of Zoology.

CO2. Understand the technology for utilising eco-friendly organisms around them for beneficial purpose.

CO3. Equip for self-employment opportunities with scientific knowledge to perform profitably and confidently.

CH4CMT06 ADVANCED BIO-ORGANIC CHEMISTRY (CHEMISTRY)

CO1. Have basic idea on natural products like alkaloids and terpenoids.

CO2. Develop knowledge on lipids, oils, fats, waxes, soaps and detergents.

CO3. Develop knowledge about amino acids, proteins and carbohydrates.

CO4. Have basic knowledge on enzymes, nucleic acids and their Nomenclature, classification and characteristics.

CO5. Know about vitamins, steroids and hormones, classification. Structure, biological functions and deficiency diseases.

CH4CMP03 ORGANIC CHEMISTRY PRACTICALS (Semester 3&4)

CO1. Develop skills required for the qualitative analysis of organic compounds.

CO2. Understand the identification of different groups and elements in an organic compound.

CO3. Develop knowledge about physical constants of organic compounds– melting and boiling points.

SEMESTER 5

CORE COURSES

BO5B05U MYCOLOGY, LICHENOLOGY AND PLANT PATHOLOGY

CO1. Understand the diversity of fungal and lichen world and its significance.

CO2. Understand the various plant diseases and their impact on agriculture.

CO3. Become familiar with the various measures adopted to control plant diseases.

BO5B06U ENVIRONMENTAL SCIENCE AND ECOTOURISM

CO1. Acquaint   with the significance of environmental science.

CO2. Understand the extent, limitations and depletion of natural resources.

CO3. Design novel mechanism for the sustainable utilization of natural resources.

CO4. Understand the structure and function of the ecosystems.

CO5. Identify the nature and interactions of populations in the ecosystem.

CO6. Understand various kinds of pollution in the environment, their impacts on the ecosystem and their control measures.

CO7. Become aware about the nature and structure of various environmental laws in India.

CO8. Become aware about the role of various movements in the protection of nature and natural resources.

CO9. Become ware about the extent of the total biodiversity and their conservation.

CO10. Assess the positive and negative impacts of ecotourism and its role in the sustainable utilisation of resources for tourism.

BO5B07U GENETICS, PLANT BREEDING AND HORTICULTURE

CO1. Understand the basic principles of heredity.

CO2. Understand the inheritance pattern of nuclear and extra nuclear genes.

CO3. Understand the methods of crop improvement.

CO4. Understand the importance of horticulture in human welfare.

BO5B08U CELL MOLECULAR BIOLOGY AND EVOLUTION

CO1. Understand the ultra structure and functioning of cell in the sub microscopic and molecular level.

CO2. Get an idea of origin, concept of continuity and complexity of life activities.

CO3. Become familiar with life process.

CO4. Understand the basic and scientific aspect of diversity.

CO5. Understand the cytological aspects of growth and development.

CO6. Understand DNA as the basis of heredity and variation.

CO7. Understand the concept of evolution as the basis of biodiversity.

OPEN COURSE

BO5D01U AGRIBASED MICROENTERPRISES

CO1. Get basic information about the business opportunities in plant sciences.

CO2. Get information about sustainable agriculture and organic farming.

CO3. Inculcate an enthusiasm and awareness about ornamental gardening, nursery management and mushroom cultivation.

SEMESTER 6

CORE COURSES

BO6B09U PLANT PHYSIOLOGY AND BIOCHEMISTRY

CO1. Understand the basic principles related to various physiological functions in plant life.

CO2. Become familiar with the basic skills and techniques related to plant physiology.

CO3. Understand the role, structure and importance of the bio molecules associated with plant.

CO4. Become familiar with the recent trends in the field of plant physiology.

CO5. Become familiar with applied aspects of plant physiology in other fields like agriculture.

CO6. Acquaint with the aims, objectives and significance of taxonomy.

CO7. Identify the common species of plants growing in Kerala and their systematic position.

CO8. Develop inductive and deductive reasoning ability.

BO6B10U BRYOLOGY, PTERIDOLOGY, GYMNOSPERMS AND PALEOBOTANY

CO1. Understand the diversity in habits, habitats and organisation of various groups of plants.

CO2. Understand the evolutionary trends in plants.

CO3. Identify the anatomical variations in lower groups of plants.

CO4. Understand the significance of paleobotany.

BO6B11U ANGIOSPERM MORPHOLOGY, SYSTEMATIC BOTANY AND ECONOMICBOTANY

CO1. Get acquainted with the basic technique in the preparation of herbarium.

CO2. Identify the common species of plants growing in Kerala and their systematic position.

CO3. Develop inductive and deductive reasoning ability.

CO4. Get acquainted with the basic technique in the preparation of herbarium.

CO5. Become familiar with the plants having immense economic importance.

BO6B12U BIOTECHNOLOGY AND BIOINFORMATICS

CO1. Become familiar with the fundamental principles of biotechnology, various developments in biotechnology and potential applications.

CO2. Become aware that the life forms and activities can be exploited for human advancement.

CO3. Impart an introductory knowledge about bio informatics to the students.

CO4. Use computers to handle biological data base.

BO6B13U PLANT GENETIC RESOURCES (ELECTIVE COURSE)

CO1. Acquaint   with the history and evolution of crop plants, and their diversity.

CO2. Become familiar with the available plant genetic wealth and the measures adopted for the conservation of these resources.

CO3. Identify the crop plants and their wild relatives.

CO4. Explore the potentialities of various underutilized plants to project as the future food prospects.

CO5. Understand the significance of modern technology to locate the distribution of endangered species.

DEARTMENT: ZOOLOGY

PROGRAMME: BSc ZOOLOGY

PROGRAMME SPECIFIC OUTCOMES

PSO1. Acquire basic knowledge of various disciplines of Zoology and General Biology meant both for a graduate terminal course and for higher studies.

PSO2. Inculcate interest in nature and love of nature.

PSO3. Understand the rich diversity of organisms and their ecological and evolutionary significance.

PSO4. Imbibe basic skills in the observation and study of nature, biological techniques, experimental skills and scientific investigation.

PSO5. Create awareness on the internal harmony of different body systems and the need for maintaining good health through appropriate lifestyle.

PSO6. Acquire basic knowledge and skills in certain applied branches for self-employment.

PSO7. Impart awareness of the conservation of the biosphere.

COURSE OUTCOMES

SEMESTER 1

CORE COURSE

ZY1CRT01 GENERAL PERSPECTIVES IN SCIENCE & PROTISTAN DIVERSITY

CO1. Create an awareness on the basic philosophy of science, concepts and scope.

CO2. Understand different levels of biological diversity through the systematic classification.

CO3. Become familiar with taxa level identification of animals.

CO4. Foster interest in Protistan diversity.

CO5. Impart knowledge on parasitic forms of lower invertebrates.

COMPLEMENTARY COURSES

CH1CMT01 BASIC THEORETICAL AND ANALYTICAL CHEMISTRY (CHEMISTRY)

CO1. Get a basic idea on atomic structure and chemical bonding.

CO2. Develop knowledge on fundamental concepts in chemistry like periodic properties of elements, mole concept and define the different terms used for expressing concentration of solutions.

CO3. Explain the theories and principles like Hunds rule, Aufbau Principle, Paui's exclusion principle, VSEPR theory etc.

CO4. Understand the basic principles of analytical chemistry including qualitative and quantitative analysis conducted in the laboratory.

CO5. Explain the different types of chromatographic techniques.

BO1C01U CRYPTOGAMS, GYMNOSPERMS AND PLANT PATHOLOGY (BOTANY)

CO1. Acquire fundamental knowledge in plant science and   understand that Botany is an integral part of the human life and developments.

CO2. Foster and encourage an attitude of curiosity, appreciation and enquiry of various life forms of Plants.

CO3. Understand the identifying characters of the different types included in the syllabus.

CO4. Understand the diversity of microbes and plants with respect to Viruses, Bacteria, Algae, Fungi, Lichens, Bryophytes, Pteridophytes and Gymnosperms.

SEMESTER 2

CORE COURSE

ZY2CRT02 ANIMAL DIVERSITY-NON-CHORDATA

CO1. Create appreciation on diversity of life on earth.

CO2. Understand different levels of biological diversity through the systematic classification of invertebrate fauna.

CO3. Become familiar taxa level identification of animals.

CO4. Understand the evolutionary significance of invertebrate fauna.

CO5. Instil curiosity on invertebrates around us.

CO6. Impart knowledge on parasitic forms of lower invertebrates.

COMPLEMENTARY COURSES

BO2C02U PLANT PHYSIOLOGY (BOTANY)

CO1.Understand the mechanism of various physiological processes related to plant life.

CH2CMT02 BASIC ORGANIC CHEMISTRY (CHEMISTRY)

CO1. Understand fundamental concepts of organic chemistry like origin of organic chemistry, uniqueness of carbon, IUPAC nomenclature and different organic species and reactions.

CO2. Develop a basic idea about different mechanisms of organic reactions.

CO3. Understand about stereochemistry of organic compounds including isomerism, definition and classification.

CO4. Develop knowledge on natural and synthetic polymers -their synthesis, properties and applications.

CH2CMP01 VOLUMETRIC ANALYSIS (CHEMISTRY PRACTICAL-I Semester 1&2)

CO1. Develop skills for quantitative estimation using the different branches of volumetric analysis.

CO2. Study the theory and principles of acid-base, redox titrations.

CO3. Develop laboratory skills to prepare solutions and handle the apparatus.

SEMESTER 3

CORE COURSE

ZY3CRT03 ANIMAL DIVERSITY- CHORDATA

CO1. Acquire in-depth knowledge on the diversity of chordates and their systematic position.

CO2. Become aware of the economic importance of some classes.

CO3. Understand the evolutionary importance of selected chordate groups.

COMPLEMENTARY COURSES

BO3C03U ANGIOSPERM TAXONOMY AND ECONOMIC BOTANY (BOTANY)

CO1. Get acquainted with the objectives and components of Taxonomy.

CO2. Understand the systems of classification of angiosperms.

CO3. Identify the common angiosperm species of Kerala.

CO4. Become familiar the student with plants of immense economic importance.

CH3CMT04 INORGANIC AND ORGANIC CHEMISTRY (CHEMISTRY)

CO1. Develop a basic idea on Nuclear Chemistry.

CO2. Study the bioinorganic chemistry with thermodynamics of living cell, metal ions in different biological molecules and systems.

CO3. Have a basic idea on agricultural chemistry including fertilizers, pesticides and environmental hazards with their uses.

CO4. Have basic knowledge on heterocyclic compounds like furan, pyrrole, pyridine and indole.

CO5. Understand classification of drugs, structure, therapeutic uses and mode of action.

CO6. Know about food additives and cosmetics.

SEMESTER 4

CORE COURSE

ZY4CRT04 RESEARCH METHODOLOGY, BIOPHYSICS AND BIOSTATISTICS

CO1. Become familiar the learner the basic concept of scientific method in research process.

CO2. Have knowledge on various research designs.

CO3. Develop skill in research communication and scientific documentation.

CO4. Create awareness about the laws and ethical values in biology.

CO5. Equip the students with the basic techniques of animal rearing collection and preservation.

CO6. Apply statistical methods in biological studies.

COMPLEMENTARY COURSES

BO4C04U ANATOMY AND APPLIED BOTANY (BOTANY)

CO1. Understand different types of plant tissues.

CO2. Understand the internal structure of different plant organs with reference to their functions.

CO3. Know the morphological and anatomical adaptations of plants growing in different habitats.

CO4. Understand the applications of botanical knowledge in the field of crop improvement for human prosperity**.**

CH4CMT06 ADVANCED BIO-ORGANIC CHEMISTRY (CHEMISTRY)

CO1. Have basic idea on natural products like alkaloids and terpenoids.

CO2. Develop knowledge on lipids, oils, fats, waxes, soaps and detergents.

CO3. Develop knowledge about amino acids, proteins and carbohydrates.

CO4. Have basic knowledge on enzymes, nucleic acids and their nomenclature, classification and characteristics.

CO5. Know about vitamins, steroids and hormones, classification. structure, biological functions and deficiency diseases.

CH4CMP03 ORGANIC CHEMISTRY PRACTICALS (Semester 3&4)

CO1. Develop skills required for the qualitative analysis of organic compounds.

CO2. Understand the identification of different groups and elements in an organic compound.

CO3. Develop knowledge about physical constants of organic compounds– melting and boiling points.

SEMESTER 5

CORE COURSES

ZY5CRT05 ENVIRONMENTAL BIOLOGY AND HUMAN RIGHTS

CO1. Instil the basic concepts of Environmental Sciences, Ecosystems, Natural Resources, Population, Environment and Society.

CO2. Become aware of natural resources, their protection, conservation, the factors polluting the environment, their impacts and control measures.

CO3. Learn the basic concepts of toxicology, their impact on human health and remedial measures.

CO4. Create a consciousness regarding Biodiversity, environmental issues and conservation strategies.

CO5. Develop the real sense of Human rights, its concepts and manifestations.

ZY5CRT06 CELL BIOLOGY AND GENETICS

CO1. Understand the structure and function of the cell as the fundamentals for understanding the functioning of all living organisms.

CO2. Become aware of different cell organelles, their structure and role in living organisms.

CO3. Develop critical thinking, skill and research aptitudes in basic and applied biology.

CO4. Emphasise the central role of genes and their inheritance in the life of all organisms.

ZY5CRT07 EVOLUTION, ETHOLOGY & ZOOGEOGRAPHY

CO1. Acquire knowledge about the evolutionary history of earth - living and non-living.

CO2. Acquire basic understanding about evolutionary concepts and theories.

CO3. Study the distribution of animals on earth, its pattern, evolution and causative factors.

CO4. Impart basic knowledge on animal behavioural patterns and their role.

ZY5CRT08 HUMAN PHYSIOLOGY, BIOCHEMISTRY AND ENDOCRINOLOGY

CO1. Understand the basic experimental methods and designs that can be used for further study and research.

CO2. Define and explain the basic principles of biochemistry useful for biological studies for illustrating different kinds of food, their structure, function and metabolism.

CO3. Explain various aspects of physiological activities of animals with special reference to humans.

CO4. Acquire a broad understanding of the hormonal regulation of physiological processes in invertebrates and vertebrates.

CO5. Become familiar with hormonal regulation of physiological systems in several invertebrate and vertebrate systems.

OPEN COURSE

ZY5OPT02 PUBLIC HEALTH AND NUTRITION

CO1. Inculcate a general awareness among the students regarding the real sense of health.

CO2. Understand the role of balanced diet in maintaining health.

CO3. Practise yoga and meditation in day-to-day life.

SEMESTER 6

CORE COURSES

ZY6CRT09 DEVELOPMENTAL BIOLOGY

CO1. Achieve a basic understanding of the experimental methods and designs that can be used for future studies and research.

CO2. Discuss current events in science which will benefit them in their future studies in the biological/physiological sciences and health-related   fields.

CO3. Contribute to critical societal goal of a scientifically literate citizenry.

ZY6CRT10 MICROBIOLOGY AND IMMUNOLOGY

CO1. Provide an overview of the microbial world, its structure and function and to understand the basic biology of bacteria and viruses.

CO2. Become familiar with the new developments in immunology.

CO3. Understand the role of immunology in human health and well-being.

ZY6CRT11 BIOTECHNOLOGY, BIOINFORMATICS AND MOLECULAR BIOLOGY

CO1. Study the structural and functional details of the basic unit of life at the molecular level.

CO2. Become familiar with the emerging field of biotechnology.

CO3. Understand the applications of biotechnology in medical, industrial, environmental and agricultural areas and nanomedicine.

CO4. Explore the emerging field of bioinformatics.

ZY6CBT04 NUTRITION, HEALTH AND LIFESTYLE MANAGEMENT (ELECTIVE COURSE)

CO1. Understand principles of nutrition and its role in health.

CO2. Know and understand life style diseases.

CO3. Become familiar with food safety, food laws and regulations.

CO4. Understand the general concept of health and the parameters that define health and wellness.

CO5. Understand the value of good life style practices, physical fitness and healthy food habits for life style disease management.

DEPARTMENT: ECONOMICS

PROGRAMME: BA ECONOMICS

PROGRAMME SPECIFIC OUTCOMES

PSO1. Get a well-founded education in Economics.

PSO2. Prepare for employment and further study as economists.

PSO3. Pursue courses that emphasise quantitative and theoretical aspects of Economics.

PSO4. Focus on applied and policy issues in Economics.

PSO5. Choose from a wide range of economic specialisation.

PSO6. Get a well-resourced learning environment for Economics.

COURSE OUTCOMES

SEMESTER 1

CORE COURSE

EC1CRT01 PERSPECTIVES AND METHODOLOGY OF ECONOMICS

CO1. Become familiar with the broad contours of Social Sciences, specifically Economics and its methodologies, tools and analysis procedures.

CO2. Create enthusiasm about different schools of Economic thought and various aspects of social science research, methodology, concepts, tools and various issues.

COMPLEMENTARY COURSE

HY1CMTO2 SOCIAL FORMATIONS IN PRE-MODERN INDIA (WORLD HISTORY)

CO1. Acquire knowledge about early Indian Culture and History, Vedic and later Vedic period of India and the rise of Jainism and Buddhism in Early India

CO2. Identify the social, economic, political and cultural transformations in ancient and early medieval India.

CO3. Understand the reconstruction of ancient Indian society and how to interpret the historical sources of ancient India.

CO4. Understand the formation of state in early India.

CO5. Understand the features of Indian feudalism.

SEMESTER 2

CORE COURSE

EC2CRT02 MICRO ECONOMIC ANALYSIS-1

CO1. Get the foundation for economic analysis and problem solving.

CO2. Understand supply and demand and the basic forces that determine equilibrium in a market economy.

CO3. Learn about consumer behaviour and analysing consumer decisions.

CO4. Attend to firms and their decisions about optimal production.

CO5. Understand introductory microeconomic theory, solve basic microeconomic problems, and use these techniques to think about a number of policy questions related to the operation of the real economy.

COMPLEMENTARY COURSE

HY2CMTO4 HISTORY OF THE FREEDOM MOVEMENT IN INDIA (WORLD HISTORY)

CO1. Learn the legacy of the British rule in India.

CO2. Understand the causes and results of Revolt of 1857.

CO3. Identify the various phases of national movement.

CO4. Understand the Gandhian idea of Sathyagraha.

CO5. Understand about the socio-religious reform movements in 19th century.

CO6. Understand the administrative reforms of British India.

CO7. Trace the impact of Non-Cooperation Movement

CO8. Analyse the history of constitutional development in India.

SEMESTER 3

CORE COURSES

EC3CRT03 MICRO ECONOMIC ANALYSIS- II

CO1. Develop skills   understand economic concepts and use those concepts to analyse specific questions.

CO2. Understand consumer and firms' behaviour and analyse different types of market structures.

CO3. Analyse the behaviour of firms in a monopoly oroligopoly, and calculates the resulting changes in producer or consumer surplus.

CO4. Use economic tools to analyse economic policies.

EC3CRT04 ECONOMICS OF GROWTH AND DEVELOPMENT

CO1.Get acquainted with the basic concepts and issues of growth and development from Adam Smith.

CO2. Get more insight about the modern approaches to development presented by D Goulet and Amartya Sen.

COMPLEMENTARY COURSE

PS3CMT01 AN INTRODUCTION TO POLITICAL SCIENCE (POLITICAL SCIENCE)

CO1. Understand historical-analytical framework of the discipline of Political Science.

CO2. Understand the constitutional design and institutional framework of government.

CO3. Understand the ideas of democracy and freedom and corresponding social relations and political and institutional practices.

CO5. Develop the ability to comprehend contemporary politics as a relationship between institutional structures and historically constituted political processes.

SEMESTER 4

CORE COURSES

EC4CRT05 MACRO ECONOMICS I

CO1. Understand the main issues of macroeconomics.

CO2. Analyse the basics of Classical, Keynesian and other Orthodox Keynesian models of Macro Economics.

EC4CRT06 PUBLIC ECONOMICS

CO1. Analyse the impact of public policy on the allocation of resources and the distribution of income in the economy.

CO2. Get theoretical understanding of different State activities through the budgetary mechanism.

CO3. Learn about the working of the public finance system and to gain knowledge about the working of the Indian public finance.

COMPLEMENTARY COURSE

PS4CMT04 RIGHTS AND HUMAN RIGHTS IN INDIA (POLITICAL SCIENCE)

CO1. Acquire comprehensive knowledge of the concept of Human Rights.

CO2. Understand the origin, evolution of rights and various steps taken by the national and international agencies for the protection and promotion of Human Rights**.**

SEMESTER 5

CORE COURSES

EC5CRT07 QUANTITATIVE TECHNIQUES (STATISTICS)

CO1. Study economic theory including micro economic theory, macro-economic theory, statistics and econometrics.

EC5CRT08 MACRO ECONOMICS II

CO1. Understand theories of consumption and investment.

CO2. Analyse the concepts of money, inflation, unemployment and fiscal and monetary policies.

CO 3. Discuss the post Keynesian schools of macroeconomic thoughts.

EC5CRT09 ENVIRONMENTAL ECONOMICS

CO1. Understand the concepts of Environmental Economics and sustainable development.

CO2. Get insights into issues such as pollution, loss of forest, solid waste disposal, degradation of environment, global warming, the depletion of ozone layer and loss of biodiversity.

CO3. Understand the concept of Human Rights from a national and international perspective.

EC5CRT10 INTRODUCTORY ECONOMETRICS

CO1. Understand the basic econometric techniques and their applications and equip them with a knowledge of regression analysis relevant for analysing economic data.

OPEN COURSE

EC5OPT01 FOUNDATIONS OF ECONOMICS

CO1. Understand the basic ideas and concepts in Economics.

CO2. Identify and analyse current issues of financial system, public finance and Indian economy.

SEMESTER 6

CORE COURSES

EC6CRT11 QUANTITATIVE METHODS (STATISTICS)

CO1. Understand variety of statistical skills to collect, analyse and interpret empirical data.

CO2. Learn statistical methods and tools that are essential for the study of economics at the undergraduate level.

EC6CRT12 INTERNATIONAL ECONOMICS

CO1. Understand about the basic principles that tend to govern the flow of trade in goods and services at the global level.

EC6CRT13 MONEY AND FINANCIAL MARKETS

CO1. Understand about the working of various financial market segments as well as the functioning of major regulators and Banking system.

EC6CRT14 INDIAN ECONOMY

CO1. Know the development process in India after independence.

CO2. Understand the problems and measures in their contextual perspective.

CO3. Identify and analyse current issues of Indian economy.

EC6CBT01 MATHEMATICS FOR ECONOMIC ANALYSIS (ELECTIVE COURSE)

CO1. Learn differential calculus and its economic applications.

CO2. Learn integral calculus and its economic applications.

DEPARTMENT: HISTORY AND POLITICAL SCIENCE

PROGRAMME: BA HISTORY

PROGRAMME SPECIFIC OUTCOMES

PSO1. Get a well-founded education in History.

PSO2. Prepare for employment.

PSO4. Pursue post-graduate courses.

PSO5. Provide a well-resourced learning environment for History.

COURSE OUTCOMES

SEMESTER 1

CORE COURSE

HY1CRT01 PERSPECTIVES AND METHODOLOGIES IN SOCIAL SCIENCES – HISTORY

CO1. Get wider knowledge in Social Science and its historical setting.

CO2. Understand and solve contemporary problems at the regional, national and global levels.

CO3. Discuss basic principles and concepts Basic epistemology of Social Sciences.

COMPEMENTARY COURSE

EC1CMT01 PRINCIPLES OF ECONOMICS (GENERAL ECONOMICS)

CO1. Understand introductory microeconomic theory.

CO2. Get the foundation for economic analysis and problem solving.

CO3. Learn about consumer behaviour and analysing consumer decisions.

SEMESTER 2

CORE COURSE

HY2CRT02 UNDERSTANDING EARLY INDIA: FROM HUNTING GATHERERS TO LAND GRANTS

CO1. Understand the Prehistoric Cultures in India.

COMPEMENTARY COURSE

EC2CMT02 BASIC ECONOMIC STUDIES (GENERAL ECONOMICS)

CO1. Equip with basic understanding in macroeconomics.

CO2. Get the foundation for general issues in Indian economy and Kerala economy.

SEMESTER 3

CORE COURSES

HY3CRT03 POLITY, SOCIETY AND ECONOMY IN PRE-COLONIAL INDIA

CO1. Understand Polity, Society and Economy in Pre-Colonial India.

HY3CRT04 CULTURAL TRENDS IN PRE-COLONIAL KERALA

CO1. Understand Kerala's physiological features-role of Arabian Sea and Indian Ocean determining Kerala History-Historiography-sources-traditional, primary and secondary-folklore and oral history.

COMPLEMENTARY COURSE

PS3CMT01 AN INTRODUCTION TO POLITICAL SCIENCE (POLITICAL SCIENCE)

CO1. Understand historical-analytical framework of the discipline of Political Science.

CO2. Understand the constitutional design and institutional framework of government.

CO3. Understand the ideas of democracy and freedom and corresponding social relations and political and institutional practices.

CO4. Develop the ability to comprehend contemporary politics as a relationship between institutional structures and historically constituted political processes.

SEMESTER 4

CORE COURSES

HY4CRT05 MAKING OF MODERN KERALA

CO1. Understand the historical backdrops of the arrival of European powers and the nature of indigenous resistance.

CO2. Understand the modernisation process of the State.

HY4CRT06 RESEARCHING THE PAST

CO1. Become familiar with the basic terms, concepts and categories of history to understand the discipline as an intelligent knowledge system.

CO2. Understand the discipline scientifically with different approaches of history at different historical contexts and the methodology of historical writing with techniques and technicalities.

COMPLEMENTARY COURSE

PS4CMT04 RIGHTS AND HUMAN RIGHTS IN INDIA (POLITICAL SCIENCE)

CO1. Acquire comprehensive knowledge of the concept of Human Rights.

CO2. Understand the origin, evolution of rights and various steps taken by the national and international agencies for the protection and promotion of Human Rights**.**

SEMESTER 5

CORE COURSES

HY5CRT07 INHERITANCE AND DEPARTURES IN HISTORIOGRAPHY

CO1. Trace the historiographical trends from the traditional phase to the contemporary scene.

CO2. Improve the understanding of historical writings and perspectives and to inspire the students

to take up higher courses in History.

HY5CRT08 INDIA: NATION IN THE MAKING

CO1. Understand the impact of British Rule in India and the rise and development of India's freedom struggle.

HY5CRT09 STATE AND SOCIETY IN ANCIENT AND MEDIEVAL WORLD

CO1. Build an awareness on Prehistoric Societies: Biological evolution from hominids to homo sapiens – cultural evolution of early societies- prehistoric human land relationships- evolution of tool technology from Palaeolithic to Mesolithic- towards food production during late stone age- transition to metal age.

HY5CRT10 ENVIRONMENTAL STUDIES AND HUMAN RIGHTS IN HISTORICAL OUTLINE

CO1. Have awareness of environmental science and environmental studies.

OPEN COURSE

HY5CTO2 SOCIAL IMPLICATIONS OF MODERN REVOLUTIONS

CO1. Identify the historical origins, phases, causes and results of selected world revolutions.

CO2. Understand the concept and various dimensions of revolutions in the making of modern India.

CO3. Relate the outcome of world revolutions to contemporary issues regarding economic. development, cultural diversity, race, gender, and class relations and politics.

CO4. Understand the transitional changes during renaissance and reformation.

CO5. Evaluate the legacy of new economic policy.

SEMESTER 6

CORE COURSES

HY6CRT11 MAKING OF CONTEMPORARY INDIA

CO1. Know about integration of Princely States-Drafting of the Constitution- Reorganisation of Indian states and rise and development of various socio-political movements.

HY6CRT12 UNDERSTANDING MODERN WORLD

CO1.Understand Colonialism and Imperialism to World War I & II, and its impact, League of Nations, UNO etc.

HY6CRT13 CAPITALISM AND COLONIALISM

CO1. Understand the emergence and development of capitalism in Europe and the related scramble for colonies and imperialist domination around the world.

CO2. Understand the processes involved in the establishment and making of colonies and colonial relations, and the effects thereof on the nature of economic development in post-colonial times.

HY6CRT14 GENDER IN INDIAN PERSPECTIVES

CO1. Explain the socio-historical constructions of sexual differences in Indian society by emphasizing the plural backgrounds.

CO2. Challenge the conventional social norms about male-female dichotomy and to conceive biological realities natural but as always conditioned through social norms, moral codes and historical process.

HY6CBT01 ARCHAEOLOGY IN INDIA (ELECTIVE COURSE)

CO1. Understand the theory and practice of Archaeology.

DEPARTMENT: COMMERCE

PROGRAMME: BCom MODEL 1 COMPUTER APPLICATION

PROGRAMME SPECIFIC OUTCOMES

PSO1. Develop strong understanding of core Commerce and Computer Application courses.

PSO2. Take up challenging career options in Commerce and IT sector.

PSO3. Pursue higher education.

PSO4. Gain updated knowledge to take up employment.

COURSE OUTCOMES

SEMESTER 1

CORE COURSES

CO1CRT01 DIMENSIONS AND METHODOLOGY OF BUSINESS STUDIES

CO1. Understand business and its role in society.

CO2. Understand business ethics and CSR.

CO3. Comprehend the business environment and various dimensions.

CO4. Become familiar with technology integration in business.

CO5. Know the importance and fundamentals of business research.

CO1CRT02 FINANCIAL ACCOUNTING I

CO1. Acquire the skill of preparing accounts and financial statements of various types of business units other than corporate undertakings.

CO1CRT03 CORPORATE REGULATIONS AND ADMINISTRATION

CO1. Become familiar with the management and administration of joint stock companies in India as per Companies Act, 2013.

COMPLEMENTARY COURSE

CO1CMT01 BANKING AND INSURANCE

CO1. Become familiar with the basic concepts and practice of banking and the principles of Insurance.

SEMESTER 2

CORE COURSES

CO2CRT04 FINANCIAL ACCOUNTING -II

CO1. Acquaint with the preparation of books of accounts of various types of business activities and application of important accounting standards.

CO2CRT05 BUSINESS REGULATORY FRAMEWORK

CO1. Become familiar with the legal framework influencing business decisions.

CO2CRT06 BUSINESS MANAGEMENT

CO1. Become familiar with concepts and principles of management.

COMPLEMENTARY COURSE

CO2CMT02 PRINCIPLES OF BUSINESS DECISIONS

CO1. Become familiar   with the economic concepts and principles underlying business decision making.

SEMESTER 3

CORE COURSES

CO3CRT07 CORPORATE ACCOUNTS - I

CO1. Become familiar with corporate accounting procedures and understand the accounting for banking companies.

CO3CRT08 QUANTITATIVE TECHNIQUES FOR BUSINESS - I

CO1.Understand the role of statistics and quantitative techniques in business and become familiar with the basic tools applied.

CO3CRT09 FINANCIAL MARKETS AND OPERATIONS

CO1. Become familiar with financial market operations in India.

CO3CRT10 MARKETING MANAGEMENT

CO1. Understand the basic principles of marketing and their applications in the business and industry.

CO3OCT02 OPTIONAL COURSE 1 -INFORMATIONAL TECHNOLOGY FOR BUSINESS (THEORY)

CO1. Know the role of information technology in Business and develop web pages for Business

CO3OCP01 INFORMATIONAL TECHNOLOGY FOR BUSINESS (PRACTICAL)

CO1. Know the role of information technology in Business and develop web pages for Business.

SEMESTER 4

CORE COURSES

CO4CRT11 CORPORATE ACCOUNTS-II

CO1. Prepare financial statements of insurance companies and understand the accounting procedure for reconstruction and liquidation of companies.

CO4CRT12 QUANTITATIVE TECHNIQUES FOR BUSINESS- II

CO1. Become familiar   with more advanced tools of data analysis and forecasting and also to have an understanding of the fundamentals of theory of probability.

CO2. Know and understand Entrepreneurship Development and Project Management.

CO3. Develop entrepreneurial spirit among students.

CO4. Start up their own venture with confidence.

CO5. Take up challenges and become employer than seeking employment and be aware of the opportunities and support for entrepreneurship in India.

CO4CRT13 ENTREPRENEURSHIP DEVELOPMENT AND PROJECT MANAGEMENT

CO1. Develop entrepreneurial spirit among students.

CO2. Get sufficient knowledge to start up their venture with confidence.

CO3. Take up challenges and become employer than seeking employment and to make them aware of the opportunities and support for entrepreneurship in India.

CO4OCT02 OPTIONAL CORE II: INFORMATION TECHNOLOGY FOR OFFICE (THEORY)

CO1. Managing the office activities with the help of information technology.

CO4OCP01 INFORMATION TECHNOLOGY FOR OFFICE (PRACTICAL)

CO1. Managing the office activities with the help of information technology.

SEMESTER 5

CORE COURSES

CO5CRT14 COST ACCOUNTING - I

CO1. Become familiar with cost concepts and learn the fundamentals of cost accounting as a separate system of accounting.

CO5CRT15 ENVIRONMENT MANAGEMENT AND HUMAN RIGHTS

CO1. Understand the concepts of Environmental Economics and sustainable development.

CO2. Have insights into issues such as pollution, loss of forest, solid waste disposal, degradation of environment, global warming, the depletion of ozone layer and loss of biodiversity.

CO3. Understand the concept of Human Rights from a national and international perspective.

CO5CRT16 FINANCIAL MANAGEMENT

CO1. Become familiar with the functional areas and principles of financial management.

CO5OCT02 OPTIONAL CORE III- COMPUTERIZED ACCOUNTING (THEORY)

CO1. Master industry-sought-after computerised accounting packages.

CO2. Get exposure to computer applications in the field of accounting.

CO3. Develop practical skills in the application of Tally Accounting Package.

CO5OCP01 OPTIONAL CORE III- COMPUTERIZED ACCOUNTING (PRACTICAL)

CO1. Master industry sought-after computerised accounting packages.

CO2. Get exposure to computer applications in the field of accounting.

CO3. Develop practical skills in the application of Tally Accounting Package.

OPEN COURSE

CO5OP03 FUNDAMENTALS OF ACCOUNTING

CO1. Understand the basic accounting principles and practices in business.

SEMESTER 6

CORE COURSES

CO6CRT17 COST ACCOUNTING- II

CO1. Get acquainted with different methods and techniques of costing. and identify the methods and techniques applicable for different types of industries.

CO6CRT18 ADVERTISEMENT AND SALES MANAGEMENT

CO1. Understand the strategy, concept and methods of advertising and sales promotion.

CO6CRT19 AUDITING AND ASSURANCE

CO1. Understand the principles and procedure of auditing.

CO2. Understand the duties and responsibilities of auditors and undertake the work of auditing.

CO6CRT20 MANAGEMENT ACCOUNTING

CO1. Get acquainted with management accounting techniques for the analysis and interpretation of financial statements and study the basic framework of financial reporting.

CO6OCT02 OPTIONAL CORE- SOFTWARE FOR BUSINESS AND RESEARCH (THEORY)

CO1. Use IT in business research analysis.

CO2. Develop practical skills in the applications of business software.

CO6OCP01 OPTIONAL CORE- SOFTWARE FOR BUSINESS AND RESEARCH (PRACTICAL)

CO1. Use IT in business research analysis.

CO2. Develop practical skills in the applications of business software.

PROGRAMME: BCom MODEL II FINANCE AND TAXATION

PROGRAMME SPECIFIC OUTCOMES

PSO1. Get thorough knowledge of finance and commerce.

PSO2. Pursue higher education and do research in the field of finance and commerce.

PSO3. Learn relevant advanced accounting and tax career skills.

PSO4. Apply both quantitative and qualitative knowledge to their future careers in business.

COURSE OUTCOMES

SEMESTER 1

CORE COURSES

CO1CRT01 DIMENSIONS AND METHODOLOGY OF BUSINESS STUDIES

CO1. Understand business and its role in society.

CO2. Understand business ethics and CSR.

CO3. Comprehend the business environment and various dimensions.

CO4. Become familiar with technology integration in business.

CO5. Understand the importance and fundamentals of business research.

CO1CRT02 FINANCIAL ACCOUNTING– I

CO1. Develop the skill of preparing accounts and financial statements of various types of business units other than corporate undertakings.

CO1CRT03 CORPORATE REGULATIONS AND ADMINISTRATION

CO1. Know the management and administration of joint stock companies in India as per Companies Act, 2013.

COMPLEMENTARY COURSE

CO1CMT01   BANKING AND INSURANCE

CO1. Become familiar with the basic concepts and practice of banking and the principles of Insurance.

SEMESTER 2

CORE COURSES

CO2CRT04 FINANCIAL ACCOUNTING – II

CO1. Get acquainted   with the preparation of books of accounts of various types of business activities and application of important accounting standards.

CO2CRT05 BUSINESS REGULATORY FRAMEWORK

CO1. Become familiar with the legal framework influencing business decisions.

CO2CRT06 BUSINESS MANAGEMENT

CO1. Become familiar with concepts and principles of management.

COMPLEMENTARY COURSE

CO2CMT02 PRINCIPLES OF BUSINESS DECISIONS

CO1. Become familiar with the economic concepts and principles underlying business decision making.

SEMESTER 3

CORE COURSES

CO3CRT07 CORPORATE ACCOUNTS - I

CO1. Become familiar with corporate accounting procedures and understand the accounting for banking companies.

CO3CRT08 QUANTITATIVE TECHNIQUES FOR BUSINESS - I

CO1. Understand the role of statistics and quantitative techniques in business and become familiar with basic tools applied.

CO3CRT09 FINANCIAL MARKETS AND OPERATIONS

CO1. Become familiar with financial market operations in India.

CO3CRT08 MARKETING MANAGEMENT

CO1. Understand the basic principles of marketing management and their applications in business and industry.

CO3OCT01 OPTIONAL1-GOODS AND SERVICES TAX

CO1. Understand GST law in the country with a practical perspective and employability   in the commercial tax practices.

SEMESTER 4

CORE COURSES

CO4CRT11 CORPORATE ACCOUNTS – II

CO1 Prepare financial statements of insurance companies and understand the accounting procedure for reconstruction and liquidation of companies.

CO4CRT12 QUANTITATIVE TECHNIQUES FOR BUSINESS- II

CO1. Become familiar with more advanced tools of data analysis and forecasting and understand the fundamentals of theory of probability.

CO4CRT13 ENTREPRENEURSHIP DEVELOPMENT AND PROJECT MANAGEMENT

CO1. Develop entrepreneurial spirit among students.

CO2. Know how to start-up venture with confidence.

CO3. Take up challenges and become employer than seeking employment and to make them aware of the opportunities and support for entrepreneurship in India.

CO4OCT01 OPTIONAL 2 - FINANCIAL SERVICES

CO1. Have an overall idea of financial services available in the country and create an understanding about recent trends in financial services sector.

SEMESTER 5

CORE COURSES

CO5CRT14 COST ACCOUNTING-I

CO1. Become familiar with cost concepts.

CO2. Learn the fundamentals of cost accounting as a separate system of accounting.

CO5CRT15 ENVIRONMENT MANAGEMENT AND HUMAN RIGHTS

CO1. Understand the concepts of Environmental Economics and sustainable development.

CO2. Have insights into issues such as pollution, loss of forest, solid waste disposal, degradation of environment, Global warming, the depletion of ozone layer and loss of biodiversity.

CO3. Understand the concept of Human Rights from a national and international perspective.

CO5CMT07 E-COMMERCE

CO1. Understand the basic and emerging topics in E-Commerce.

CO2. Discuss E-Commerce from an enterprise point of view and think strategically about the role of IT for an organisation's competitive position.

CO5OCT01 OPTIONAL CORE-III INCOME TAX- I

CO1. Become familiar with Income Tax Act 1961 and to enable the students to compute income taxable under the first three heads of Income.

SEMESTER 6

CORE COURSE

CO6CRT17 COST ACCOUNTING- II

CO1. Get acquainted with different methods and techniques of costing.

CO2. Identify the methods and techniques applicable for different types of industries.

CO6CRT18 ADVERTISEMENT AND SALES MANAGEMENT

CO1. Know the strategy, concept and methods of advertising and sales promotion.

CO6CMT09 INCOME TAX: ASSESSMENT AND PLANNING

CO1. Compute the taxable income of Firms, AOP & BOI, Co-operative Society, HUF and Companies.

CO2. Understand the concepts of tax planning.

CO3. Become familiar the students about the tax planning measures for different heads of income.

CO6CRT20 MANAGEMENT ACCOUNTING

CO1. Get acquainted with management accounting techniques for the analysis and interpretation of financial statements.

CO2. Study the basic framework of financial reporting.

CO6OCT01 OPTIONAL CORE-IV- INCOME TAX II

CO1. Understand determination of total income and tax payable and to get an overview regarding returns to be filed by an individual and also assessment procedure.

DEPARTMENT: PHYSICAL EDUCATION

SEMESTER 5

OPEN COURSE

COURSE OUTCOMES

PEDOO51 PHYSICAL, HEALTH AND LIFE SKILL EDUCATION

CO1. Create awareness about health.

CO2. Develop knowledge about yoga.

CO3. Create awareness about the importance of fitness.

DEPARTMENT: BUSINESS ADMINISTRATION (SELF-FINANCING)

PROGRAMME: BBA

PROGRAMME SPECIFIC OUTCOMES

PSO1. Evaluate and apply the fundamental principles of business management.

PSO2. Utilise knowledge and skills for decision-making and management purposes.

PSO3. Analyse and appraise contemporary issues employing relevant economic constructs.

PSO4. Present themselves in a clear and concise manner in professional settings.

COURSE OUTCOMES

SEMESTER 1

CORE COURSES

BA1CRT01 PRINCIPLES AND METHODOLOGY OF MANAGEMENT

CO1. Understand Methodological Perspective of Management as a discipline.

CO2. Understand principles and functions of Management.

CO3. Understand the process of decision making.

CO4. Understand modern trends in management process.

BA1CRT02 BUSINESS ACCOUNTING

CO1. Understand the basics of accounting.

CO2. Identify the basics principles of accounting.

CO3. Understand the systems /process for recording transactions.

CO4. Prepare the final accounts of sole trader.

CO5. Know about the concept of bill of exchange in business.

COMPLEMENTARY COURSES

BA1CMT03 FUNDAMENTALS OF BUSINESS MATHEMATICS

CO1. Develop scientific ability.

CO2. Critically evaluate mathematical problems.

CO3. Have fundamental touch with industrial and commercial problems.

CO4. Know about modern trends in mathematics.

CO5. Prepare them for management studies.

BA1CMT04 FUNDAMENTALS OF BUSINESS STATISTICS

CO1. Present a broad overview of Statistics as a subject.

CO2. Organise a statistical survey.

CO3. Understand the importance of summary measures to describe the   characteristics of data set.

CO4. Analyse the relationship between two variables.

CO5. Use various forecasting techniques

SEMESTER 2

CORE COURSES

BA2CRT06 COST AND MANAGEMENT ACCOUNTING

CO1. Do cost and management accounting by themselves.

BA2CRT07 BUSINESS COMMUNICATION

CO1. Understand the nuances of business communication.

COMPLEMENTARY COURSES

BA2CMT08 MATHEMATICS FOR MANAGEMENT

CO1. Develop scientific ability.

CO2. Know about modern trends in Mathematics.

CO3. Know about problems in industry and management.

CO4. Learn how to solve the problem.

CO5. Do research in Managerial Sciences.

BA2CMT09 STATISTICS FOR MANAGEMENT

CO1. Have some idea about probability and probability distributions.

CO2. Develop the concept of a sampling distribution.

CO3. Formulate hypothesis about various population parameters.

CO4. Conduct various statistical tests.

SEMESTER 3

CORE COURSES

BA3CRT11 HUMAN RESOURCE MANAGEMENT

CO1. Understand human resources management in an organisation.

CO2. Know the selection, recruitment and training programme in an organisation.

BA3CRT12 MARKETING MANAGEMENT

CO1. Have an awareness on market, market segments and consumer behaviour.

CO2. Know the meaning and importance of product mix.

CO3. Understand pricing policies and the applicability of different pricing strategies.

CO4. Know the scope of advertising and sales promotion.

CO5. Identify and develop salesmanship in them.

BA3CRT13 RESEARCH METHODOLOGY

CO1. Understand various methodologies used in the research in management and business subjects.

BA3PRP15 PERSONALITY DEVELOPMENT AND MANAGEMENT SKILLS

(Minor Project)

CO1. Explore current management literature so as to develop an individual style and sharpen his skills in the area of leadership, communication, decision making, motivation and conflict management.

COMPLEMENTARY COURSE

BA3CMT14 BUSINESS LAWS

CO1. Identify the principles behind law of contract.

CO2. Identify the validity of contracts.

CO3. Have awareness about various special contracts.

SEMESTER 4

CORE COURSES

BA4CRT16 FINANCIAL MANAGEMENT

CO1. Understand financial management.

CO2. Evaluate sources of capital.

CO3. Know about theories of dividend decisions.

BA4CRT17 MANAGERIAL ECONOMICS

CO1. Acquaint with decision making in the context of various market structures.

BA4CRT18 ENTREPRENEURSHIP

CO1. Understand about entrepreneurs and entrepreneurship.

COMPLEMENTARY COURSES

BA4CMT19 BASIC INFORMATICS FOR MANAGEMENT

CO1. Handle and scientifically analyse the various aspects of business while commencing a business.

CO2. Use Microsoft Excel in research work.

CO3. Become computer proficient.

BA4CMT20 CORPORATE LAWS

CO1. Identify the various steps in the formation of a company.

CO2. Specify the basic principles of corporate laws.

CO3. Clarify the basic principles of partnership law.

CO4. Understand the basic features of limited liability partnership.

SEMESTER 5

CORE COURSES

BA5CRT21 ORGANISATIONAL BEHAVIOUR

CO1. Manage conflict amongst groups in business environment.

CO2.Comprehend and apply motivational theories in the workplace.

CO3. Identify changes within organisations and power and politics in organisations.

BA5CRT23 ENVIRONMENT SCIENCE AND HUMAN RIGHTS

CO1. Understand the concepts of Environmental issues and sustainable development.

CO2. Have insights into issues such as pollution, loss of forest, solid waste disposal, degradation of

environment, global warming, the depletion of ozone layer and loss of biodiversity.

CO3. Understand the concept of Human Rights from a national and international perspective.

BA5CRT25 OPERATION MANAGEMENT

CO1. Appreciate the concepts of operation management.

BA5CRT26 INDUSTRIAL RELATIONS

CO1. Have a basic idea regarding industrial relations.

CO2. Understand various prospect of workers and employers.

CO3. Understand about the employees' performance and their carrier planning.

CO4. Know how the workers are participating in making programmes.

CO5. Understand various welfare facilities of education programmes provided by employers to their employees.

COMPLEMENTARY COURSE

BA5CMT24 INTELLECTUAL PROPERTY RIGHTS AND INDUSTRIAL LAWS

CO1. Appreciate the concepts of patent and trademark protection.

CO2. Specify the various legal provisions in the Factories Act and Industrial Disputes Act.

CO3. Identify the benefits offered by ESI Act.

OPEN COURSE

BA5OPT22 BRAND MANAGEMENT

CO1. Understand the concepts brand, brand building and its value to an organisation.

CO2. Develop and implement strategies for successful brand portfolio management.

SEMESTER 6

CORE COURSES

BA6OCT27 OPTIONAL 1- INVESTMENT AND INSURANCE MANAGEMENT

CO1. Become familiar with various investment avenues

CO2. Understand the various tax savings ideas.

CO3. Design an investment portfolio

CO4. Know the financial markets and financial institutions and gain an idea about the primary and secondary market operations.

BA6OCT28 OPTIONAL II - ADVERTISING AND SALESMANSHIP

CO1. Know about Marketing Management.

CO2. Develop entrepreneurial skills.

CO3. Meet the demand of the various industrial sectors.

BA6CRT29 STRATEGIC MANAGEMENT

CO1. Acquire the skill to identify and establish targets to fix the objective.

CO2. Identify existing opportunities and restraints in the environment and develop a logical realistic process to accomplish organisational objectives.

BA6CRT30 COMMUNICATION SKILLS AND PERSONALITY DEVELOPMENT

CO1. Communicate effectively.

CO2. Develop soft skills and social skills.

DEPARTMENT: COMMERCE (SELF-FINANCING)

PROGRAMME: BCom Model I FINANCE AND TAXATION

PROGRAMME SPECIFIC OUTCOMES

PSO1. Get thorough knowledge of finance and commerce.

PSO2. Pursue higher education and do research in the field of finance and commerce.

PSO3. Learn relevant advanced accounting and Tax career skills.

PSO4. Apply both quantitative and qualitative knowledge to their future careers in business.

COURSE OUTCOMES

SEMESTER 1

CORE COURSE

CO1CRT01 DIMENSIONS AND METHODOLOGY OF BUSINESS STUDIES

CO1. Understand business and its role in society.

CO2. Understand business ethics and CSR.

CO3. Comprehend the business environment and various dimensions.

CO4. Become familiar with technology integration in business.

CO5. Understand the importance and fundamentals of business research.

CO1CRT02 FINANCIAL ACCOUNTING– I

CO1. Develop the skill of preparing accounts and financial statements of various types of business

units other than corporate undertakings.

CO1CRT03 CORPORATE REGULATIONS AND ADMINISTRATION

CO1. Know the management and administration of joint stock companies in India as per Companies

Act, 2013.

COMPLEMENTARY COURSE

CO1CMT01 BANKING AND INSURANCE

CO1. Become familiar with the basic concepts and practice of banking and the principles of insurance.

SEMESTER 2

CORE COURSES

CO2CRT04 FINANCIAL ACCOUNTING – II

CO1. Get acquainted with the preparation of books of accounts of various types of business activities and

application of important accounting standards.

CO2CRT05 BUSINESS REGULATORY FRAMEWORK

CO1. Become familiar with the legal framework influencing business decisions.

CO2CRT06 BUSINESS MANAGEMENT

CO1. Become familiar with concepts and principles of management.

COMPLEMENTARY COURSE

CO2CMT02 PRINCIPLES OF BUSINESS DECISIONS

CO1. Become familiar with the economic concepts and principles underlying business decision making.

SEMESTER 3

CORE COURSES

CO3CRT07 CORPORATE ACCOUNTS – I

CO1. Become familiar with corporate accounting procedures and understand the accounting for banking companies.

CO3CRT08 QUANTITATIVE TECHNIQUES FOR BUSINESS - I

CO1. Understand the role of statistics and quantitative techniques in business and become familiar with basic tools applied.

CO3CRT09 FINANCIAL MARKETS AND OPERATIONS

CO1. Become familiar with financial market operations in India.

CO3CRT10 MARKETING MANAGEMENT

CO1. Understand the basic principles of marketing management and their applications in the business and industry.

CO3OCT01 OPTIONAL 1-GOODS AND SERVICES TAX

CO1. Understand GST law in the country with a practical perspective and employability in the commercial tax practices.

SEMESTER 4

CORE COURSES

CO4CRT11 CORPORATE ACCOUNTS – II

CO1. Prepare financial statements of insurance companies and understand the accounting procedure for reconstruction and liquidation of companies.

CO4CRT12 QUANTITATIVE TECHNIQUES FOR BUSINESS- II

CO1. Become familiar with more advanced tools of data analysis and forecasting and understand the fundamentals of theory of probability.

CO4CRT13 ENTREPRENEURSHIP DEVELOPMENT AND PROJECT MANAGEMENT

CO1. Develop entrepreneurial spirit among students.

CO2. Know how to start-up venture with confidence.

CO3. Take up challenges and become employer than seeking employment and to make them aware of the opportunities and support for entrepreneurship in India.

CO4OCT01 OPTIONAL 2 FINANCIAL SERVICES

CO1. Have an overall idea of financial services available in the country and create an understanding about recent trends in financial services sector.

SEMESTER 5

CORE COURSES

CO5CRT14 COST ACCOUNTING-I

CO1. Become familiar with cost concepts.

CO2. Learn the fundamentals of cost accounting as a separate system of accounting.

CO5CRT15 ENVIRONMENT MANAGEMENT AND HUMAN RIGHTS

CO1. Understand the concepts of Environmental Economics and sustainable development.

CO2. Have insights into issues such as pollution, loss of forest, solid waste disposal, degradation of environment, Global warming, the depletion of ozone layer and loss of biodiversity.

CO3. Understand the concept of Human Rights from a national and international perspective.

CO5CRT16 FINANCIAL MANAGEMENT

CO1. Become familiar with the functional areas and principles of financial management.

CO2. Understand the role of financials managers and undertake the work of financing decision, investment decision and estimation of working capital requirements.

CO5OCT01 OPTIONAL CORE- III INCOME TAX- I

CO1. Become familiar with Income Tax Act 1961 and to enable the students to compute Income taxable under the first three heads of Income.

OPEN COURSE

CO5OP03 FUNDAMENTALS OF ACCOUNTING

CO1. Become familiar with the basic accounting principles and practices in business.

SEMESTER 6

CORE COURSES

CO6CRT17 COST ACCOUNTING- II

CO1. Get acquainted with different methods and techniques of costing.

CO2. Identify the methods and techniques applicable for different types of industries.

CO6CRT18 ADVERTISEMENT AND SALES MANAGEMENT

CO1. Know the strategy, concept and methods of advertising and sales promotion.

CO6CRT19 AUDITING AND ASSURANCE

CO1. Become familiar with the principles and procedure of auditing.

CO2. Understand the duties and responsibilities of auditors and to undertake the work of auditing.

CO6CRT20 MANAGEMENT ACCOUNTING

CO1. Get acquainted with management accounting techniques for the analysis and interpretation of financial statements.

CO2. Study the basic framework of financial reporting.

CO6OCT01 OPTIONAL CORE-IV: INCOME TAX II

CO1. Understand determination of total income and tax payable and to get an overview regarding returns to be filed by an individual and also assessment procedure.

DEPARTMENT: COMPUTER SCIENCE

PROGRAMME: BSc COMPUTER SCIENCE

PROGRAMME SPECIFIC OUTCMES

PSO1. Demonstrate knowledge in Data Structures and Programming Languages.

PSO2. Demonstrate knowledge Databases, Software Engineering and Development.

PSO3. Demonstrate knowledge Computer Hardware and Architecture.

PSO4. Apply problem-solving skills and the knowledge of computer science to solve real world Problems.

PSO5. Develop technical project reports and present them orally among the users.

COURSE OUTCOMES

SEMESTER 1

CORE COURSES

CS1CRT01 COMPUTER FUNDAMENTALS AND BASICS OF PC HARDWARE

CO1. Understand the generations, types and different functional units.

CO2. Understand the different computer hardware.

CO3. Understand slots and ports and learn to assemble PC.

CO4. Understand the working of different input and output devices for a computer.

CO5. Understand two different types of memory and storage available in memory.

CS1CRT02 METHODOLOGY OF PROGRAMMING AND C LANGUAGE

CO1. Write algorithms and flowchart for creating a program.

CO2. Declare and initialise variables, understand various types of operators and their precedence.

CO3. Write functions to read inputs from users. Use decision making statements and looping statements in the program.

CO4. Create and use arrays pointers and strings in program.

CO5. Create programs that implements structures and union concepts. create user defined functions to perform different tasks.

COMPLEMENTARY COURSES

MM1CMT03 DISCRETE MATHEMATICS-I (MATHEMATICS)

CO1. Understand the foundation of logic and its applications.

CO2. Get a clear picture of sets and operations of sets.

CO3. Identify countable and uncountable sets.

CO4. Learn about the basic concepts of number theory, including divisibility and modular arithmetic.

CO5. Understand relations and their properties.

CS1CMT01 FUNDAMENTALS OF DIGITAL SYSTEMS (ELECTRONICS)

CO1. Understand different number system and their conversions, digitals codes.

CO2. Design, implement, and evaluate Basic Logic gates and universal properties of gates.

CO3. Learn Boolean operations and expressions, Logic simplification.

CO4. Learn about Combinational Logic and its functions.

CO5. Develop the ability to construct Sequential Circuits.

CS1CRP01 SOFTWARE LAB - I

CO1. Learn programs based on input output functions.

CO2. Learn decision making statements.

CO3. Learn looping statements1D and 2D arrays.

CO4. Learn strings and string handling functions.

CO5. Learn Pointers.

CO6. Learn function and recursion, structure and union.

SEMESTER 2

CORE COURSES

CS2CRT03 DATA COMMUNICATION

CO1. Understand data communication and define their components and their type of data exchange, show how data and signal can be digital or analog.

CO2. Understand transmission media and its position in the internet model.

CO3. Understand how we can change digital data to analog signal and an analog signal to anew analog signal.

Co4. Understand the general idea behind switching. and about the physical structure of the switches and routers.

CS2CRT04 COMPUTER ORGANISATION AND ARCHITECTURE

CO1. Understand the basic organisation, design, and operational concepts of CPU.

CO2. Understand how instructions and program are executed in a CPU.

CO3. Understand memory operations read and write and working of different memory.

CO4. Understand memory operations read and write and working of different memory.

CO5. Understand the concepts of pipelining and vector processing.

CS2CRT05 OBJECT ORIENTED PROGRAMMING USING C++.

CO1. Understand object-oriented concepts and structure of a C++ program.

CO2. Create classes and objects.

CO3. Define constructors and destructors. Implement overloading.

CO4. Create more than one classes using inheritance.

CO5. Create and use pointers. Create, open, manipulate and close files using stream classes.

COMPLEMENTARY COURSE

MM2CMT03 DISCRETE MATHEMETICS-II (MATHEMATICS)

CO1. Represent a graph using matrix.

CO2. Determine whether two graphs are isomorphic in an important problem of graph theory.

CO3. Understand trees, application of trees, tree traversal, spanning trees, minimum spanning trees.

CO4. Get an idea of how to solve different types of linear equations using matrices.

CS2CCP02 SOFTWARE LAB – II

CO1. Learn programs based on default arguments and function overloading.

CO2. Learn array of objects, friend functions passing objects as arguments to functions.

CO3. Learn operator overloading (binary,unary) using member functions and friend functions.

CO4. Learn constructors, different types of constructors.

CO5. Learn inheritance, different types of inheritance.

SEMESTER 3

CORE COURSES

CS3CRT06 DATABASE MANAGEMENT SYSTEMS

CO1. Understand the concepts of database, DBMS, data models. Also explains types of DBMS languages.

CO2. Understand ER modelling, how to draw ER diagrams and explain different constraints and tables.

CO3. Understand SQL data types, DDl and DML commands, SQL set operations and Aggregate Functions.

CO4. Understand normalisation and different normal forms and indexing structures for file.

CS3CRT07 SYSTEM ANALYSIS AND DESIGN

CO1. Understand the complete overview of the system to be developed and the different concepts in a system.

CO2. Understand the different tools for system analysis and design.

CO3. Understand the initial phase for developing a system. Learn how to analysis of a problem in a system.

CO4. Understand the design phase for developing a system.

CO5. Understand the development phase of a system. Learn how to develop the solutions in a system to solve the problem.

CO6. Understand the operation phase of a system. Learn how to implement operate and maintain a system.

CS3CRT08 NETWORKING FUNDAMENTALS

CO1. Understand Network and define their criteria and structures. topology of network and different types of networks.

CO2. Define network models: OSI reference model and TCP/IP protocol suite.

CO3. Discuss the general services provided by data link layer. Introduce the simple and common data-link protocols.

CO4. Understand the network layer by defining the service provided by this layer.

CO5. Understand different delays occur in n/w layer communication and the issues of Congestion Control   at the network layer.

CS3CRT09 DATA STRUCTURES USING C++

CO1. Learn about different data structures. Create and use arrays. Perform searching and sorting of arrays.

CO2. Create and use stack and queue write programs that implement applications of stack and queue.

CO3. Learn about fee data structure and its applications.

CO4. Learn about different types of file organisation.

MM3CMT03 STATISTICAL METHODS AND PROBABILITY THEORY (MATHEMATICS)

CO1. Understand the different aspects of data and collection of data census and sampling methods.

CO2. Learn different averages like mean, median and mode are taught in detail.

CO3. Understand probability theory and its application.

CO4. Understand Bernoulli, Binomial, Poisson and normal distribution with all properties.

CS3CRP03 SOFTWARE LAB – III

CO1. Learn about how to create a table in oracle database and how to access it.

CO2. Data structures using C++: Learn programmes that implement various data structures such as Arrays, stack, queue, Linked list, and Trees.

SEMESTER 4

CORE COURSES

CS4CRT10 LINUX ADMINISTRATION

CO1. Understand Linux as an operating system, its features and advantages.

CO2. Understand different in Linux and different commands for handling processing mathematical commands and how to use Vi editor.

CO3. Understand the basics of shell programming and to write simple bash programs.

CO4. Understand the various system administrative activities and functions.

CO5. Learn how to configure various server in a Linux system.

CS4CRT11 MICROPROCESSORS AND ASSEMBLY LANGUAGE PROGRAMMING

CO1. Understand the concept of memory and I/O interfacing.

CO2. Understand the basic 8086 microprocessor system and internal architecture, concept of Assembly language programming, instruction set of 8086 and format of 8086 instruction and addressing modes.

CO3. Implement standard program in 8086.

CO4. Understand the importance of interrupts and various interrupt of 8086 processor, DMA controller, programmable timer,DAC and their interfacing with 8086 microprocessor.

CO5. Understand the architecture of 80x 86 microprocessor family and RISC machine.

CS4CRT13 WEB PROGRAMMING USING PHP

CO1. Design simple webpage using HTML.

CO2. Create webpage with CSS. Include coding inside webpage using Java Script.

CO3. Create PHP scripts using variables, data types loops and arrays.

CO4. Learn about session and cookie concepts in PHP.

CO5. Create databases and tables in the MYSQL database connect PHP programs with MYSQL database.

CS4CRT12 COMPUTER AIDED OPTIMIZATION TECHNIQUES

CO1. Understand the origin and development of OR, the advantage and limitation of OR models.

CO2. Understand the simplex method of solving LPP, artificial variables, Big -H method, duality in LPP.

CO3. Learn sequencing problem and processing of 'n' jobs through machine, 3 machine and k Machine.

CO4. Understand network routing problem, network flow problem, network flow problems minimal spanning tree problem, shortest route problem, maximal flow problems.

CS4CRP04 ASSEMBLY LANGUAGE PROGRAMMING LAB

CO1. Learn Assembly Language Programming.

CO2. Implement Assembly Language Programmes using 8086 microprocessors.

CS4CRP05 SOFTWARE LAB - IV

CO1. Learn about creating webpage using HTML, CSS and JavaScript.

CO2. Learn Php programs that implements the concepts loops, arrays decision-making statements, sessions and database connectivity.

SEMESTER 5

CORE COURSES

CS5CRT14 SYSTEM SOFTWARE AND OPERATING SYSTEMS

CO1. Understand fundamentals of language processing, grammar, assemblers and macro.

CO2. Understand parsing, compler and different phases of compilation, linking and loading

the techniques to achieve process synchronisation, deadlocks, prevention, avoidance detection and recovery of deadlock.

CO3. Learn different strategies of memory management, file system, access methods and allocation methods of file system.

CS5CRT15 IT AND ENVIRONMENT

CO1. Acquire basic knowledge of internet, internet as knowledge repository.

CO2. Acquire ability to develop internet-based learning environment.

CO3. Have awareness about opportunities and threats in the cyber world.

CO4. Know how to manage and reuse e-waste.

CO5. Develop self-awareness of Human Rights and the importance of Human Right education.

CS5CRT16 JAVA PROGRAMMING USING LINUX

CO1. Create and use datatype operators, control structures.

CO2. Create classes and objects use constructors in the program. Understand the use of static, super and final keywords.

CO3. Create programs using arrays create and use packages, threads and exceptions handling techniques.

CO4. Create GUI with swing components and generate events.

CO5. Draw graphics using applet. Connect database with Java program.

CS5CRT17 COMPUTER SECURITY

CO1. Understand what is computer security, its goals and need for having security.

CO2. Understand the different techniques and algorithms used for cryptography.

CO3. Understand the various methods for implementing system security.

CO4. Understand the various security mechanisms implemented in network.

CO5. Understand the various security implementation in web.

CS5PRP06 SOFTWARE DEVELOPMENT LAB - I

CO1. Learn Java programs that implements the concepts class method overloading method overriding, JDBC connection and exception handling.

OPEN COURSE

CS5OPT02 COMPUTER FUNDAMENTALS INTERNET AND MS OFFICE

CO1. Get knowledge about the basics of a computer, hardware, software and networks.

CO2. Acquire the basic knowledge of internet and its various applications.

CO3. Use Microsoft Word and its various tools to create and edit a document.

CO4. Use Microsoft Excel and its various tools to create and edit spreadsheets.

CO5. Use Microsoft PowerPoint and its various tools to create and edit a PowerPoint presentation.

SEMESTER 6

CORE COURSES

CS6CRT18 COMPUTER GRAPHICS

CO1. Learn about different types of display devices.

CO2. Define algorithms to draw lines and circles.

CO3. Learn about geometric transformations and various line clipping polygon clipping and text clipping methods.

CO4. Study about three-dimensional object representations.

CO5. Learn about basics of computer animations.

CS6CRT19 BIG DATA ANALYTICS

CO1. Learn about big data platform, need of bigdata, tools used for processing it and statistical concepts regarding bigdata.

CO2. Understand data stream concepts, its sampling, filling, counting distinct element and estimating moments.

CO3. Learn about Hadoop distributed file system, Map reduce application, features of Map reducing component of HDFS and Map reduce.

Co4. Understand the application of big data using pig and Hive, fundamentals of HBase and Zookeeper, IBM infosphere bigin sights and stream and different visualisation techniques used for big data analysis.

CS6PET01 PYTHON AND LATEX

CO1. Understand the basics of python programming language.

CO2. Understand the various control statements and data structures used in python programming.

CO3. Understand how functions are implemented.

CS6SMP07 SEMINAR

CO1. Write technical documents and give oral presentations related to the work completed and improve personality development and communication skills.

CO2. Get trained to approach ethically any multidisciplinary challenges with economic, environmental and social contexts and to set them for future recruitment by potential employers.

CO3. Identify and apply appropriate well-rehearsed note-taking interactive and time-management strategies to their academic studies.

CO4. Develop audience-centred presentations meeting concrete professional objectives and integrating ethical and legal visual aids.

CO5. Identify and critically evaluate the quality of claims, explanation, support, and delivery in public. and professional discourse, and understand the factors influencing a speaker's credibility.

CA6PRP08 SOFTWARE DEVELOPMENT LAB II (Main Project)

CO1. Be able to elect a suitable project making use of the technical knowledge gained from previous courses with the awareness of impact of technology on the society and their ethical responsibilities.

CO2. Collect and disseminate information related to selected project.

CO3. Identify the modern tools required for the implementation of the project.

CO4. Form a team and distribute the work among themselves.

CO5. Communicate technical and general information by means of oral as well as written presentation skills with professionalism.

POSTGRADUATE PROGRAMMES

PROGRAMME OUTCOMES

PO1. Disciplinary Knowledge: Ability to acquire and apply knowledge in the field of study.

PO2. Social skills: Ability to develop interpersonal skills with capacity to work collaboratively as part of a team undertaking a range of different roles.

PO3. Critical Thinking: Ability to critically respond to major issues and developments in the discipline with competence in initiating, developing, and pursuing scientific research.

PO4. Professional Ethics and Integrity: Ability to act with integrity in profession and in the obligation to society.

PO5. Lifelong Learning and Information Management: Ability to seek new knowledge, and skills throughout life and manage relevant information from various sources.

PO6. Leadership Skills: Ability to initiate action with moral responsibility and to motivate others involved.

PO7. Research Related Skills: Ability to undertake supervised research in a systematic and scientific manner--identification of research problem, review of literature, data analysis, and drawing logical conclusion.

PO8. Self-directed Learning: Ability to work and learn independently and effectively, leading to innovative ideas and creative solutions.

DEPARTMENT: ENGLISH

PROGRAMME: MA ENGLISH

PROGRAMME SPECIFIC OUTCOMES

PSO1. Develop competence with reference to Literatures/Narratives in English.

PSO2. Develop awareness regarding both the historicity and contemporaneity of language/communication and its interdisciplinary and global cultural aftermaths.

PSO3. Reflect on the social and ethical dimensions of research and for careers in secondary and higher education, content development, creative visualizations, publishing, and translation.

COURSE OUTCOMES

SEMESTER 1

EN010101 UP UNTIL CHAUCER: EARLY LITERATURES IN ENGLISH

CO1. Understand the major themes in Ancient and Medieval English literature as an expression of Anglo-Saxon culture and society.

CO2. Access and understand the personal experiences of people living in a society very different from our own.

EN010102 LITERATURES OF THE ENGLISH RENAISSANCE

CO1. Become familiar with the literature, thought and culture of the Renaissance period in England.

CO2. Appreciate Renaissance writings bearing the stamp of radical changes in the outlook and ways of life.

EN010103 LITERATURES OF THE ENGLISH REVOLUTION/ ENLIGHTENMENT

CO1. Become familiar with the English literary texts which reflect the austere Puritan ideals of the late seventeenth century.

CO2. Become familiar with the neoclassical vigour of the eighteenth century considerably influenced by the philosophy of the Enlightenment.

CO3. Become familiar with the perspectival shift manifested in the transitional literature towards the end of this era.

EN010104 NINETEENTH CENTURY ENGLISH LITERATURES

CO1. Become familiar with the fundamental premises of the Romantic Movement and Victorian literature.

CO2. Become familiar with the theoretical and ideological frameworks, and the major trends and offshoots across various genres.

EN010105 LITERARY CRITICISM

CO1. Become familiar with the key concepts and texts of literary criticism ever since its emergence.

CO2. Become familiar with the range, approaches, and mechanics of critique.

SEMESTER 2

EN010201 MODERNITY AND MODERNISMS

CO1. Become familiar with the literary trends of the early twentieth century in the context of the sensibility of literary modernism in the wake of the World War.

EN010202 POSTMODERNISM AND BEYOND

CO1. Get acquainted with the postmodern works of literature which defy categorisation and prove to be experimental in nature.

CO2. Become familiar with the eclectic dimensions of postmodern thought as reflected in these literary works.

CO3. Acknowledge the heterogeneity of thought and articulation.

EN010203 AMERICAN LITERATURES

CO1. Get introduced to the most important branch of English literature belonging to the non-British tradition.

CO2. Have detailed information   regarding the processes and texts chiefly responsible for the evolution of American Literature.

EN010204 ENGLISH LANGUAGE HISTORY AND CONTEMPORARY LINGUISTICS

CO1. Understand the basic concepts of linguistics, the scientific study of language after initiating them into the history of English language.

EN010205 THINKING THEORY

CO1. Understand certain core aspects of what is currently designated as 'literary theory' and also provide exposure to select current developments in this domain.

SEMESTER 3

EN010301 READING INDIA

CO1. Understand the historical, cultural and literary heritage of India.

CO2. Get acquainted with major movements and figures of Indian literature in English.

EN010302 POSTCOLONIAL FICTION

CO1. Understand the discursive nature of colonialism, and the counter-discursive impulses of postcolonial theory, narratives and texts.

EN010303 BODY, TEXT AND PERFORMANCE

CO1. Understand the basic structural, thematic and theoretical patterns which govern the poetic process, especially in its relation to the performative or the theatrical.

EN010304 LITERATURE AND GENDER

CO1. Highlight the historic, thematic and cultural concerns that literature attempts against the backdrop of gender issues.

CO2. Examine gender issues, paying special attention to the fundamental political, religious and social issues that shape gender relations

CO3. View gender as a fluid rather than a mere fixed hetero-normative Male-Female concept.

EN010305 ETHICS IN/AS LITERATURE

CO1. Become familiar with certain 'ethics' that narrative fiction has adopted across centuries, continents and languages.

CO2. Understand the various ethical, formal choices that schools, influences and narrative devices have upheld so as to shape narrative fiction into its present expressive plurality

SEMESTER 4

EN010401 CULTURAL STUDIES

CO1. Understand certain interpretive strategies commonly employed in Cultural Studies.

CO2. Explore how cultural processes and artifacts are produced, shaped, distributed, consumed, and responded to in diverse ways.

EN010402 POSTCOLONIAL POETRY

CO1. Understand the diversity of poetry coming from the erstwhile colonies of the European Colonial Empires.

CO2. See how, beyond the general discursive constellations, there are regional specifics that 'in a hybrid mode' negotiate issues of sovereignty, language, race, gender, identity and place.

EN830401 ELECTIVE COURSE - ENGLISH LANGUAGE TEACHING (ELT)

CO1. Understand the fundamental techniques of teaching English language.

CO2. Get exposed to various theories of ELT from the earliest to the modern.

CO3. Understand the concepts related to second language acquisition and the related pedagogical issues.

CO4. Equip them with the methods and means of assessment and evaluation.

CO5. Become aware about how the theory can be put to practise in the real classroom activity.

EN830402 ELECTIVE COURSE-STUDYING TRANSLATIONS: ASPECTS AND CONTEXTS

CO1. Understand the contextual diversity of 'translations', and to introduce the theoretical/political positions related to Translation Studies.

EN830403 ELECTIVE COURSE-DALIT STUDIES

CO1. Understand the development, intent and contents of Dalit Literature and aesthetics from different regions of India.

DEPARTMENT: MALAYALAM AND SANSKRIT

PROGRAMME: MA MALAYALAM

PROGRAMME SPECIFIC OUTCOMES

PSO1. Understand new trends in Malayalam Language.

PSO2. Introduce new methodologies of Malayalam Language.

PSO3. Inculcate research attitude and creativity.

PSO4. Encourage and inspire the students into creative writing.

PSO5. Compete successfully in the search for career relating to Malayalam language and literary works.

SEMESTER 1

ML010101 KAVITHA: PRACHEENAM, MADHYAKALAM

CO1. Identify developments of poetry from medieval.

CO2. Realise aesthetics of oral poetry.

ML010102 MALAYALA BHASHA - CHARITHRAVUM VARTHAMANAVUM

CO1. Recognise history of Malayalam through critical attitude.

CO2. Recognise the relation of social development and mother tongue.

ML010103 MALAYALA CHERUKATHA

CO1. Realise evolution and development of Malayalam short story as a narrative.

CO2. Recognise new aesthetic trends in Malayalam short stories.

ML010104 SAHITHYA RACHANA SANKETHANGAL

CO1. Introduce Stylistics in world narratives.

CO2. Recognise different metres in Malayalam poetry.

ML010105 SANSKRIT-BHASHAYUM SAHITHYAVUM

CO1.Create an opportunity to study aesthetics of Sanskrit.

CO2. Recognise many aesthetic attitudes of Sanskrit.

SEMESTER 2

ML010201 ADHUNIKA MALAYALA KAVITHA- ONNAM GHATTAM

CO1. Identify the changes of Malayalam poetry in the half of nineteen century.

CO2. Realise the influence of renaissance in Malayalam literature.

ML010202 BHASHA SASTHRAM

CO1. Analyse Malayalam language on the basis of linguistic discourse.

CO2. Realise Dravidian Language on the basis of dichromatic age.

ML010203 KERALA SAMSKARAM

CO1. Realise different movements in ages.

CO2. Enquire about marginalised studies.

ML010204 MALAYALA NOVEL

CO1. Realise the process of evolution of prose in Malayalam.

CO2. Realise growth of theoretical devices in Malayalam prose.

ML010205 BHARATHEEYA SAHITHYA SIDHANTHANGAL

CO1. Evaluate and analyse aesthetic theories of ancient India.

CO2. Promote an interest in interdisciplinary theoretical aspects.

SEMESTER 3

ML010301 ADHUNIKA MALAYALA KAVITHA- RANDAMGHATTOM

CO1. Realise modernity in Malayalam poetry.

CO2. Realise cultural difference in post-modern poetry.

ML010302 MALAYALA BHASHA VYAKARANAM

CO1. Acquire knowledge of critical thinking in Malayalam Grammar.

CO2. Compare and identify the problems of mile stones in Malayalam Grammar.

ML010303 MALAYALA NIROOPANAM

CO1. Realise evolution and development of Malayalam Criticism.

CO2. Inculcate creativity in criticism.

ML010304 DRISHYAKALA SAHITHYAM

CO1. Evaluate different visual arts such as folklore and classical arts.

CO2. Appreciate it as our legacy.

ML010305 PASCHATHYA SAHITHYA SIDHANTHANGAL

CO1. Have an awareness about ancient western philosophy from Greek.

CO2. Realise historical events in the development of new philosophical thoughts.

SEMESTER 4

ML010401 NADAKAVUM CINEMAYUM

CO1. Make an enquiry about human aspects and social reality narrated in visual arts.

CO2. Study in detail the history and aesthetics of visual arts.

ML010402 SAHITHYA CHARITHRA VINJANEEYAVUM GAVESHANATHINTE REETHISASTRAVUM

CO1. Evaluate the ideology of historical narrations.

CO2. Think critically about narration of history in Malayalam.

ML800401 VIVARTHANA SAHITHYAM

CO1. Have a general awareness of translations in Malayalam.

CO2. Inculcate an attitude towards translations.

ML800402 DALIT- STHREE - PARISTHITHI SAHITHYA VICHARAM

CO1. Realise post modernism as a diversity of Dalit.

CO2. Study about marginalized literature.

ML800403 CYBER SAMSKARAVUM SAHITHYAVUM

CO1. Recognise the importance of cyber aesthetics.

CO2. Appreciate different faces of cyber literature.

DEPARTMENT: ECONOMICS

PROGRAMME: MA ECONOMICS

PROGRAMME SPECIFIC OUTCOMES

PSO1. Gain access to existing knowledge in Economics.

PSO2. Demonstrate knowledge of theoretical and empirical bases underpinning the construction, implementation and interpretation of economic theories and assessment techniques.

PSO3. Draw out existing knowledge to read and interpret a theoretical analysis.

PSO4. Read and interpret a quantitative analysis, including regression results, reported in an economics journal article.

PSO5. Show what economic concepts and principles are used in economic analyses published in articles from newspapers and newsmagazines.

PSO6. Utilise existing knowledge to explore issues and solve economic problems and build and test economic models, using sophisticated economics tools.

PSO7. Prepare a written analysis of a current economic problem, a decision memorandum that recommends some action on an economic decision faced by the organisation.

PSO8. Create new knowledge independently and creatively to synthesise concepts to formulate cases, issues, identify and formulate a question or series of questions about some economic issues that will facilitate investigation of the issue.

COURSE OUTCOMES

EC010101 MICROECONOMICS –I

CO1. Become familiar with basic concepts of microeconomics.

CO2. Acquire analytical skills to analyses problems of economic policy.

CO3. Demonstrate an understanding of relevant microeconomic concepts.

CO4. Demonstrate capacity to explain and evaluate critically theoretical arguments.

EC010102 MACROECONOMICS -I

CO1. Know of the major issues as they arise in the field of macroeconomics.

CO2. Understand alternative approaches to modelling consumption, and investment.

CO3. Evaluate the usefulness of macroeconomic techniques.

EC010103 DEVELOPMENT ECONOMICS

CO1. Understand and critically evaluate alternative theories of growth.

CO2. Understand the recent literature, both empirical and analytical, on theories of underdevelopment and growth in developing countries.

CO3. Evaluate critically some of the results in the literature, particularly those related to development issues.

EC010104 INDIAN ECONOMY-I

CO1. Understand the pre-reform and post-reform development experience of the Indian Economy.

EC010105 MATHEMATICAL METHODS FOR ECONOMIC ANALYSIS (STATISTICS)

CO1. Understand, assimilate and use the mathematics required for studying economics at the Master's level.

CO2. Develop the mathematical tools that are used extensively in Microeconomics, Macroeconomics and Econometrics.

CO3. Apply the tools to various well-known economic models.

CO4. Demonstrate understanding of static optimisation and dynamic systems applicable to Economics.

SEMESTER 2

ECO10201 MICROECONOMICS –II

CO1. Get acquainted with decision making in the context of market interdependence, complexity, uncertainty and informational asymmetry.

CO2. Get insights into developments in the areas of general equilibrium and welfare economics.

CO3. Apply microeconomic principles in the areas of industrial organisation, exchange, and welfare.

EC010202 MACROECONOMICS -II

CO1. Understand the strengths and weakness of the main macroeconomic tools and models used in modern macroeconomics.

CO2. Learn to evaluate and critically compare results in alternative macroeconomic models.

CO3. Understand the importance and limitations of modelling assumptions for macroeconomic policy.

EC010203 PUBLIC ECONOMICS

CO1. Demonstrate a clear understanding of established concepts and theoretical results on collective choice, optimal income taxation, and the effects of income redistribution on the provision of public goods.

CO2. Examine the recent developments in both theoretical and empirical literature in the area of public economics.

EC010204 INDIAN ECONOMY-II

CO1. Horn the analytical acumen by highlighting an integrated approach to the functioning aspects of the Indian economy.

EC010205 STATISTICAL METHODS FOR ECONOMIC ANALYSIS (STATISTICS)

CO1. Get training in the use of the most common statistical tools and techniques encountered in Economics for analysis of data with valid logic and inferences.

CO2. Learn inferential statistics as well as the interpretation and analysis of data.

SEMESTER 3

EC010301 INTERNATIONAL TRADE

CO1. Understand the broad principles and theories, which govern the free flow of international trade, with empirical evidence.

CO2. Solve real-world problems using theoretical knowledge of international trade and policy and prepare to become trade policy-makers and key strategists on trade issues.

EC010302 ECONOMETRICS-1

CO1. Demonstrate their understanding of the appropriate econometric methods for analysing data.

CO2. Interpret computer output for the estimation and testing of econometric relationships.

CO3. Interpret and discuss results of the above.

EC010303 HETERODOX ECONOMICS

CO1. Revisit a set of economic concepts that are being extensively used in the economics curriculum with a critical lens based on methodological and philosophical consideration.

CO2. Survey contemporary heterodox approaches to economic research, both from a microeconomic and a macroeconomic perspective.

EC010304 ENVIRONMENTAL ECONOMICS

CO1. Equip students with analytical skills that would enable the evaluation of environmental and economic policy issues.

CO2. Understand the economics of the relationship between economic activities and environmental impacts.

EC010305 KERALA ECONOMY

CO1. Learn about Kerala's development experiences in historical perspective.

CO2. Become aware of burning issues in agriculture, industrial and social sectors of Kerala economy.

SEMESTER 4

EC010401 INTERNATIONAL FINANCE

CO1. Understand the different theoretical aspects of international finance and financial institutions in a historic cum emerging geopolitical context, particularly in that of globalization.

CO2. Equip with both fundamental knowledge in international finance, financial institutions and their application in real life.

CO3. Prepare to become policy-makers and key strategists on issues related to international finance and related institutions.

EC010402 ECONOMETRICS-II

CO1. Interpret the results from regression models involving panel data and instrumental variables.

CO2. Understand how to use instrumental variables to account for endogenous regressors.

CO3. Understand how to estimate binary response models.

CO4. Understand how to set up, estimate and analyse panel data regression models.

CO5. Understand the basic concepts of stationary and non-stationary time series.

CO6. Understand and apply basic linear models for univariate and multivariate time series.

CO7. Understand the concepts of integration and cointegration and how to test for these phenomena in time series.

EC800401 ELECTIVE COURSE - AGRICULTURAL ECONOMICS

CO1. Assess the problems of the farm sector and can make contributions to the prosperity of villages.

CO2. Improve the analytical skills of the students.

CO3. Address real situations and the concrete problems of agriculture and economic development.

EC800402 INDUSTRIAL ECONOMICS

CO1. Understand basic models of the behaviour of firms and industrial organisation and how they can be applied to policy issues.

CO2. Manipulate these models and be able to solve analytically problems relating to industrial economics.

CO3. Be familiar with the history of competition policy and be familiar with the functioning of different experimental market institutions and the key results of these experiments.

EC800403 LABOUR ECONOMICS

CO1. Expose to theoretical as well as empirical issues relating to the labour market.

DEPARTMENT: MATHEMATICS

PROGRAMME: MSc MATHEMATICS

PROGRAMME SPECIFIC OUTCOMES

PSO1. Improve the perspective on mathematics as per modern requirement.

PSO2. Enhance the logical, reasoning, analytical and problem-solving skills.

PSO3. Orient towards relating Mathematics to applications.

PSO4. Build interest and confidence in learning the subject.

PSO5. Cultivate a research culture in young minds.

PSO6. Pursue higher studies in Mathematics.

PSO7. See that the learning of Mathematics becomes a more alive, vibrant, relevant and meaningful program that paves the way to seek and understand the world around them.

PSO8. Uphold scientific integrity and objectivity in professional endeavours.

COURSE OUTCOMES

SEMESTER 1

ME010101 ABSTRACT ALGEBRA

CO1. Understand direct product of finitely generated abelian groups.

CO2. Become familiar with group action on a set and apply the concept of group action to counting problems.

CO3. Understand isomorphism theorems and Sylow theorems.

CO4. Understand Fermat's, Euler theorem, the concept of rings of polynomials, Factorisation of polynomials over a field.

CO5. Understand homomorphisms, factor rings, prime and maximal ideals.

ME010102 LINEAR ALGEBRA

CO1. Get a strong foundation in Linear algebra as preparation for subsequent courses in Mathematics.

CO2. Become familiar with the general notions of a vector space over a field and of a subspace, linear independence, dependence, spanning sets, basis and dimension of a general subspace.

CO3. Understand the notion of a linear transformation, isomorphism, representation of transformations by matrices, linear functionals, double dual, transpose of a linear transformation

CO4. Understand the notion of commutative rings, determinant functions, permutation and uniqueness of determinants, properties of determinants.

CO5. Understand elementary canonical forms, characteristic values, annihilatory polynomials, invariant subspaces, simultaneous triangulations, simultaneous diagonalisation, direct sum decompositions, invariant direct sums.

ME010103 BASIC TOPOLOGY

CO1. Develop the concept of topology from geometry and then from metric spaces.

CO2. Introduce the basic concepts of topological space with examples, general constructions for topological spaces through bases and sub-bases, subspaces.

CO3. Define the building blocks for study of topological spaces - closed sets and closure, neighbourhoods, interiors, continuity, homeomorphism.

CO4. Explain the property of compactness, connectedness, local connectedness, path connectedness.

CO5. Establish relations between the basic concepts through theorems, corollaries, examples and counter examples.

CO6. Define and illustrate the concepts of the separation axioms.

ME010104 REAL ANALYSIS

CO1. Achieve a good grasp of the basic concepts of real analysis.

CO2. Become familiar with Functions of Bounded Variation and Rectifiable Curves.

CO3. Become familiar with the Riemann-Stieltjes Integral and its properties.

CO4. Become familiar with the point wise convergence and uniform convergence of sequence of functions and series of functions.

CO5. Become familiar with the basic results of Power series, the exponential and logarithmic. functions, the trigonometric functions, the algebraic completeness of complex fields and Fourier series.

ME010105 GRAPH THEORY

CO1. Acquire an overview of the concepts and techniques in Graph Theory.

CO2. Understand the basic results and define directed graphs.

CO3. Explain connectivity, independent sets, edge colouring and planarity.

CO4. Get trained in breaking down a mathematical problem into simpler statements and synthesise proofs.

SEMESTER 2

ME010201 ADVANCED ABSTRACT ALGEBRA

CO1. Understand the concept of Field extension and be familiar with algebraic extensions and geometric construction of fields.

CO2. Know about Unique factorization domain, Euclidean domain and Gaussian integers.

CO3. Understand Automorphism of Fields and learn the isomorphism extension theorem.

CO4. Understand splitting Fields and separable extension.

CO5. Understand illustrations of Galois Theory and Cyclotomic Extension.

ME010202 ADVANCED TOPOLOGY

CO1. Develop two important characterizations of a normal topological space.

CO2. Study the products of arbitrary families of topological spaces and find whether a topological property is carried over.

CO3. Obtain characterisations of Tychonoff spaces and of second countable metric spaces, an opportunity to apply almost all the results studied earlier.

CO4. Define net as a generalization of a sequence.

CO5. Introduce the concept of homotopy of paths.

ME010203 NUMERICAL ANALYSIS WITH PYTHON

CO1. Read and execute simple Python programs.

CO2. Write simple Python programs with correct syntax.

CO3. Represent compound data using Python lists, tuples and dictionaries.

CO4. Use the plotting functions of Sympy to present the results graphically.

CO5. Use functions from the python library for efficient calculations and visualisation.

CO6. Create simple and efficient Python codes that output the numerical solutions at the required degree of accuracy.

ME010204 COMPLEX ANALYSIS

CO1. Understand important results and techniques of complex function theory.

CO2. Define and illustrate analytic functions and represent analytic functions in power series.

CO3. Know about Cauchy integral theorem in its various versions including homotopic version, the Cauchy integral formula and open mapping theorem.

CO4. Identify different types of singularities and calculate residues.

CO5. Know about the extended plane and its spherical representation, Mobius transformations, the maximum principle and Schwarz's Lemma.

CO6. Understand various properties of harmonic functions.

ME010205 MEASURE THEORY AND INTEGRATION

CO1. Acquire a general overview of the basic results in measure theory and integration.

CO2. Be familiar with the notion of Algebras of sets, Lebesgue measure and Lebesgue integral.

CO3. Acquire knowledge about measure spaces, measurable functions, Integration, general convergence theorems, signed measures, the Radon-Nikodym theorem, outer measure and measurability, the extension theorem.

CO4. Define convergence in measure, almost uniform convergence, measurability in a product space and the product measure.

SEMESTER 3

ME010301 ADVANCED COMPLEX ANALYSIS

CO1. Acquire a better understanding of important concepts and techniques in elementary theory of power series.

CO2. Explain entire functions, Riemann zeta function, elliptic functions and doubly periodic functions.

CO3. Prove Riemann Mapping Theorem, Wierstrass Factorization Theorem, Jenson's formula and Hadamard's theorem.

CO4. Know Germs and Sheaves, sections and Riemann surfaces, analytic continuation along arcs and homotopic curves.

ME010302 PARTIAL DIFFERENTIAL EQUATIONS

CO1. Learn modelling with partial differential equations and the basics of analytical methods to solve partial differential equations.

CO2. Find the solutions of first and second order linear partial differential equations.

CO3. Find the solutions of linear Hyperbolic equations using the method of separation of variables.

CO4. Apply a range of techniques to find solutions of standard Partial Differential Equations.

ME010303 MULTIVARIATE CALCULUS AND INTEGRAL TRANSFORM

CO1. Become familiar with the basic results in the analysis of functions of several variables.

CO2. Become familiar with continuity, limit, partial and total differentiation of functions in Multivariate Differential Calculus.

CO3. Become familiar with Jacobian determinant, the inverse function theorem, the implicit function theorem, extrema of real- valued functions of one variable and extrema of real-valued functions of several variables.

CO4. Know about various results on Integration of Differential Forms of multivariable functions.

CO5. Know more about Fourier Series, Transforms and Convolution Theorem.

ME010304 FUNCTIONAL ANALYSIS

CO1. Understand the basic results about normed linear spaces and bounded linear operators.

CO2. Define and illustrate Normed Spaces, Banach Spaces, Hilbert Spaces.

CO3. Know about Inner Product Spaces, Hilbert Spaces, Orthogonal complements and direct sum, Orthogonal sets and sequences.

CO4. Understand the representation of functionals on Hilbert Space.

CO5. Know about Hilbert adjoint operator, Self adjoint, Unitary and Normal Operators.

CO6. Understand Zorn's Lemma and prove Hahn-Banach theorems.

ME010305 OPTIMIZATION TECHNIQUE (STATISTICS)

CO1. Get a concrete idea about the Mathematical modelling of various real-life problems.

CO2. Equip with a clear idea about the basic solution techniques of various programming problems like LPP, ILP, NLPP etc.

CO3. Get an idea about the applications of various programming problems.

SEMESTER 4

ME010401 SPECTRAL THEORY

CO1. Understand Reflexive spaces, Category theorem, Uniform boundedness theorem, Strong and weak convergence.

CO2. Understand convergence of sequences of operators and functionals, Open mapping theorem, Closed graph theorem.

CO3. Explain the fundamental concepts of spectral theory and their role in modern Mathematics.

CO4. Understand the basic tools of modern analysis within the context of the fundamental problem of operator theory: to calculate spectra of specific operators on infinite dimensional normed spaces.

CO5. Understand Banach algebras and its properties, Compact linear operators, Spectral properties of compact linear operators.

CO6. Learn spectral properties of bounded self adjoint operators, positive operators, projection operators.

ME010402 ANALYTIC NUMBER THEORY

CO1. Know the basic theory of various analytic functions such as Mobius function, Euler totient function and Mangoldt function.

CO2. Learn the classical number theory concepts and results on congruences in detail.

CO3. Explain multiplicative functions and Dirichlet multiplication.

CO4. Prove Euler-Fermat theorem, Lagrange's theorem, Chinese Remainder Theorem and Euler's pentagonal-number theorem.

CO5. Understand elementary theorems on the distribution of prime numbers, primitive roots and partition.

ME800401 DIFFERENTIAL GEOMETRY (ELECTIVE-1)

CO1. Develop the geometry of n-dimensional surfaces in (n+1) - space at a basic level and get a general overview of the basic results in the theory of Differential Geometry.

CO2. Define and illustrate Graphs and level sets, Vector fields, Tangent Space, Surfaces, Vector fields on surfaces, Orientation, The Gauss map, Geodesics, Parallel transport, The Weingarten map, Curvature of plane curve, Arc length, Line integral and Curvature of surfaces.

CO3. Apply the knowledge acquired in solving different problems in other fields.

ME800402 ALGORITHMIC GRAPH THEORY (ELECTIVE-2)

CO1. Give a brief introduction to graphs and special digraphs, introduction to search algorithms and its complexity and an overall view of representation of graphs in a computer.

CO2. Define and illustrate trees and rooted trees, Depth-first search & breadth-first search algorithms. Get an introduction to activity digraphs and critical paths.

CO3. Get an introduction to networks, max-flow, min-cut algorithm and detailed explanation of Mengers theorem.

CO4. Define and illustrate 'Matchings' in a graph, Factorization of graphs, Understanding the theory of block designs (basic results and discuss how block designs extend the concepts of factorization of a graph).

ME800403 COMBINATORICS (ELECTIVE-3 STATISTICS)

CO1. Get an idea about the various counting rules.

CO2. Apply the basic rules which simplifies the counting procedure through numerous examples.

CO3. Think logically and to solve various real-life problems with their reasoning ability.

DEPARTMENT: STATISTICS

PROGRAMME: M Sc STATISTICS

PROGRAMME SPECIFIC OUTCOMES

PSO1. Get trained with the essential tools for statistical analysis.

PSO2. Prepare for scientific decision making, aided with advanced statistical software.

PSO3. Use research-based knowledge and research methods including design of experiments, Multivariate Analysis, Reliability and interpretation of data and synthesis of the information to provide valid conclusions.

PSO4. Translate and apply statistical knowledge to find solution to real world problems.

COURSE OUTCOMES

COURSE 1 MEASURE AND PROBABILITY THEORY

CO1. Get introduced to the concepts of Measure and Probability.

CO2. Learn the concept of law of large numbers, convergence, central limit theorem and their applications.

COURSE 2 THEORY OF PROBABILITY DISTRIBUTIONS

CO1. Present the general theory of statistical distributions as well as the standard distributions found in statistical practice.

CO2. Understand the most common, discrete and continuous probability distributions and their real-life applications.

CO3. Compute marginal and conditional distributions from joint distributions.

CO4. Become familiar with transformation of univariate and multivariate densities.

CO5. Apply compound, truncated, and non-central probability distributions to solve problems.

COURSE 3 ANALYTICAL METHODS FOR STATISTICS

CO1. Get introduced to the basic concepts of sequences, series of real numbers, Convergence, Continuity, Laplace, and Fourier transforms.

CO2. Use the basic concepts of vector and matrix algebra, including linear dependence / independence, basis and dimension of a subspace, rank and nullity, for analysis of matrices and systems of linear equations.

CO3. Evaluate determinants and use them to discriminate between invertible and noninvertible matrices.

CO4. Use the characteristic polynomial to compute the eigen values and eigenvectors of a square matrix and use them to diagonalizable matrices when this is possible.

CO5. Discriminate between diagonalizable and non-diagonalizable matrices; orthogonally diagonalizable symmetric matrices and quadratic forms.

CO6. Combine methods of matrix algebra to compose the change-of-basis matrix with respect to two bases of a vector space, identify linear transformations of finite dimensional vector spaces and compose their matrices in specific bases.

COURSE 4 THEORY OF SAMPLING

CO1. Understand the basic principles underlying survey design and estimation.

CO2. Apply the different sampling methods for designing and selecting a sample from a population. Implement Cluster sampling, Ratio and Regression estimation in real life problems.

CO3. Apply unequal probability sampling designs viz. PPSWR, PPSWOR including Lahiri's method and Murthy's estimator for survey.

COURSE 5 PROGRAMMING USING PYTHON AND STATISTICAL ANALYSIS

CO1. Get introduced to Python, Processing text data and csv files.   Statistical testing and analysis using Python.

SEMESTER 2

COURSE 1 STATISTICAL ESTIMATION

CO1. Understand the notion of parametric models, point and interval estimation of the parameters of those models.

CO2. Obtain the sufficient statistic, minimal sufficient statistic, m.l.e., moment estimator of the parameter. Understand the concept of MVUE, UMVUE.

CO3. Describe the concept of Bayesian inference and their real-life applications.

COURSE 2 STOCHASTIC PROCESS

CO1. Understand the stochastic processes, Markov chains, Transition probability matrix and various types of states.

CO2. Explain Random walk, Gambler ruin problem and apply Poisson process in real life situations.

CO3. Formulate and solve problems which involve setting up stochastic models.

CO4. Understand renewal theory and branching processes with applications.

COURSE 3 MULTIVARIATE DISTRIBUTIONS

CO1. Get introduced to the concept of Bivariate and multivariate normal distribution and their characteristics.

CO2. Understand the quadratic forms and their distributions.

COURSE 4 TESTING STATISTICAL HYPOTHESIS

CO1. Formulate null and alternative hypotheses and apply small, large sample and non-parametric tests in real life problems.

CO2. Compute probabilities of types of error, MP tests and MLR property.

CO3. Understand UMP and UMPU test with their applications. Get introduced to SPRT and Notion of LR tests.

CO4. Obtain asymptotic confidence interval of a parameter and its relation with testing of hypothesis problem.

COURSE 5 STATISTICAL ANALYSIS USING R

CO1. Become familiar with R software and learn basics of R with descriptive statistics.

CO2. Access online resources for R and import new function packages into the R workspace. Import, review, manipulate and summarize data-sets in R. Compute probabilities and fitting of probability distribution with R environment.

CO3. Explore small and large data-sets to create stable hypotheses and identify appropriate statistical tests.

CO4. Perform correlation, regression analysis and appropriate statistical tests for real life situations using R.

SEMESTER 3

COURSE 1 DESIGN AND ANALYSIS OF EXPERIMENTS

CO1. Compare the pairs of treatment means using different methods when null hypothesis is rejected in ANOVA.

CO2. Analyse the data using split plot, strip plot and general factorial experiments.

CO3. Construct fractional factorial experiments and apply confounding in real life problems.

CO4. Understand the analysis of BIBD, PBIBD, Quasi-Latin square, Youden square and cross over design and their applications in agriculture, business and industries.

COURSE 2 MULTIVARIATE ANALYSIS AND STATISTICAL TECHNIQUES IN DATA MINING

CO1. Get introduced to Data mining, dimension reduction methods such as Profile Analysis, Principal component and factor analysis, classification problems and multivariate general linear models.

COURSE 3 ANALYSIS OF TIME SERIES AND FORECASTING

CO1. Understand the concept of time series with its components and able to compute ACVF and ACF.

CO2. Remove trend and seasonality using different methods to convert the time series into stationary.

CO3. Apply auto regressive, moving average, ARMA, ARIMA models, Box Jenkins approach to forecast time-series data empirically.

CO4. Check and validate models with its residual analysis and diagnostic checking.

COURSE 4 STATISTICAL MODELLING

CO1. Understand simple and multiple linear regression models with applications and concept of multicollinearity and autocorrelation.

CO2. Apply Non-linear regression models and its implementation in real life situation.

CO3. Transformations and weighting to correct model inadequacies.

COURSE 5 PRACTICALS USING PYTHON AND R

SEMESTER 4

COURSE 1 NON-PARAMETRIC STATISTICS

CO1. Study various Non parametric tests and their applications using R and Python

COURSE 2   APPLIED ALGORITHMS AND MULTI TYPE DATA

CO1. Study EM algorithms, Support vector machines, Multidimensional scaling and structural equation modeling.

ELECTIVES BUNCH I

COURSE 3: MACHINE LEARNING

CO1. Get introduced to Machine Learning, Decision Tree learning, Artificial Neural Networks, Bayesian Learning, Ensemble Learning and their various algorithms and procedures.

COURSE 4: DATA VISUALISATION

CO1. Understand the purpose of visualization, data design concepts, multidimensional visualization (graphs, charts and diagrams).

CO2. Understand analytics output, usage and the grammar of graphics using R-construct/deconstruct and its impact and case study presentations and lab based on R package of data visualization.

COURSE 5: ANALYSIS OF CATEGORICAL DATA

CO1. Get an introduction to Categorical variables, various models such as logit, probit model, log-rate and time hazard models.

CO2. Learn logistic regression analysis, Poisson regression and principles of Bayesian Statistics.

ELECTIVES BUNCH II

COURSE 3: EPIDEMIOLOGY AND STUDY DESIGNS

CO1. Understand the basic concepts of epidemiology, overview of study designs and understand the various types of studies such as Intervention studies, cohort studies, cross sectional studies, ecological studies etc.

COURSE 4: POPULATION DYNAMICS

CO1. Study sources of mortality data, mortality measures, different mortality rates, life tables, fertility models and indices.

CO2. Study about the population growth indices and growth models.

COURSE 5: STATISTICAL TECHNIQUES FOR QUALITY CONTROL

CO1. Get an introduction to various statistical techniques such as control charts, sampling plans for attributes and variable for Quality Control.

DEPARTMENT: PHYSICS

PROGRAMME: MSc PHYSICS

PROGRAMME SPECIFIC OUTCOMES

PSO1. Get an in-depth knowledge of Physics.

PSO2. Pursue research in theoretical/ experimental physics or related areas.

PSO3. Acquire a thorough understanding of the fundamentals of Physics so as to select an academic career in secondary or tertiary level.

PSO4. Enhance the employability of the student by a rigorous training.

PSO5. Do research at least in the preliminary way.

COURSE OUTCOMES

SEMESTER 1

PH010101 MATHEMATICAL METHODS IN PHYSICS- I

CO1. Learn more on volume integrals, surface integrals, Divergence, curl, curvilinear co-ordinates, and

their applications in Physics.

CO2. Obtain a deeper knowledge in matrices and its applications.

CO3. Have a deeper idea on physical interpretation and application of vector, matrices and tensors.

PH010102 CLASSICAL MECHANICS

CO1. Understand the fundamental concepts of the Lagrangian and the Hamiltonian methods and apply them to various problems.

CO2. Understand the physics of small oscillations and the concepts of canonical transformations and Poisson bracket.

CO3. Understand the basic ideas of central forces and rigid body dynamics.

CO4. Understand more on Hamilton-Jacobi method and the concept of action-angle variables.

PH010103 ELECTRODYNAMICS

CO1. Get proper understanding of electricity, magnetism and electrodynamics.

CO2. Attain a good knowledge of electromagnetic radiation field and its interaction with matter.

CO3. Learn the principles of electromagnetic field radiating out of accelerated charges and the impact of relativity in electromagnetism along with confined propagation of electromagnetic wave.

PH010104 ELECTRONICS

CO1. Learn the theory of Op-AMP and its applications like DC and AC amplifier.

CO2. Learn more on filters, oscillators, wave generators, timer IC etc.

CO3. Have broad knowledge on analogue communications.

PH010105 GENERAL PHYSICS PRACTICAL

CO1. Develop advanced experimental skills.

CO2. Learn to conduct B-H Curve, determine the absorption bands etc.

SEMESTER 2

PH010201 MATHEMATICAL METHODS IN PHYSICS-II

CO1. Have a good concept in complex analysis, Laplace, Fourier series and transforms.

CO2. Learn more on the Fourier series and its application to solutions of partial differential equations.

CO3. Develop an advanced knowledge on special functions, its applications, the partial differential equations and its solutions.

PH010202 QUANTUM MECHANICS-I

CO1. Understand the fundamental concepts of the Dirac formalism.

CO2. Understand how quantum systems evolve in time.

CO3. Understand the basics of the quantum theory of angular momentum.

CO4. Solve the hydrogen atom problem which is a prelude to more complicated problems in quantum

mechanics.

PH010203 STATISTICAL MECHANICS

CO1. Learn the concept of microstates, macrostates, entropy and density of states.

CO2. Have advanced knowledge on statistics of various ensemble systems and its Thermodynamics.

CO3. Have a deeper understanding on three types of distributions, Thermodynamics of idea gas, Bose Particles and Fermi Particles.

CO4. Learn about the Phase Transitions.

PH010204 CONDENSED MATTER PHYSICS

CO1. Apply the theory of x-ray diffraction to intensity of spectrum, structure factor of crystal systems.

CO2. Learn different crystal symmetry and its applications.

CO3. Understand the electron theory of crystals, band formation and gains knowledge on semiconductor physics.

CO4. Learn the Physics behind the thermal and magnetic properties of materials.

PH010205 ELECTRONICS PRACTICAL

CO1. Develop a deeper practical knowledge in construction of applied electronic circuits.

SEMESTER 3

PH010301 QUANTUM MECHANICS – II

CO1. Understand the different stationary state approximation methods and be able to apply them to various quantum systems.

CO2. Understand the basics of time-dependent perturbation theory and its application to semi-classical theory of atom-radiation interaction.

CO3. Understand the theory of identical particles and its application to helium.

CO4. Understand the idea of Born approximation and the method of partial waves.

CO5: Get the basic concepts of relativistic quantum mechanics.

PH010302 COMPUTATIONAL PHYSICS

CO1. Have the basic idea about the techniques used in physics to solve problems with the help of computers.

CO2. Develop own Algorithms of every method described in the syllabus.

PH010303 ATOMIC AND MOLECULAR PHYSICS

CO1. Understand the atomic structure and spectra of typical one- electron and two-electron systems.

CO2. Learn the theory of microwave and infra-red spectroscopies as well as the electronic spectroscopy of molecules, the basics of Raman spectroscopy and the nonlinear Raman effects.

CO3. Learn the spin resonance spectroscopies such as NMR and ESR.

CO4: Understand the theory and application of Mossbauer spectroscopy.

PH800301 DIGITAL SIGNAL PROCESSING

CO1. Learn discrete time systems and FFT algorithms.

CO2. Learn the design techniques for FIR and IIR digital filters.

PH800302 ADVANCED PRACTICAL IN ELECTRONICS

CO1. Obtain an experimental knowledge on microprocessors, Digital Communications, Electronic Instrumentations and optoelectronics.

SEMESTER 4

PH010401 NUCLEAR AND PARTICLE PHYSICS

CO1. Have knowledge about the basic properties of the nucleus and the nuclear forces.

CO2. Learn the major models of the nucleus and the theory behind the nuclear decay process and the physics of nuclear reactions.

CO3. Learn the interaction between elementary particles and the conservation laws in particle physics.

CO4: Get some idea about nuclear astrophysics and the practical applications of nuclear physics.

PH800402 MICROELECTRONICS AND SEMICONDUCTOR DEVICES

CO1. Get exposed to the architecture and instruction set of basic microprocessors.

CO2. Learn the fundamentals of semiconductor devices and their processing steps in detail.

CO3. Able to use the knowledge of semiconductor fabrication processes to work in industry in the area of semiconductor devices.

PH800403 COMMUNICATION SYSTEMS

CO1. Understand the basic concepts of different communication systems.

PH010402 COMPUTATIONAL PHYSICS PRACTICAL

CO1. Apply the computational theory to numerical problems at an advanced level.

PH010403 PROJECT

CO1. Motivate the inquisitive and research aptitude of the students.

PH010404 COMPREHENSIVE VIVA VOCE

CO1. Test the knowledge in the respective areas.

DEPARTMENT: CHEMISTRY

PROGRAMME: MSc ANALYTICAL CHEMISTRY

PROGRAMME SPECIFIC OUTCOMES

PSO1. Provide theoretical background and develop practical skills for analysing materials using modern analytical methods and instruments.

PSO2. Inculcate a problem-solving approach by coordinating the different branches of chemistry.

PSO3. Become professionally skilled for higher studies in research institutions and to work in chemical industries.

PSO4. Qualify in competitive exams.

COURSE OUTCOMES

SEMESTER 1

CH500101 ORGANOMETALLICS AND NUCLEAR CHEMISTRY

CO1. Understand the different properties and structures for organometallic compounds from different parts of the periodic table and their trends.

CO2. Understand principal synthetic routes and reactivity to various classes of organometallic compounds.

CO3. Understand methods and examples for the study of organometallic compounds in the gas phase, solution phase and solid state.

CO4. Know about common ligand classes in organometallic chemistry, their effects on organometallic compounds, and influence on reactivity and catalysis.

CO5. Understand key mechanistic steps in reactions involving organometallic compounds.

CO6. Learn about synthetically useful transformations including oxidations, reductions, enolate reactions, percicyclic reactions, organometallic reactions, and reactions of electron deficient species.

CO7. Understand the importance of nuclear chemistry and its applications.

CO8. Measure the rate of nuclear decay of a short-lived isotope to determine a number of statistical and physical properties.

CH500102 STRUCTURAL AND MOLECULAR ORGANIC CHEMISTRY

CO1. Predict the major and minor products of a variety of organic reactions with appropriate stereochemistry and regiochemistry.

CO2. Understand and reproduce accepted mechanisms of organic reactions including all intermediates, arrows, charges, and resonance structures.

CO3. Understand and interpret spectra (IR, 1H NMR, 13C NMR, Mass Spec., and UV-VIS) of organic molecules.

CO4. Name or draw the structure of an organic molecule using substitutive and/or functional class IUPAC nomenclature.

CO5. Devise reasonable high-yield synthesis of a target molecule from given organic starting materials.

CO6. Understand physical properties of organic molecules.

CO7. Perform a laboratory experiment using conventional equipment, instrumentation, and techniques and understand the principles well enough to interpret the data collected.

CH500103 QUANTUM CHEMISTRY AND GROUP THEORY

CO1. Revise and update the fundamental ideas, mathematical concepts, applications of Group theory and quantum mechanics to molecular systems.

CO3. Categorise common molecules into various point groups and apply the great orthogonality theorem to derive the character tables of various point groups.

CO4. Understand the postulates and general principles of quantum mechanics.

CO5. Know about the application to harmonic oscillator, rigid rotor, one-electron and many-electron atoms, and homo-and hetero-nuclear diatomic molecules.

CO6. Apply Schrodinger wave equation in Hydrogen atom and hydrogen like system.

CO7. Understand quantum numbers, shapes of orbitals and their wave functions.

CH500104 THERMODYNAMICS, KINETIC THEORY AND STATISTICAL THERMODYNAMICS

CO1. Explain statistical physics and thermodynamics as logical consequences of the postulates of statistical mechanics.

CO2. Apply the principles of statistical mechanics to selected problems.

CO3. Apply techniques from statistical mechanics to a range of situations.

CO4. Use the tools, methodologies, language and conventions of physics to test and communicate ideas and explanations.

CO5. Apply principles and laws of equilibrium thermodynamics to multicomponent systems.

CO6. Calculate thermodynamic properties of ideal gases and real gases using the principles and techniques of statistical thermodynamics.

SEMESTER 2

CH500201 COORDINATION CHEMISTRY

CO1. Understand bonding and isomerism in coordination compounds, crystal field theory, and electronic properties of ligands.

CO2. Acquire knowledge on spectral and magnetic properties of Metal Complexes.

CO3. Understand the kinetics and mechanism of reactions in Metal Complexes.

CO4. Understand coordination chemistry of Lanthanoids and Actinoids.

CO5. Analyse reactions of complexes and the role of transition metal compounds in catalysis.

CH500202 ORGANIC REACTION MECHANISMS

CO1. Know and understand organic reaction mechanisms of nucleophilic and electrophilic substitution at aliphatic carbon (SN1, SN2, SNi, SE1, SE2), elimination (E1 and E2) and addition reactions.

CO2. Provide an introduction to the synthesis of complex organic molecules.

CO3. Understand the concept and definitions of aromaticity.

CO4. Employ the reactions learned in designing multistep organic synthesis.

CO5. Understand about different reaction intermediates like carbocations, carbanions, carbenes, carbenoids, nitrenes, arynes, radicals and their reactions.

CO6. Learn about chemistry of carbonyl compounds and concerted reactions.

CH500203 CHEMICAL BONDING AND COMPUTATIONAL CHEMISTRY

CO1. Apply, analyse and evaluate group theoretical concepts in spectroscopy.

CO2. Understand the laws of quantum mechanics necessary for the description of atoms and molecules and their chemical reaction.

CO3. Choose the appropriate method (in terms of applicability, accuracy, and economy) for the calculation of a given chemical problem.

CO4. Extend the ideas of quantum mechanics from one electron system to many electron systems and various theories of chemical bonding.

CO5. Learn the concepts and scope of computational chemistry.

CH500204 MOLECULAR SPECTROSCOPY

CO1. Understand modern theoretical and experimental methods used to study problems of molecular structure and bonding; emphasis on spectroscopic techniques.

CO2. Learn basic principles and theory of microwave, NMR, IR, Raman, UV-Vis spectroscopy.

CO3. Perform rigorous characterisation of compound using NMR techniques (1 H and 13C), mass spectrometry, infrared spectroscopy and polarimetry.

PRACTICAL COURSES

SEMESTERS 1 &2

CH500205 INORGANIC CHEMISTRY PRACTICAL-1

CO1. Apply the principles of qualitative and quantitative analytical techniques in inorganic chemistry for identification of ions.

CO2. Understand the preparation and characterization of inorganic complexes.

CH500206 ORGANIC CHEMISTRY PRACTICAL-1

CO1. Apply class room learning separation and purification of organic compounds and binary mixtures.

CO2. Understand different techniques like solvent extraction, soxhlet extraction, fractional crystallization, TLC and paper-chromatography, column chromatography and membrane dialysis.

CO3. Use the computational tools to draw the reaction schemes and spectral data to various organic reactions.

CH500207 PHYSICAL CHEMISTRY PRACTICAL-1

CO1. Apply the conceptual understanding acquired from the theory classes.

CO2. Understand different quantitative methods like adsorption, phase diagram analysis, distribution methods and surface tension methods.

CO3. Study the different aspect in computational calculations.

SEMESTER 3

CH500301 STRUCTURAL INORGANIC CHEMISTRY

CO1. Acquire basic information about the imperfections of solids, electrical and magnetic properties of solids.

CO2. Understand the properties of inorganic chains, rings, cages and clusters.

CO3. Have an awareness about organometallic polymers and magnetic nanoparticles.

CH500302 ORGANIC SYNTHESES

CO1 Understand the various organic reactions and reagents as tools for the synthesis of organic compounds.

CO2. Learn the principles of protecting group chemistry and retrosynthetic approach towards organic synthesis.

CO3. Understand organic synthesis via Oxidation and Reduction.

CO4. Study the construction of carbocyclic and heterocyclic ring systems.

CH020303 SELECTED TOPICS IN PHYSICAL CHEMISTRY

CO1. Study the chemical kinetics different types of reactions.

CO2. Learn the principles of electrochemistry.

CO3. Study the thermodynamics of non-equilibrium irreversible process and biological Processes.

CO4. Understand about the surface chemistry and photochemistry.

CH500304 SPECTROSCOPIC METHODS IN CHEMISTRY

CO1. Apply the different spectroscopic methods to solve problems based on it.

CO2. Understand spectral data for explaining important organic reactions and functional transformations.

SEMESTER 4

CH820401 ANALYTICAL PROCEDURES

CO1. Understand about data analysis helps in statistical treatments of measurements.

CO2. Use systematic data analysis in research.

CO3. Understand conventional analytical procedures like gravimetry analysis and different volumetric analysis.

CO4. Study different aspects of food chemistry and environmental science.

CO5. Study about research methodology and provide a foundation for doctoral programs in Chemistry.

CH820402 INSTRUMENTAL METHODS OF ANALYSIS

CO1. Get detailed idea on the atomic absorption and emission spectroscopy.

CO2. Study Atomic Fluorescence Spectroscopy and Atomic X-ray Spectrometry.

CO3. Know Molecular Spectral Measurements UV-visible spectroscopic instrumentation.

CO4. Understand IR spectroscopic, Raman spectroscopic, Mass spectroscopic and NMR

spectroscopic instrumentation.

CO5. Study different surface study techniques, instrumentation and applications.

CH820403 MODERN ANALYTICAL TECHNIQUES

CO1. Understand potentiometric, Polarographic and Volta metric principle, instrumentations and measurements.

CO2. Study different amperometry titrations and electrogravimetry.

CO3. Understand different thermal and radiochemical methods and chromatographic techniques.

CO3. Understand emerging topics Green chemistry and Nano-chemistry.

PRACTICAL COURSES

SEMESTERS 3 & 4

CH020405 INORGANIC CHEMISTRY PRACTICAL-2

CO1. Understand the estimation of simple binary mixtures.

CO2. Know analysis of one of the alloys of brass, bronze and solder.

CO3. Develop an idea on analysis of one of the ores.

CH020406 ORGANIC CHEMISTRY PRACTICAL-2

CO1. Understand quantitative analysis of milk, butter, oils, fats, starch, glucose, vitamins and medicinal preparations.

CO2. Estimate the number of groups in organic compounds.

CO3. Analyse FTIR, UV-Visible, 1H and 13C NMR spectra and predict the structure of unknown organic compound.

CO4. Develop an idea on microwave assisted Organic Synthesis.

CH020407 INSTRUMENTAL ANALYSIS PRACTICAL

CO1. Develop skills for handling different instruments.

CO2. Understand quantitative analytical techniques like nephelometry, chemical kinetics, polarimetry and refractometry.

CO3. Know about different electroanalytical analytical techniques like polarography, potentiometry, conductometry and electrogravimetry

CO4. Determine cations through flame photometry.

DEPARTMENT: BOTANY

PROGRAMME: MSc BOTANY

PROGRAMME SPECIFIC OUTCOMES

PSO1. Have a clear, comprehensive and advanced mastery in the field of Botany.

PSO2. Understand the basic principles of biological sciences with special reference to Botany

and its applied branches.

PSO3. Explore the intricacies of life forms at cellular, molecular and nano level.

PSO4. Appreciate the beauty of different life forms and understand the concept of biodiversity conservation.

PSO5. Develop problem solving skills in students.

PSO6. Carry out innovative research projects thereby enkindling in them the spirit of knowledge creation.

COURSE OUTCOMES

SEMESTER I

BY010101MICROBIOLOGY AND PHYCOLOGY

CO1. Understand the world of microbes.

CO2. Understand the identifying characters of the lower groups of plants.

CO3. Have an idea on diverse groups of plants.

CO4. Understand the application of microbiology in different fields.

CO5. Trace the phylogeny, affinities, and evolution of algae and microbes.

BY010102 MYCOLOGY AND CROP PATHOLOGY

CO1. Understand the habit, habitat and life history of various types of fungi.

CO2. Classify the different types under the major groups of fungi.

CO3. Identify the diseases of crop plants on the basis of causative organisms, symptoms and mode of dissemination.

BY010103 BRYOLOGY AND PTERIDOLOGY

CO1. Identify skills for bryophytes and pteridophytes.

CO2. Understand the habit, habitat and life history of various types of bryophytes and pteridophytes.

CO3. Classify the different types under the major groups of bryophytes and pteridophytes.

CO4. Trace the phylogeny, affinities, and evolution of bryophytes and pteriodophytes.

BY010104 GYMNOSPERMS AND PALEO BOTANY, EVOLUTION

CO1. Identify at sight and noting morphological and anatomical peculiarities of gymnosperms.

CO2. Understand the significance of palaeobotany in relation to early plant life forms.

CO3. Understand the aspects of reproduction, growth and development at different levels.

BY010105 MICROBIOLOGY, PHYCOLOGY, MYCOLOGY AND CROP PATHOLOGY

CO1. Acquire skills related to performing antimicrobial assay.

CO2. Identify algae and fungi based on morphological, anatomical and reproductive features.

CO3. Identify common plant diseases based on its symptoms.

CO4. Isolate pathogens from diseased tissues.

BY010106 BRYOLOGY, PTERIDOLOGY, GYMNOSPERMS AND PALEO BOTANY

CO1. Become familiar with the diversity of bryophytes, pteridophytes and gymnosperms in natural habitat.

CO2. Identify bryophytes based on the external morphological structure.

CO3. Identify pteridophytes and gymnosperms based on morphology and anatomy of vegetative and reproductive organs.

CO4. Acquire knowledge on fossil pteridophytes and gymnosperms.

SEMESTER 2

BY010201 PLANT ANATOMY, DEVELOPMENTAL BIOLOGY AND HORTICULTURE

CO1. Study the internal structure of plant organs with reference to their functions.

CO2. Understand the aspects of reproduction, growth and development of plants at different levels.

BY010202 CELL BIOLOGY, GENETICS AND PLANT BREEDING

CO1. Understand the micro and macro levels of cellular organisation.

CO2. Understand the science behind variation and heredity.

CO3. Become familiar plant breeding techniques to increase the productivity of crop plants.

CO4. Understand the art and science of genetic improvement of plants.

BY010203 PLANT PHYSIOLOGY AND BIOCHEMISTR

CO1. Understand the basic principles related to various physiological functions in plant life.

CO2. Become familiar with the basic skills and techniques related to plant physiology.

CO3. Understand the role, structure and importance of the bio molecules associated with plant.

CO4. Get familiar with the recent trends in the field of plant physiology.

CO5. Become familiar with applied aspects of plant physiology in other fields like agriculture.

BY010204 MOLECULAR BIOLOGY

CO1. Develop knowledge about the molecular structure of the genetic material and the organisation of genome.

CO2. Understand various molecular mechanisms of control of gene expressions, repair mechanism of cells.

BY010205 PLANT ANATOMY, DEVELOPMENTAL BIOLOGY, HORTICULTURE, CELL BIOLOGY GENETICS AND PLANT BREEDING

CO1.Understand the anomalous behaviour of plants with special reference to *Bignonia, Amaranthus, Nyctanthus, Piper, Bougainvillea, Strychnos.*

CO2. Identify the nodal pattern based on anatomical study.

CO3. Distinguish different stomatal types and calculate stomatal index.

CO4. Identify different types of ovules, embryos, endosperm, and pollen grains.

CO5. Visualize and excise different developmental stages of embryo.

CO6. Develop skills of gardening by using garden components in layering and grafting.

CO7. Understand stages of cell division in vegetative and reproductive plant tissue.

CO8. Estimate pollen sterility in flowering plants.

CO9. Acquire problem solving skills in population genetics, gene mapping, human pedigree analysis.

CO10. Know different breeding programmes with special emphasis on hybridisation technique.

BY010206 PLANT PHYSIOLOGY, BIOCHEMISTRY AND MOLECULAR BIOLOGY

CO1. Quantify the amount of biochemicals like proline, phenol and free amino acids in the plants and infer the results with their environmental conditions.

CO2. Estimate amylase, peroxidase and nitrase reductase activity in different tissues.

CO3. Separate plant pigments and amino acids by TLC and column chromatography.

CO4. Determine osmotic potential by tissue weight method.

CO5. Prepare various concentration of solutions and buffer.

CO6. Problem solving skills on DNA structure and replication, gene expression and genetic code.

SEMESTER 3

BY010301 RESEARCH METHODOLOGY, MICROTECHNIQUE, BIOSTATISTICS AND BIOPHYSICAL INSTRUMENTATION

CO1. Inculcate the spirit of scientific inquiry.

CO2. Understand the basic skills in biological techniques and specimen preparation.

CO3. Apply various statistical tests in experiments.

BY010302   BIOTECHNOLOGY, BIOINFORMATICS AND BIO NANOTECHNOLOGY

CO1. Study the techniques of in vitro culture and genetic engineering.

CO2. Be aware of different tools and techniques of biotechnology.

CO3. Develop basic knowledge on the utilization of tissue culture and genetic engineering.

BY010303   ANGIOSPERM TAXONOMY, ECONOMIC BOTANY AND ETHNOBOTANY

CO1. Get a conceptual basis of classification of angiosperms.

CO2. Become familiar with taxonomic key construction of identification of plants.

CO3. Get acquainted with the aims, objectives and significance of taxonomy.

CO4. Identify the common species of plants growing in Kerala and their systematic position.

CO5. Understand the Importance and methods of ethnobotanical studies.

BY010304   ENVIRONMENTAL SCIENCE

CO1. Instil the basic concepts of Environmental Sciences, Ecosystems, Natural Resources, Population, Environment and Society.

CO2. Become aware of natural resources, their protection, conservation, the factors polluting the environment, their impacts and control measures.

CO3. Learn the basic concepts of toxicology, their impact on human health and remedial measures.

BY010305 RESEARCH METHODOLOGY, MICROTECHNIQUE, BIOSTATISTICS, BIOPHYSICS, BIOTECHNOLOGY AND BIOINFORMATICS

CO1. Learn the scientific methodology to prepare a project proposal, dissertation and research paper.

CO2. Develop technical expertise in microtome.

CO3. Develop skills to convert temporary slide to permanent slide.

CO4. Subject biological data to do various statistical analysis such as T test, Chisquare, correlation, regression and probability.

CO6. Acquire technical skills on Micrometry, pH meter and colorimeter.

CO7. Understand various techniques of plant tissue culture.

CO8. Use several bioinformatics tools.

BY010306 ANGIOSPERM TAXONOMY, ECONOMIC BOTANY AND ENVIRONMENTAL SCIENCE

CO1. Develop a scientific and economic knowhow of the local flora and to preserve plant specimens using herbarium techniques.

CO2. Learn the rules of plant nomenclature.

CO3. Be aware of the common environmental issues and different parameters to be taken care of like air and soil quality, phytoplankton number.

CO4. Identify different trophic levels and food chains and to analyse various community data aspects.

SEMESTER 4

BY800401 PLANT TISSUE CULTURE AND MICROBIAL BIOTECHNOLOGY

CO1. Learn in vitro culturing techniques to enhance production.

CO2. Exploit micro-organisms to various products useful to mankind.

BY800402 GENETIC ENGINEERING, GENOME EDITING AND IMMUNOLOGY

CO1. Apply the knowledge of genetics for human welfare.

CO2. Learn about the immune system and the applied aspects of antibody engineering.

CO3. Become aware of the various methods through which genes can be manipulated to bring in various applications in medical and health sector.

BY800403 GENOMICS, TRANSCRIPTOMICS, PROTEOMICS AND BIOINFORMATICS

CO1. Have basic knowledge of genome sequencing, major differences between prokaryotic and eukaryotic genomes, basic proteomics and its applications.

CO2. Gain skills in applied bioinformatics, comparative, evolutionary, human genomics and functional genomics.

BY800404 PLANT TISSUE CULTURE AND MICROBIAL BIOTECHNOLOGY

CO1. Get practical knowhow on various plant tissue culture techniques like establishing cultures, artificial seed production, cell immobilisation, callus study, selection of cell for salinity resistance, and cell plating.

CO2. Learn various microbiological techniques.

BY800405 GENETIC ENGINEERING, GENOME EDITING AND IMMUNOLOGY & GENOMICS, TRANSCRIPTOMICS, PROTEOMICS AND BIOINFORMATICS

CO1. Get practical skill on isolation of plant DNA its separation by Gel Electrophoresis.

CO2. Get technical knowhow of the bacterial genome isolation and its quantification, use of thermal cycler for PCR.

CO3. Solve problems based on restriction digestion and separation.

CO4. Learn procedures of genetic engineering.

CO5. Extract, quantify and separate protein.

CO6. Use thermal cycler for PCR.

CO7. Acquire an idea on the type of work in sophisticated biotechnology in industry.

DEPARTMENT: ZOOLOGY

PROGRAMME: MSc ZOOLOGY

PROGRAMME SPECIFIC OUTCOMES

PSO1. Provide quality education in Zoology with different specializations.

PSO2. Motivate for self-employment in applied branches of Zoology.

PSO3. Inculcate the spirit of natural resource conservation.

PSO4. Conduct field studies and different projects of interests in Zoology.

COURSE OUTCOMES

SEMESTER 1

ZL010101 ANIMAL DIVERSITY: PHYLOGENETIC AND TAXONOMIC APPROACHES

CO1. Understand the phylogenetic relationships among the different groups of animals.

CO2. Understand the latest trend in animal taxonomy and phylogenetic systematic.

ZL010102 EVOLUTIONARY BIOLOGY AND ETHOLOGY

CO1. Describe the concept of relatedness and its connection to biological evolution.

CO2. Apply knowledge to new information and data, as well as the capacity to effectively communicate the principles of evolution and its application to human biology.

CO3. Get exposed to the basics and advances in ethology.

CO4. Generate an interest in the subject in order to understand the complexities of studying animal behaviour on every level of the biological hierarchy.

ZL010103 BIOCHEMISTRY

CO1. Understand the chemical nature of life and life process.

CO2. Provide an idea on structure and functioning of biologically important molecules.

CO3. Generate an interest in the subject and explore the new developments in Biochemistry.

CO4. Understand the importance of metabolism of bio macromolecules in normal physiology of a man.

CO5. Understand the abnormal metabolism of biomolecules and the resultant diseases.

ZL010104 BIOSTATISTICS AND RESEARCH METHODOLOGY

CO1. Understand the concepts of statistics and research methodology, and create awareness about the gadgets, tools and accessories of biological research.

CO2. Improve analytical and critical thinking skills through problem solving.

CO3. Enable to effectively apply suitable statistical tests in research.

CO4. Understand the ethics involved in research and enable them to come up with innovative research designs.

CO5. Enable to prepare research papers and project proposals.

SEMESTER 2

ZL010201 FIELD ECOLOGY

CO1. Provide the knowledge of animal adaptations to a variety of environment.

CO2. Learn the different aspects of population and its interactions.

CO3. Understand the natural resources and manmade issues on environment. and its management.

ZL010202 DEVELOPMENTAL BIOLOGY

CO1. Understand the concepts and process in developmental biology.

CO2. Understand and appreciate the genetic mechanisms and the unfolding of the same during development.

CO3. Expose to the new developments in embryology and its relevance to Man.

ZL010203 GENETICS AND BIOINFORMATICS

CO1. Learn and understand the principles and mechanism of inheritance.

CO2. Study the fine structure of genetic material and molecular basis of hereditary transmission.

CO3. Understand the significance of Genetics in Principle inheritance of traits in Man.

CO4. Understand the role of genetics in evolution.

CO5. Explore the emerging field of bioinformatics and to equip the students to take up bioinformatics studies.

ZL010204 MICROBIOLOGY AND BIOTECHNOLOGY

CO1. Have an over view of the microbial world, its structure and function.

CO2. Understand the fundamental aspects of the basic biology of bacteria and viruses.

CO3. Have an intensive and in-depth learning in the field of biotechnology.

CO4. Become familiar with emerging field of biotechnology.

CO5. Understand the modern biotechnology practices and approaches with an emphasis on technology

application, medical, industrial, environmental and agricultural areas and nanomedicine.

CO6. Become familiar   with public policy, biosafety, and intellectual property rights issues related to biotechnology.

SEMSTER 3

ZL010301 ANIMAL PHYSIOLOGY

CO1. Study and compare the functioning of organ systems across the animal world.

CO2. Give an overview of the comparative functioning of different systems in animals.

CO3. Learn more about human physiology.

ZL010302 CELL AND MOLECULAR BIOLOGY

CO1. Study the structural and functional details of the basic unit of life at the molecular level.

CO2. Become motivated to delve into the basics of cell biology.

CO3. Get introduced to the new developments in molecular biology and its implications in human welfare.

ZL010303 BIOPHYSICS, INSTRUMENTATION AND BIOLOGICAL TECHNIQUES

CO1. Understand the biological system and processes based on physical principles.

CO2. Get an insight on the tools and techniques of various instruments available for biochemical and biophysical studies.

CO3. Get training in the operational skills of different instruments required in Zoology.

ZL010304 IMMUNOLOGY

CO1. Get an intensive and in-depth knowledge to the students in immunology.

CO2. Understand the role of immunology in human health and well-being.

CO3. Become familiar with the new developments in immunology.

SEMESTER 4

ZL800401 NUTRITION, GROWTH AND PHYSIOLOGY OF FISHES

CO1. Understand the various aspects of fish biology.

CO2. Understand the basic principles of fish nutrition and the function of individual nutrients.

CO3. Learn functional physiology of fishes.

ZL800402 FISHERY RESOURCES AND MANAGEMENT

CO1. Gain knowledge in inland and marine fishery resources of India.

CO2. Understand the oceanographic concepts related to fisheries.

CO3. Get theoretical knowledge on application of remote sensing and GIS in fisheries.

CO4. Get theoretical knowledge of benthic ecology.

CO5. Understand the interactions between aquaculture and the environment.

ZL800403 FISHERY SCIENCE AND TECHNOLOGY

CO1. Understand the advances in aquaculture.

CO2. Outline an overview on the potential marine resources for bioactive compounds and pharmaceuticals.

CO3. Get detailed insight into various aspects of freezing of fish and thermal/heat processing.

CO4. Understand various aspects of quality assurance system, quality management and national/international certification system.

CO5. Learn factory sanitation and hygiene, water quality and standard.

CO6. Provide information on various fish by-products and fishing methods.

DEPARTMENT: COMMERCE

PROGRAMME: MCom

PROGRAMME SPECIFIC OUTCOMES

PSO1. Apply accounting standards and deal with advanced practical areas related to valuation, amalgamation, specialised areas and to have a basic understanding on developments in accounting.

SEMESTER 1

CM010101 SPECIALISED ACCOUNTING

CO1. Understand about theoretical and practical aspects of major Accounting Standards to apply the same in different practical situations.

CO2. Ascertain the value of goodwill and value of companies based on the value of share and compare the real value of shares and with the market prices and identify the mispricing.

CO3. Understand the determination of purchase consideration in the event of amalgamation and prepare post amalgamation financial statements.

CO4. Develop a clear understanding about different types of NBFCs, their provisioning norms and to understand the concept of NAV of mutual funds through its computation.

CO5. Get acquainted with the theoretical aspects of emerging areas in accounting.

CM010102 ORGANISATIONAL BEHAVIOUR

CO1. Understand the basic concepts of organisation behaviour.

CO2. Understand about individual behaviour, personality and motivation.

CO3. Understand about group behaviour and leadership related to organisational behaviour.

CO4. Add the knowledge base regarding change management and deal with stress.

CO5. Get knowledge about the role of organisational culture and conflict organisational behaviour.

CM010103 MARKETING MANAGEMENT

CO1. Understand the concepts like customer centricity, CRM, value chain and customer delight.

CO2. Get a clear understanding about the market segmentation process and its applications in marketing

strategies.

CO3. Develop an idea about consumer behaviour and its impact.

CO4. Understand about product line, product mix, brand equity, brand identity, brand personality and brand image.

CO5. Develop sound ideas regarding services marketing and service quality.

CM010104 MANAGEMENT OPTIMISATION TECHNIQUES

CO1. Develop theoretical understanding about various business optimisation models.

CO2. Develop Linear Programming Models for business problems and solve the same.

CO3. Apply Linear Programming in the areas of transportation and assignment.

CO4. Develop decision making skills under uncertainty, risk and replacement of assets.

CO5. Understand and apply network analysis techniques for project implementation.

CM010105 METHODOLOGY FOR SOCIAL SCIENCE RESEARCH

CO1. Develop a thorough understanding about the basic concepts of social science research.

CO2. Formulate a research design.

CO3. Draw a sampling design.

CO4. Know deeply about the instrument development, its validation and different forms of scaling.

CO5. Understand the technique of research reporting.

SEMESTER 2

CM010201 ADVANCED CORPORATE ACCOUNTING

CO1. Prepare consolidated financial statements of group companies.

CO2. Prepare the financial statements of public utility companies and deal with the disposal of surplus.

CO3. Develop and awareness on the procedure of bankruptcy under the recent Bankruptcy Procedure Code.

CO4. Become familiar with the accounting procedures of liquidation of companies and preparation of various statements required as per the Companies Act.

CO5. Understand the basics of the preparation of accounts of some special lines of businesses like shipping, hospitals and hotels.

CM010202 HUMAN RESOURCE MANAGEMENT

CO1. Get acquainted with the basic concepts of HRM and performance appraisal.

CO2. Understand about human resource development, stress management and work life management.

CO3. Knowledge about various aspects of training.

CO4. Understand about various aspects of industrial relations so as to evaluate the rea cases of industrial relations.

CO5. Understand about HR outsourcing HR accounting and HR audit.

CM010203 INTERNATIONAL BUSINESS AND FINANCE

CO1. Become familiar with globalisation, internationalisation of business and the international business environment.

CO2. Understand about theories of international trade, trade barriers and trade blocks.

CO3. Understand about various economic institutions related to international trade.

CO4. Acquire high level knowledge about various aspects of international monetary system.

CO5. Develop an understanding about the international investment environment.

CM010204 QUANTITATIVE TECHNIQUES

CO1. Understand about the applications of quantitative techniques.

CO2. Understand about the applications of quantitative techniques.

CO3. Identify appropriate parametric test for testing the hypotheses.

CO4. Identify the most suitable non parametric test for testing a hypothesis.

CO5. Apply the principles of SQC.

CM010205 STRATEGIC MANAGEMENT

CO1. Understand about the theoretical foundations of strategic management.

CO2. Understand about various models of environmental and internal analysis.

CO3. Develop an idea about the strategy formulation process at the corporate level.

CO4. Become familiar with various tools strategic planning and evaluation.

CO5. Understand about the modes of implementation and control of strategies.

SEMESTER 3

CM010301 STRATEGIC FINANCIAL MANAGEMENT

CO1. Learn the theoretical foundations of financial management and financial management decisions.

CO2. Evaluate the feasibility of different options regarding discount, credit period, storage cost etc related to current assets and current liabilities and estimate working capital requirements.

CO3. Evaluate long term proposals and evaluate the risk associated with long term investment.

CO4. Evaluate the decisions regarding leasing of capital assets.

CO5. Evaluate and compare the performance of business entities.

CM010302 INCOME TAX - LAW AND PRACTICE

CO1. Acquire knowledge regarding the basic concepts of Income Tax.

CO2. Compute the income from salary and house property.

CO3. Determine taxable profit of a business or profession.

CO4. Compute capital gain and income from other sources.

CO5. Calculate Gross Total Income of an individual.

CO6. Determine eligible deductions and compute taxable income and tax liability of an individual.

CM010303 SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

CO1. Understand the concepts of investments, different types of investments, views of investment and process of investment and apply the theoretical knowledge in investment information for selecting the securities.

CO2. Understand the types of risk in security market and apply various tools for the valuation of bonds as well as economic indicators to predict the market.

CO3.Understand the tools of technical analysis, analyse the patterns and trends in the market by using various tools and enable to take investment decisions after understanding market efficiency level also.

CO4. Apply modern portfolio theories and construct optimum portfolios.

CO5. Revise constructed portfolios as per risk and return association by using different strategies.

CM800301 INDIRECT TAX LAWS

CO1. Understand the basic concepts of the Goods and Services Tax.

CO2. Develop a clear idea about the levy and collection of tax and tax credit.

CO3. Develop the knowledge about the provisions regarding registration, preparations of books of accounts and filing of returns under the Act.

CO4. Understand about the powers of GST authorities regarding inspection, search and seizure CO5. Understand about the Customs Law in India.

CM810301 LOGISTICS AND SUPPLY CHAIN MANAGEMENT

CO1. Understand the concept of logistics, the elements involved, logistics management and principles.

CO2. Have an idea regarding various demand forecasting techniques.

CO3. Understand transportation process and major documents involved in air and ocean logistics management.

CO4. Get a clear idea on supply chain management, its process and evaluate the strategies involved.

CO5. Have an idea regarding warehousing, its importance and analyse the role of computers in modern day warehousing.

CO6. Have an overview on various trends and developments taking place in the field of logistics and supply chain management.

CM820301 TOTAL QUALITY MANAGEMENT

CO1. Develop the idea regarding quality and quality management.

CO2. Understand the contribution to quality gurus.

CO3. Procure knowledge about TQM principles.

CO4. Develop an idea regarding the tools of quality.

CO5. Get insight into the concepts and application of six sigma concept and TPM.

CO6. Develop idea regarding ISO, BIS and quality standards.

SEMESTER 4

CM010401 ADVANCED COST AND MANAGEMENT ACCOUNTING

CO1. Apply activity-based absorption methods instead of conventional absorption method.

CO2. Apply the marginal costing principles in decision making situations of businesses.

CO3. Deal with practical cases of pricing decisions in different situations.

CO4. Understand the concepts of standard costing, and the process of cost control through it.

CO5. Deal with the practical issues related to transfer pricing.

CM010402 INCOME TAX – ASSESSMENT & PROCEDURE

CO1. Compute the total income and tax liability of firms and association of persons.

CO2. Carry out assessment determine their tax liability.

CO3. Make the assessment of co-operative societies and trusts.

CO4. Understand about the assessment procedures, TDS and advance payment of tax and application in various situations.

CO5. Learn tax planning concepts and apply the same.

CM800401 DERIVATIVES AND RISK MANAGEMENT

CO1. Know about the derivative market in India, its evolution, types, players, risks involved and basic quantitative foundations.

CO2. Analyse the implications of Risk in the perception of individuals and Institutions and measurement of risks.

CO3. Understand and explain the concept of forward market and its function.

CO4. Analyse the operation and pricing of various types of futures.

CO5. Understand the concepts and methodology of option trading and apply the models of pricing the option contracts.

CO6. Develop an idea of exchanges through Swaps.

CM800402 PERSONAL INVESTMENT AND BEHAVIOURAL FINANCE

CO1. Understand the meaning and significance of financial literacy, financial discipline and financial competency, the role of family and parents in financial socialisation.

CO2. Understand and evaluate the significance of savings on financial destiny and its relationship with consumerism and to understand the different elements/steps in Personal Financial Planning to attain Financial Well Being and evaluate the different retail investment avenues.

CO3. Know the meaning of Behavioural Finance, its evolution and related theories.

CO4. Understand different Heuristics, Biases and other Irrational Investment Behaviours.

CO5. Understand the relationship between biases and to adopt techniques to lower the impact of biases.

CM810401 RETAIL AND RURAL MARKETING

CO1. Understand the concept and structure of retail marketing and its status in India.

CO2. Understand the idea regarding the various formats prevailing in retail sector and the setting up and functioning of retail stores.

CO3. Understand the marketing mix available for retail marketing and the various aspects of HRM applicable for retailing.

CO4. Develop an idea on emerging trends of retailing in India.

CO5. Understand rural markets and marketing, its structure in India and the process and importance of agricultural marketing.

CO5. Understand the elements of marketing mix applicable in rural marketing, the role of FMCG in rural markets and also the emerging trends in rural markets in India.

CM810402 INTERNATIONAL MARKETING

CO1. Understand international marketing and environment.

CO2. Understand the various aspects in connection with product planning and development in international scenario.

CO3. Get an idea regarding segmentation, targeting, positioning in global market and international pricing strategies.

CO4. Get acquainted with international logistics, mode of entry and promotional measures.

CO5. Develop an understanding regarding research in international marketing and terms of payments as well as income terms.

CO6. Get an overview on risk in international market, aspects of international marketing and global E-marketing.

CM820401 E-COMMERCE AND E-BUSINESS MANAGEMENT

CO1. Understand the concept of E-commerce.

CO2. Understand E-business and its modules.

CO3. Develop a knowledge about E-marketing Techniques.

CO4. Develop an idea relating to E- business technology and CRM.

CO5. Understand the E-banking concepts.

CO6. Get an idea regarding application of technology in banking services and also the impact of E-commerce and E-business in India.

CM820402 LEGAL FRAMEWORK FOR IT BASED BUSINESS AND INTELLECTUAL PROPERTY RIGHTS

CO1. Get an awareness regarding concept of cyberspace and legislations involved.

CO2. Develop idea regarding cybercrime and consequences.

CO3. Understand about IT Act and IT security as well as standards.

CO4. Get knowledge about Intellectual Property Rights.

CO5. Develop understanding about E contracts.

CO6. Gain awareness regarding procedural formalities and impact with relation to IPR.

CM010403 PROJECT REPORT

CM010404 COMPREHENSIVE VIVA VOCE