T.K.M College of Arts and Science, Kollam

Re-accredited by NAAC with "B++" Grade

(Affiliated to University of Kerala, Thiruvananthapuram)

COURSE OUTCOMES OF UNDERGRADUATE PROGRAMMES

(2017 Admission onwards)

TKM College of Arts & Science Kollam - 691005 Kerala

Ph : 0474 - 2712240, 2711817, Fax : 0474 - 2711817

Email : tkmarts@gmail.com

UNDERGRADUATE PROGRAMMES - BA/BSc/BCom

GENERAL ENGLISH

Name of the Program(s)	Course Code Credits	Course name	Course outcomes	
Semester 1				
B.A/ **BSc/** **BCom**	**EN 1111.1 (B.A./B.Sc),** **EN 1111.2 (B.Com.)** **Credits:4**	**Language Skills**	**CO1**	Understand the core skills in language learning
			CO2	Understand English sounds and phonemic symbols
			CO3	Communicate effectively and accurately in English
			CO4	Understand the language as an interactive platform with literature as an effective tool for language learning.
			CO5	Acquire ability to use Soft Skills in professional and daily life.
			CO6	Learn to present ideas clearly and logically to achieve a specific purpose and to be appropriate for an intended audience.

B.A/ BSc	**EN1121 Credits: 2**	**Writings on Contemporary Issues**	**CO1**	Understand some of the major issues in the contemporary world.
			CO2	Recognise the structural, systematic factors which affect the quality of life of persons of different ages, gender, social class and racial backgrounds.
			CO3	Critically analyse literary text.
Semester 2				
B.A/ BSc	**EN1211.1 Credits: 4**	**Environmental Studies and Disaster Management**	**CO1**	Understand the fundamental concepts in Environmental Studies and Disaster Management
			CO2	Acquire knowledge of pollution and environmental degradation.
			CO3	Understand the natural environment and its relationship with human activities.
			CO4	Acquire a set of values for environmental protection and sustainable development
			CO5	Analyse, evaluate and manage the different public health aspects of disaster events at local and global levels
			CO6	Understand earlier disasters in order to formulate strategies for mitigation in future scenarios.
B.A/ BSc/ B.Com	**EN 1212.1 (Language course -3) EN 1211.2(B. Com)**	**English Grammar, Usage and Writing**	**CO1**	Identify the common grammatical errors and correct them.
			CO2	Generate grammatically and idiomatically correct spoken and written discourse
			CO3	Develop and improve verbal communication skills.

	Credits: 4		**CO4**	Develop a good understanding of Modern English Grammar
			CO5	Estimate minimal use of mother tongue and its influence.
			CO6	Understand the various grammatical notions and rules in English Grammar.
Semester 3				
B.A./ BSc	**EN 1311.1 (Language course 6)** **Credits: 4**	**English for Career**	**CO1**	Identify the common problems that students often face regarding career due to lack of English proficiency
			CO2	Explain the basics of language
			CO3	Organize the students to involve in language environment
			CO4	Develop knowledge on grammar
			CO5	Persuade the stakeholders to written communication
			CO6	Analyse the progress on a regular basis
B.Com	**EN 1311.2** **Credits: 3**	**Business English**	**CO1**	Understand the basic concepts of business communication
			CO2	Generate fluency in communication and to reach across boundaries of personal and cultural differences.
			CO3	Develop verbal and non verbal communication skills
			CO4	Develop the usage of English language in everyday situations and business transactions.

			CO5	Apply English language in habitual situations and business context.
			CO6	Analyse the jargons and usages in business communication
Semester 4				
B.A./ B.Sc./ B.Com	**EN 1411.1 EN 1411.2 Credits: 4**	**Readings in Literature**	**CO1**	Examine literature from around the globe and not be limited to canonical English literature
			CO2	Understand the conventions of literary genres and the major developments in literary history
			CO3	Identify writers of world literature and the socio-political aspects that influence their writing
			CO4	Evaluate cultural and thematic variations in literary works from around the world
			CO5	Develop a comparative understanding of national literatures
			CO6	Facilitate intercultural reading experience

CORE COURSES

Name of the program: First degree program in Mathematics (BSc Mathematics)			
Course Code L/P Credits	**Course name**	**Course outcomes**	
Semester 1			
MM 1141 Credits: 4	**Methods of Mathematics**	**CO1**	Explain the concept of maxima/ minima and evaluate it using critical points.
		CO2	Understand the Indeterminate forms and evaluate the limits using L'Hopital's rule.
		CO3	Evaluate the area under a curve through the integration.
Semester 2			
MM 1221 Credits: 3	**Foundations of Mathematics**	**CO1**	Understand the fundamental concepts in logic and proof techniques
		CO2	Understand two dimensional and three dimensional coordinate geometry using various coordinate systems.
		CO3	Apply foundations of geometry in various physical problems
		CO4	Understand the foundations of vector calculus
Semester 3			

MM 1341 **Credits: 4**	**Elementary Number Theory and Calculus -I**	**CO1**	Explain the fundamental facts in elementary number theory.
		CO2	Practice calculus of Vector valued functions
		CO3	Practice multivariable calculus.
		CO4	Identify extrema of multivariate functions.
Semester 4			
MM 1441 **Credits: 4**	**Elementary Number Theory and Calculus -II**	**CO1**	Understand the basic concept of Number theory
		CO2	Define divergence, flux and curl
		CO3	Understand the relation between double integral and triple integral.
		CO4	Apply Greens, Stokes and divergence theorem
Semester 5			
MM 1541 **Credits: 4**	**Real Analysis -I**	**CO1**	Describe fundamental properties of Real numbers
		CO2	Understand Sequence and Series and their convergence
		CO3	Understand metric space and compare it with distance concept in Real numbers
		CO4	Understand compact and connected sets
MM 1542 **Credits: 3**	**Complex Analysis -I**	**CO No.**	**CO Statement**
		CO1	Describe the basic properties of complex numbers
		CO2	Understand the properties of analytic functions

		CO3	Evaluate the Integrals using Cauchy's Integral Formula
		CO4	Explain the contour integration
MM 1543 **Credits: 4**	**Abstract Algebra - Group Theory**	**CO1**	Check whether a given group is cyclic, and given a finite cyclic group, find a generator for a subgroup of a given order.
		CO2	Determine whether two groups are isomorphic or not.
		CO3	Classify the subgroup of a cyclic group
		CO4	Apply the First Isomorphism theorem.
MM 1544 **Credits: 3**	**Differential Equations**	**CO1**	Explain basic concepts of differential equations
		CO2	Discuss methods to solve first order ordinary differential equations.
		CO3	Explain the existence and uniqueness of solutions theorems.
		CO4	Discuss methods to solve second order differential equations.
MM 1544 **Credits: 3**	**Mathematical Software LaTeX & SageMath**	**CO1**	Prepare a project report in Mathematics using LaTeX
		CO2	Apply SageMath for finding the solutions of various Mathematical problems
MM 1551.3 **Credits: 2**	**Basic Mathematics (Open Course)**	**CO1**	Describe basic arithmetic of whole numbers, fractions and decimals and apply them on various situations
		CO2	Explain Ratios, proportions and percents and compute the relation among them

		CO3	Understand various graphical methods to present given data and interpret them
		CO4	Solve system of equations using matrices
Semester 6			
MM 1641 **Credits: 4**	**Real Analysis -II**	**CO1**	Understand Continuous function and Describe basics results on Continuous functions
		CO2	Understand Differentiable function and Describe basics results on Differentiable functions
		CO3	Understand Integrable function and Describe basics results on Integrable functions
		CO4	Apply results of continuous,Differentiable and Integrable function on geometrical problems
MM 1642 **Credits: 3**	**Complex Analysis -II**	**CO1**	Explain the series representation of analytic functions using power series.
		CO2	Classify singularities and evaluate residues.
		CO3	Evaluate real integrals using the residue theorem.
		CO4	Explain the concept of conformal mapping and Mobius transformation .
MM 1643 **Credits: 3**	**Abstract Algebra-Ring Theory**	**CO1**	Understand the concept of ring and subring.
		CO2	Compare ideals and factor rings
		CO3	Apply division algorithm for polynomials over a field
		CO4	Test irreducibility and reducibility

MM 1644 **Credits: 4**	**Linear Algebra**	**CO1**	Solve systems of linear equations and interpret their results
		CO2	Understand the concept of vector space and its dimension
		CO3	Demonstrate an understanding of linear transformations
		CO4	Perform and interpret matrix operations
		CO5	Compute and interpret determinants of matrices;
		CO6	Demonstrate an understanding of vector spaces and subspaces
		CO7	Demonstrate an understanding of eigenvalues and eigenvectors;
MM 1645 **Credits: 3**	**Integral Transforms**	**CO1**	Explain Laplace transforms
		CO2	Discuss differentiation and integration of transforms.
		CO3	Describe Fourier series and transforms.
		CO4	Discuss Fourier integrals.
MM 1661.1 **Credits: 2**	**Graph Theory (Elective Course)**	**CO1**	Understand the basic knowledge about graphs and define basic terms associated with them
		CO2	Define trees and discuss about their connectivity
		CO3	Describe Euler and Hamiltonian graphs and apply them to solve certain real life problems
		CO4	Understand planar graphs and derive Euler's formula
MM 1646	**Project**	**CO1**	Understand research methodology

Credits: 4		**CO2**	Summarize and interpret the observations and results
		CO3	Prepare research article using typesetting software LaTeX

Name of the program: BA Economics and Mathematics (double main)			
Course Code **L/P** **Credits**	**Course name**	**Course outcomes**	
Semester 1			
MEC 1121 **Credits: 2**	**Informatics (Foundation Course)**	**CO1**	Understand various Data Analysis softwares .
		CO2	Understand various online resources.
		CO3	Understand the use of web resources to enhance their career and academics.
		CO4	Explain E-Commerce.
MEC 1141 **Credits: 3**	**Foundations of Mathematics**	**CO1**	Define the derivative of a function
		CO2	Understand theorems on differentiation
		CO3	Apply the derivative of a function
		CO4	Understand the integration of a function
		CO5	Apply integration

MEC 1142 **Credits: 3**	**Theory of Numbers**	**CO1**	Familiarise various kinds of numbers
		CO2	Understand the role of numbers in other branches of Mathematics
		CO3	Analyse different characters of number theoretic functions.
		CO4	Application of number theoretic concepts in various fields in particular cryptography.
Semester 2			
MEC 1241 **Credits: 3**	**Differential equations**	**CO1**	Solve first order linear differential equation
		CO2	Understand the existence and uniqueness theorem for first order ordinary differential equations.
		CO3	Solve nonhomogeneous second order ordinary differential equations with constant coefficients.
		CO4	Apply ordinary differential equations.
MEC 1242 **Credits: 4**	**Vector Calculus**	**CO1**	Understand the concept of vectors and algebraic operations of vectors.
		CO2	Compute the equations of a line and a plane in 3-space.
		CO3	Explain the cylindrical and spherical coordinate systems.
		CO4	Understand the geometrical interpretation of Curvature and motion of a particle along a curve .
Semester 3			
MEC 1341 **Credits: 4**	**Multivariable Calculus and Vector calculus**	**CO 1**	Understand the limit, continuity and differentiability of functions of more than one variable
		CO 2	Discuss the integration of vector valued functions

		CO 3	Apply integration of vector valued functions and understand various applications of multivariable calculus
MEC 1342 **Credits: 4**	**Abstract Algebra-Group Theory**	**CO 1**	Understand the definition of group and its various properties through examples.
		CO 2	Understands subgroups, cyclic groups and various properties of the same.
		CO 3	Understands the concept of permutation group.
		CO4	Apply Lagrange's theorem and Cayley's theorem
		CO5	Apply the concept of group theory
Semester 4			
MEC 1441	**Abstract Algebra-Ring Theory**	**CO 1**	Understand the definition and various properties of rings and their examples.
		CO 2	Understand the definition of prime ideal and maximal ideal.
		CO 3	Distinguishes ring homomorphism and properties of the same
		CO4	Analyze reducibility irreducibility and unique factorization of some polynomial rings.
		CO5	Apply divisibility properties of various integral domains'
		CO6	Distinguishes Unique factorization domain and Euclidean domain through examples.
MEC 1442 **Credits 3**	**LINEAR ALGEBRA**	**CO 1**	Solve non-homogeneous linear system of equations.
		CO 2	Understand the basis and dimension of a Vector space.

		CO 3	Demonstrate linear transformation on a vector space through certain examples
		CO 4	Demonstrate eigenvalues and diagonalization of a matrix
Semester 5			
MEC 1551.3	**Basic Mathematics (Open course)**	**CO 1**	Analyze various properties and operations in numbers
		CO 2	Understand basic concepts in ratio and proportions
		CO 3	Discuss fundamentals in set theory and Statistics
		CO 4	Explain logics in mathematics
MEC 1541	**Real Analysis 1**	**CO 1**	Understand the existence of irrational numbers in R,and completeness property of R
		CO 2	Understand uncountability and various cardinality results on R
		CO 3	Understand the convergence of sequence and series of real numbers
MEC 1542 **credits: 4**	**Complex Analysis - I**	**CO 1**	Understand the algebra of Complex numbers.
		CO 2	Understand the limit, continuity and analyticity of Complex functions.
		CO 3	Explain Cauchy Riemann equations and Harmonic functions
		CO 4	Explain the contour integration of complex valued functions.
Semester 6			
MEC 1641	**Real Analysis II**	**CO 1**	Understand limit and continuity of real valued function

			Understand uniform continuity and intermediate value theorem
			Describe Riemann integration
MEC 1642 **credits: 4**	**Complex Analysis - II**	**CO1**	Explain Cauchy's Integral Theorem.
		CO2	Evaluate the integrals using Cauchy's Integral formula
		CO 3	Understand the Taylor Series and Laurent series representations of analytic functions
		CO 4	Explain the Residue Theorem and Compute the integrals using Residue Theorem.
MEC 1643 **credits: 4**	**PROJECT PREPARATION - FROM SELECTING THE TOPIC TO PRESENTING THE FINAL REPORT**	**CO 1**	Understand the structure of a dissertation
		CO 2	Understand the layout of a project report.
		CO 3	Execute a project

Name of the program: First degree program in Physics (BSc Physics)		
Course Code **L/P** **Credits**	**Course name**	**Course outcomes**

Semester 1			
PY1141 **2L** **2 Credits**	**BASIC MECHANICS & PROPERTIES OF MATTER**	**CO1**	Acquire basic knowledge in dynamics of rigid bodies
		CO2	Understand basic concepts of Oscillations and waves
		CO3	Learn fundamental ideas of properties of fluids and understand different applications of these qualities.
Semester 2			
PY1241 **2L** **2 Credits**	**HEAT AND THERMODYNAMICS**	**CO1**	Summarize the fundamental ideas of thermodynamics and explain working of practical heat engines
		CO2	Understand the concept of entropy and apply this idea to find the entropy change occurring during different physical processes.
		CO3	Review laws of thermodynamics and using this explain thermal properties of solids
		CO4	Compare different modes of transfer of heat energy and generalize this idea to different practical situations
Semester 3			
PY 1341 **3L** **3 Credit**	**ELECTRODYNAMICS**	**CO1**	Refresh the fundamental concepts of electricity and magnetism.
		CO2	Applying electrostatic concepts to understand the behavior electrostatic field in matter
		CO3	Understand the concepts of magnetostatics, electromagnetic induction, Maxwell's equations and properties of electromagnetic waves.
		CO4	Understand the concepts of transient currents and alternating currents.
Semester 4			

PY1441 **3L** **3 Credit**	**CLASSICAL AND RELATIVISTIC MECHANICS**	**CO1**	Understand different conservation laws and their relation to the symmetry and properties of free space
		CO2	Learn the concept of Central force problem
		CO3	Apply the Lagrangian and Hamiltonian formalisms on different dynamical systems
		CO4	Understand the concepts in Special theory of relativity
Semester 5			
PY1541 **4L** **4 credits**	**QUANTUM MECHANICS**	**CO1**	Illustrate limitations of classical physics
		CO2	Understand basic concepts of matter waves, wave function and wave packets.
		CO3	Discuss Schrodinger's time independent and time dependent equations and applications of the same on one dimensional cases.
		CO4	Practise general formalism of quantum mechanics
PY1542 **4L** **4 Credits**	**STATISTICAL PHYSICS, RESEARCH METHODOLOGY AND DISASTER MANAGEMENT**	**CO1**	Understand different steps in scientific research
		CO2	Identify different types of disasters and understand effective management techniques.
		CO3	Compute the errors in experimental observations
		CO4	Identify the bridging of thermodynamics to statistical physics
PY1543 **4L**	**ELECTRONICS**	**CO1**	Understand fundamental concepts of doping,semiconductor diodes and transistors
		CO2	Discuss different modulation methods
		CO3	Explain the features of operational amplifiers

4 Credits		**CO4**	Relate different oscillators
PY1544 **4L** **4 Credits**	**ATOMIC & MOLECULAR PHYSICS**	**CO1**	Describe vector atom Model
		CO2	Differentiate Atomic spectra, X-ray spectra , molecular spectra ,resonance spectra
		CO3	Identify the working principles of spectrometers (IR, Raman and Mossbauer)
		CO4	Differentiate qualities of molecules and atoms and their suitable spectroscopic analysis
PY 1551.3 **3L** **2 credits**	**OPEN COURSES-APPLIED PHYSICS**	**CO1**	Discuss Electric and Electronic equipment, scientific instruments, Medical instruments, Optical instruments and some common mechanical devices
		CO2	Understand the uses of lasers and working of Ruby laser
		CO3	Understand principles of holography
		CO4	Describe the features optical fibre communication and optical fibres.
Semester 6			
PY 1641 **4L** **4 credits**	**SOLID STATE PHYSICS**	**CO1**	Explain Crystal structure and interatomic forces
		CO2	Understand X-ray, neutron and electron diffraction
		CO3	Explain Free electron theory and Band theory

		CO4	understand the principles of Magnetic, Dielectric and Optical properties of materials, and basics of superconductivity
PY 1642 **4L** **4 Credits**	**NUCLEAR AND PARTICLE PHYSICS**	**CO1**	Understand Nuclear structure and nuclear models, Radio-Activity, Nuclear forces
		CO2	Differentiate different types of Radiation detectors and particle accelerators
		CO3	Classify various Nuclear reactions, Nuclear fission and fusion
		CO4	Understand the conservation laws and elementary particles.
PY1643 **4L** **4 credits**	**CLASSICAL AND MODERN OPTICS**	**CO1**	Differentiate Interference, Diffraction, Polarization and Dispersion
		CO2	Identify the unique characteristics of lasers and understand the working of Lasers
		CO3	Describe fibre optic communication system
		CO4	**U**nderstand the basics of Holography
PY1644 **4L** **4 Credits**	**DIGITAL ELECTRONICS AND COMPUTER SCIENCE**	**CO1**	Understand the Number systems, Boolean algebra and logic gates and some arithmetic and sequential circuits
		CO2	Understand the basics of computers and memory systems
		CO3	Discuss features of object oriented programming and basics C++ programming language and interpret simple programs.
		CO4	Understand the basic assembly of 8085 microprocessors.

PY 3L 2 credits	**Nano science and Technology(Elective course)**	**CO1**	Understand Size effects, properties of nanomaterials and scaling laws
		CO2	Classify synthesis and characterization of nanomaterials
		CO3	Explain electrical transport in nanostructures.
		CO4	Describe applications of nanotechnology
Semester:1,2,3 &4 (Practicals)			
PY1442-2P 3 credits	**Basic Physics Lab 1**	**CO1**	Practise simple experiments in mechanics, properties of matter, heat optics and electricity and magnetism
		CO2	Analyse experimental observations and calculate results
		CO3	Estimate errors in the observations
Semester: 5&6 (Practicals)			
PY1645 3L 2 credit	**Advanced Physics Lab 2**	**CO1**	Practise simple experiments in mechanics, properties of matter, heat optics and electricity and magnetism
		CO2	Analyse experimental observations and calculate results
		CO3	Estimate errors in the observations
PY1646 3L 3 Credits	**Advanced Physics Lab 3**	**CO1**	Analyse experimental observation and error calculations
		CO2	Practise C++ Programming

		CO3	Design and construct electronic circuits
		CO4	Understand the importance of simulation in physics using C++ programming
PY1647 **2L** **4 credits**	**Project**	**CO1**	Identify different steps of scientific research
		CO2	Identify different experimental theoretical and computational research areas in physics
		CO3	Develop the skill of research article reading
		CO4	Develop the skill of scientific report writing

Name of the program: First degree program in Biochemistry (BSc Biochemistry)			
Course Code **L/P** **Credits**	**Course name**	**Course outcomes**	
Semester 1			
BC 1141 **Credits: 4**	**Perspectives, Methodology and Introduction to Biochemistry**	**CO1**	Understand various types of knowledge, design of an experiment, formulation of hypothesis, units, dimensions and good laboratory practices
		CO2	Remember great experiments as well as scope and applications of biochemistry
		CO3	Illustrate various approaches to study biochemical processes and biophysical aspects

		CO4	Know classification and properties of major biomolecules
		CO5	Understand terms and methods used in biochemical studies
		CO6	Understand physicochemical properties of water
Semester 2			
BC1221 **Credits: 3**	**Biomolecules II and Bioinformatics**	**CO1**	Understand the basic concepts regarding amino acids and proteins
		CO2	Remember the structure and types of nucleic acids
		CO3	Applications of Information Technology in Biology
		CO4	Understand data, information, knowledge, educational softwares, IPR and cyber laws
Semester 3			
BC1341 **L, T, P, C - 3, 1, 2, 3** **Credits: 3**	**Cellular Biochemistry**	**CO1**	**Understand different cell organelles and describe their structure and function**
		CO2	Elaborate the different types of transport systems across cell membrane
		CO3	Explain types of cell division, characteristics of cancer cells and mechanisms involved in cancer biology
		CO4	Understand the mechanism of interaction between a cell and its environment.
		CO5	Understand the classification and nomenclature of enzymes and units of enzyme activity, describe different coenzymes and their functions
		CO6	Describe types of enzyme inhibition and regulation

Semester 4			
BC 1441 **L, T, P, C – 3, 1, 2, 3**	**Techniques in Biochemistry**	**CO1**	Obtain a deep knowledge regarding types of microscopy and photometric techniques.
		CO2	Select the most suitable technique for the isolation and purification of biomolecules based on different criteria.
		CO3	Identify the chromatographic techniques for the separation of the individual compound from the mixture of compound
		CO4	Understand the types of electrophoretic techniques used in the separation of proteins and nucleic acids.
		CO5	Understand the principle of centrifugation and different centrifugation techniques
		CO6	Appreciate the role of radioisotopes in biology and techniques used in radioactivity
Semester 5			
BC 1541 **Credits:5**	**Physiology and Immunology**	**CO1**	Understand hemopoiesis and biochemical basis of blood group classification
		CO2	Understand the transport of gases and acid base balance in blood
		CO3	Remember the structure of muscle, neuron and bone
		CO4	Classify hormones and examine its functions
		CO5	Understand the basics of Immunology
		CO6	State the applications of immunological techniques

BC 1542 **Credits: 3**	**Bioenergetics and Carbohydrate metabolism**	**CO1**	Understand the bioenergetics of metabolic pathways
		CO2	Identify the reactions and regulations involved in the metabolism of carbohydrates
		CO3	Understand various inborn errors associated with carbohydrate metabolism
		CO4	Understand the link between ETC and energy production in plant and animal cells
		CO5	identify the events during electron transport
		CO6	Understand the mechanism of energy production in carbohydrate metabolism
BC 1543 **Credits: 3**	**Food Science**	**CO1**	Know food and nutrition
		CO2	Understand preservation of food and health hazards due to food adulteration
		CO3	Identify biochemical changes in food due to microbial action
		CO4	Remember various food standards and basic concepts of food toxicity and hazards
		CO5	Perform food quality tests
BC 1544 **Credits: 4**	**Classical and Molecular Genetics**	**CO1**	Understand Mendelian and non- Mendelian genetics, predict the type of inheritance of a trait/disease using pedigree analysis
		CO2	Understand bacterial and viral genetic systems

		CO3	Explain the organization of chromatin and events during gene expression
		CO4	Illustrate the consequences of different types of mutations and DNA-repair systems in Prokaryotes
		CO5	Depict the concepts of gene regulation in prokaryotic cells
			Describe the methods involved in rDNA technology
BC 1551.2: Open Course Credits: 2	Lifestyle Diseases	**CO1**	Understand the different causes and risk factors of lifestyle diseases
		CO2	Categorize and subsume the methods to diagnose the lifestyle diseases
		CO3	Interpret the investigative data
		CO4	Explain the methods of prevention and management of the lifestyle diseases
		CO5	Identify the healthy and unhealthy life habits
		CO6	Develop a better lifestyle
Semester 6			
BC 1641 L, T, P, C – 4, 1, 0, 4 Credits: 4	**Clinical Biochemistry**	**CO1**	Understand the methods of clinical laboratory management and laboratory safety
		CO2	Describe the principle and procedure for studying clinical parameters used for diagnosis
		CO3	Understand the importance of Organ Function Tests

		CO4	Summarize the significance of Urine and CSF analysis
		CO5	Understand the basics of the classification and identification of microorganisms
		CO6	Discuss the basic concepts of Pharmacology
BC 1642 **L, T, P, C – 4, 1, 0, 4**	**Metabolism II**	**CO1**	Understand the metabolism of lipids, nucleic acids, amino acids and heme .
		CO2	Demonstrate the role of enzymes involved under physiological and pathophysiological conditions
		CO3	Identify the inborn errors of metabolism of above mentioned biomolecules
		CO4	Summarize the processes involved in biological nitrogen fixation
		CO5	Enumerate the important detoxification processes in the body
BC 1661.1 **Credits: 2**	**Elective Course - Analytical Biochemistry (Elective)**	**CO1**	Understand various methods for quantification of phytochemicals
		CO2	Identify adulterants in different food materials
		CO3	Classify toxic substances like pesticides, heavy metals etc and know their toxic effects
		CO4	Remember physical and chemical parameters in water analysis
		CO5	Apply various methods of analysis to quantify toxic substances in food and summarize their health hazards

BC 1661.2 **L, T, P, C - 3, 1, 0, 2** **Credits: II**	**Immunology and Immunological Techniques(Elective)**	**CO1**	Understand general introduction to immunology
		CO2	Understand the fundamentals of Immunology and Immunological techniques
		CO3	Explain types of Immunity
		CO4	Understand chemical nature of antigens, antigenic determinants, haptens and Immunoglobulins
		CO5	Know molecular basis of immune function
		CO6	Understand disease related to immune function
		CO7	Understand Antigen -Antibody Interactions

Name of the program: First degree program in Zoology (BSc Zoology)			
Course Code **L/P** **Credits**	**Course name**	**Course outcomes**	
Semester 1			
ZO1141 **Credits: 3**	**Animal Diversity I**	**CO1**	Understand the diversity of invertebrates
		CO2	Classify the invertebrates into appropriate systematic positions
		CO3	Identify the economic importance of invertebrates

		CO4	Correlate the evolutionary history of invertebrates
ZO1131 **Credits: 2**	**Animal Diversity I**	**CO1**	Understand the diversity of invertebrates
		CO2	Classify the invertebrates into appropriate systematic positions
		CO3	Identify the economic importance of invertebrates
		CO4	Correlate the evolutionary history of invertebrates
Semester 2			
ZO1241 **Credits: 3**	**Animal Diversity II**	**CO1**	Understand the diversity of vertebrates
		CO2	Classify the vertebrates into appropriate systematic positions
		CO3	Identify the economic importance of vertebrates
		CO4	Correlate the evolutionary history of vertebrates
ZO1231 **Credits: 2**	**Animal Diversity II**	**CO1**	Understand the diversity of vertebrates
		CO2	Classify the vertebrates into appropriate systematic positions
		CO3	Identify the economic importance of vertebrates
		CO4	Correlate the evolutionary history of vertebrates
Semester 3			
ZO1341 **Credits: 3**	**Experimental Zoology, Instrumentation, Biostatistics and**	**CO1**	Understand the opportunities of a Zoologist
		CO2	Apply scientific methods in experiments
		CO3	Analyze experiments with biostatistics
		CO4	Apply computational procedure in experiments

	Bioinformatics		
ZO1331 **Credits: 3**	**Functional Zoology**	**CO1**	Understand functioning of the human body
		CO2	Identify the precautionary measures to safeguard health
		CO3	Identify deficiency and imbalance disorders in the body
		CO4	Identify the optimum lifestyle to waroff the diseases
Semester 4			
ZO1441 **Credits: 3**	**Ecology, Habitat Destruction & Disaster Management**	**CO1**	Understand the role and functioning of ecosystems
		CO2	Identify the anthropogenic pressures on ecosystem and their impacts
		CO3	Identify disasters and their prevention and mitigation measures
		CO4	Apply the remedial measures for the impact of anthropogenic pressures on ecosystems.
ZO1431 **Credits: 3**	**Applied Zoology**	**CO1**	Understand the basic principles of aquaculture, sericulture and livestock management
		CO2	Understand the human genomics and reproductive biology
		CO3	Identify genetic and developmental disorders
		CO4	Identify the possibilities of self employment
Semester 5			
ZO1541	**Cell and Molecular Biology**	**CO1**	Understand the fundamental structure, function, and biochemistry of the cell

Credits: 4		**CO2**	Understand the principles of molecular biology and gene manipulation
		CO3	Understand the mechanism of gene expression and gene regulation
		CO4	Understand the mechanism of genetic diseases and ageing
ZO1542 **Credits: 4**	**Genetics and Biotechnology**	**CO1**	Understand the mechanism, principles, techniques and applications of Genetics and Biotechnology
		CO2	Understand the relationship between heredity and variation
		CO3	Identify different genetic syndromes and practice possible ways to reduce its occurrence
		CO4	Apply the genetic principles and biotechnological tools for the welfare of mankind
ZO1543 **Credits: 4**	**Immunology and Microbiology**	**CO1**	Understand the principles and mechanisms of immunology
		CO2	Understand the scope and importance of clinical immunology
		CO3	Identify the immune disorders
		CO4	Understand the nature, effects and application of microorganisms
ZO1442 **P** **Credits: 4**	**Practical– Instrumentation Animal Diversity I and Animal Diversity II**	**CO1**	Understand the morphology of organisms
		CO2	Understand the anatomy and organ system of organisms
		CO3	Understand the economically important species
		CO4	Understand the mechanisms and principles of instruments used in Zoology

ZO1551.1 **Credits: 2**	**Public Health and Hygiene**	**CO1**	Understand the importance of public health, hygiene, balanced diet and nutritional disorders
		CO2	Identify the food adulteration
		CO3	Understand the causes and manifestation of physical and mental diseases
		CO4	Apply the preventive and therapeutic measures for physical and mental diseases
ZO1432 **Credits: 0:0:4**	**Practical I -Animal Diversity I & II, Functional Zoology and Applied Zoology**	**CO1**	Understand the morphology and anatomy of organisms
		CO2	Understand the economically important species.
		CO3	Identify the types of blood cells and blood groups
		CO4	Apply the biochemical and genetic principles in identifying disorders
Semester 6			
ZO1641 **Credits: 4**	**Physiology and Biochemistry**	**CO1**	Understand the correlation and coordination between the structure and function of different organs and organ systems of the body
		CO2	Understand the possible causes of abnormal physiology and the resultant diseases
		CO3	Understand the structure and functions of biomolecules and their role in metabolism
		CO4	Manipulate the lifestyle so as to minimise the occurrence of malfunctioning and deficiency disorders
ZO1642 **Credits: 4**	**Developmental Biology and Experimental**	**CO1**	Understand the embryological development of organisms
		CO2	Understand the causes and apply the control measures of congenital malformations

	Embryology	**CO3**	Understand the techniques and procedures of experimental embryology
		CO4	Apply the experimental embryology for therapeutic means
ZO1643 **Credits: 3**	**Ethology, Evolution and Zoogeography**	**CO1**	Understand the behaviour and communication of animals
		CO2	Understand the concept of organic evolution
		CO3	Understand the evolutionary history of organisms
		CO4	Understand the distribution of animals in the biosphere and zoogeographical realms
ZO1651.1 **Credits: 2**	**Economic Zoology – Vermiculture and Apiculture**	**CO1**	Understand basic procedure and methodology of vermiculture
		CO2	Understand the scope and methodology of apiculture
		CO3	Apply the pest and disease control in vermiculture and apiculture
		CO4	Practice self employment and self reliance
ZO1644 **Credits: 0:0:4**	**Practical II - Cell Biology, Genetics, Bioinformatics Biotechnology, Immunology and Microbiology**	**CO1**	Identify different cells and bacteria
		CO2	Identify stages in cell division and structure of genetic materials
		CO3	Identify genetic syndromes
		CO4	Experiment on enumeration blood cells and typing of blood
ZO1645	**Practical III - Physiolo**	**CO1**	Apply clinical procedures for blood & urine analysis

P **Credits: 0:0:3**	**gy and Biological Chemistry, Molecular Biology and Biostatistics**	**CO2**	Practice isolation and estimation of proteins
		CO3	Experiment of physiological activity of organisms
		CO4	Apply statistical methods to analyze data
ZO1646 **P** **Credits: 0:0:3**	**Practical IV - Developmental Biology, Ecology, Ethology, Evolution and Zoogeography**	**CO1**	Identify developmental stages of organisms
		CO2	Estimate the qualitative and quantitative parameters of water sample
		CO3	Understand the ecological and evolutionary interrelationship and adaptations of organisms
		CO4	Understand the mechanism of lure trap in pest management
ZO1647 **Credits: 0:0:4**	**Zoology Project and Field study**	**CO1**	Identify appropriate research topic and presentation
		CO2	Practice research with scientific temper
		CO3	Observe the procedure and application of experiments at research institute
		CO4	Observe the ecosystems and interrelationship of organism with environment

Name of the program: First degree program in Botany (BSc Botany)		
Course Code **L/P**	**Course name**	**Course outcomes**

Credits			
Semester 1			
BO1141 **2/2** **Credits: 3**	**Angiosperm Anatomy Reproductive Botany & Palynology**	**CO1**	Understand the microscopic and submicroscopic structure of cell
		CO2	Understand the anatomical organization and variations in stem, root and leaves
		CO3	Understand basic embryology of plants
Semester 2			
BO1221 **2/2** **Credits: 3**	**Foundation Course II- Methodology & Perspectives in Plant Science**	**CO1**	Understand fundamental characteristics of science
		CO2	Develop skill to interpret scientific data using basic statistical methods
		CO3	Develop skills to specimens for microscopic and gross anatomical studies
		CO4	Understand the common instruments used in life science research and know the working principles.
Semester 3			
BO1341 **3/2** **Credits:3**	**Microbiology, Phycology, Mycology, Lichenology & Plant Pathology**	**CO1**	Understand the diversity of microbes, its life cycle and economic importance.
		CO2	Understand the thallus structure and reproduction of algae, fungi and lichen.
		CO3	Know the beneficial and harmful effects of algae, fungi and lichen.

		CO4	Identify different plant diseases, causative organisms and control measures.
Semester 4			
BO1441 **3/2** **Credits:3**	**Bryology, Pteridology, Gymnosperms & Paleobotany**	**CO1**	Understand the classification and morphological diversity of bryophytes, pteridophytes and gymnosperms.
		CO2	Understand the life cycles of bryophytes, pteridophytes and gymnosperms and their economic importance
		CO3	Identify the plants belonging to bryophytes, pteridophytes and gymnosperms through morphological and anatomical features
		CO4	Know the importance of paleobotany and identify various fossil plant parts through microslides.
Semester 5			
BO1541 **4/3** **Credits:4**	**Angiosperm Morphology, Systematic botany, Economic botany, Ethnobotany & Pharmacognosy**	**CO1**	Understand the basic rules of angiosperm classification and different types of classification
		CO2	Understand and identify different types of inflorescence, flowers, fruits based on their morphology
		CO3	Identify plants to their respective families and preparation of Herbarium
		CO4	Understand ethnobotanical and pharmacological uses of plants
BO 1542 **5/2**	**Environmental Studies & Phytogeography**	**CO1**	Develop awareness about natural resources, need for its conservation and sustainable lifestyles
		CO2	Understand ecosystem , components, function, types and ecosystem processes

Credits:4		**CO3**	Create basic awareness about various disasters and strategies to overcome and reduce the impact
		CO4	Understand the importance of phytogeographical sites in India
BO 1543	**Cell Biology, Genetics & Evolutionary Biology**	**CO1**	Understand the cell structure and functions.
		CO2	Understand the process of mitosis and meiosis and prepare the microslides cytological methods
		CO3	Understand the Mendelian and modified Mendelian genetics and do problems of genetics
		CO4	Understand the principles and theories of evolution.
BO1551.2 **Credits:2**	**Mushroom cultivation and marketing**	**CO1**	Understand the structure, lifecycle and mode of propagation of mushrooms
		CO2	Understand cultivation practices and marketing strategies of mushroom
		CO3	Understand value methods of value addition, processing and storage techniques of mushrooms.
Semester 6			
BO1641 **Credits:4**	**Plant physiology & Biochemistry**	**CO1**	Understand the process of photosynthesis, respiration, nitrogen metabolism, translocation of solutes, water relations, plant movements and stress physiology.
		CO2	Know the chemical nature of biomolecules and know about secondary metabolites.
		CO3	Identify protein, carbohydrates and starch by qualitative tests.

		CO4	Understand the concept of enzyme activity and inhibition
BO1642 **4/2** **Credits:4**	**Molecular Biology, General informatics and Bioinformatics**	**CO1**	Understand DNA and RNA as genetic material, types, properties and replication mechanisms.
		CO2	Understand transcription and translation as steps of protein synthesis in plants
		CO3	Understand how genes are regulated and controlled in organisms.
		CO4	Understand the use of computer in biological data analysis
BO1643 **4/2** **Credits:4**	**Plant Breeding, Horticulture & Research methodology**	**CO1**	Learn the use of various horticultural implements
		CO2	Do budding, layering and grafting of plants
		CO3	Understand plant breeding techniques and find its application in crop improvement
		CO4	Understand various steps for the conduct of a research project and to write a project report.
BO 1651 **3/0** **Credits:2**	**Biotechnology & Nanotechnology**	**CO1**	Understand the concepts, principles and equipment and tools in biotechnology.
		CO2	Understand the common softwares and algorithms used in biotechnology
		CO3	Understand the concept of nanotechnology and its applications
		CO4	Understand the industrial use of biotechnological principles

Name of the program: First degree program in Chemistry (BSc Chemistry)			
Course Code L/P Credits	**Course name**	**Course outcomes**	
Semester 1			
CH1141 Credits: 2	**Inorganic Chemistry I**	**CO1**	Discuss the course of development of the structure of atoms.
		CO2	Apply rules for filling electrons in classifying elements into s, p,d and f blocks.
		CO3	Define various concepts of acids and bases.
		CO4	Understand reactions in non aqueous solvents.
		CO5	Realise various causes, effects and control measures of environmental pollution.
		CO6	Review national movements for environmental protection.
Semester 2			
CH1221 Credits: 2	**Foundation Course 2, Chemistry -its Origin, Methodology and Impacts**	**CO1**	Develop curiosity and scientific attitude towards the application of chemistry in daily life
		CO2	Appraise the current development in Chemistry
		CO3	Adopt safety measures in handling chemicals
		CO4	Develop computational skills
		CO5	Discuss separation techniques of filtration and chromatographic techniques

		CO6	Appreciate the development of scientific theories through years with specific examples
		CO7	Understand the history of chemistry and milestone achievements
Semester 3			
CH1341 **Credits: 3**	**Inorganic Chemistry II**	**CO1**	The course provide a fundamental knowledge about the formation of bonding and stability of compounds with respect to theoretical concepts
		CO2	The fundamental bonding concepts aims in aiding the students for their post graduate studies
		CO3	Acquires specific knowledge in transition and inner transition elements
		CO4	Aims in laying a strong foundation to the nuclear chemistry that will be much helpful in future ventures
		CO5	Gave specific concepts and ideas about the fantastic world of nanochemistry. It will be providing much beneficial for choosing their electives in PG.
		CO6	Hands on mixture analysis will open up the students to a wonderful world of chemistry that may enhance their curiosity in chemistry.
Semester 4			
CH1441 **Credits:3**	**Organic Chemistry I**	**CO1**	IUPAC naming and nomenclature will give the students an idea about the different types of organic compounds which are the basics in organic chemistry.
		CO2	Reaction Mechanisms explained, which can useful in learning various reaction mechanism easily in higher studies

		CO3	Reaction mechanisms in cyclic and aromatic compounds were explained, useful in learning organic chemistry well
		CO4	Types of configuration and conformations - basic concepts were explained
		CO5	Photochemical reactions which are much useful in future were explained. Along with this, different types of dyes were also studied
		CO6	Basic concepts on aromatic behaviour of compounds were explained
Semester 3 and 4			
	Inorganic Qualitative Analysis	**CO1**	The course provide a fundamental knowledge about the various types of apparatus and its uses specifically
		CO2	The fundamental concepts of precipitations, colour variation, physical appearance and chemical reactions will be learned
		CO3	Since minute quantity is being used, the reactions in the minimum amount could be learned and hence will be applicable in the research works
		CO4	Aims in laying a strong foundation to the scientific temperament, which will be much useful for the students, when they get hold of chemistry related jobs
		CO5	Hands on experiment will let the students expertise in lab equipments
Semester 5			
CH1543	**Organic Chemistry II**	**CO1**	Discuss the principle of UV, IR, NMR and Mass spectroscopy.

Credits: 4		**CO2**	Interpret spectroscopic data to elucidate the structure of simple organic compounds.
		CO3	Predict the outcome and mechanism of simple organic reactions, using a basic understanding of the reactivity of functional groups
		CO4	Distinguish primary, secondary & tertiary alcohols and amines.
		CO5	Explain the structure of glucose, fructose, sucrose, starch and cellulose.
		CO6	Illustrate the use of organic reagents in synthesis.
		CO7	Explain the structure of glucose, fructose, sucrose, starch and cellulose
		CO8	Understand the interconversion of aldose and ketose, chain lengthening and shortening of aldoses.
	Physical Chemistry I	**CO1**	Identify,compare and explain the properties and behaviour of real gases and Ideal gases
		CO2	Describe how the distribution of speed and the average speed of gas molecules change with temperature.
		CO3	Differentiate between amorphous and crystalline solids, Understand anisotropy, symmetry and types of crystals
		CO4	X-ray diffraction methods of study of crystal structure, identify the imperfections in crystals
		CO5	Recalling the basic concepts of solutions, concentration

			terms, Raoult's law and colligative properties
		CO6	Determination of colligative properties and molecular mass of solute
	Inorganic Chemistry III	**CO1**	Discuss the electronic configuration and related properties of transition elements and inner transition elements
		CO2	Understand preparation of selected transition metal compounds,lanthanides and actinides
		CO3	Compare lanthanide and actinide contraction and their consequences.
		CO4	Name coordination complexes,organometallics, discuss their properties and bonding
		CO5	Discuss preparation and properties and bonding of carbonyls
		CO6	Identify the role of organometallic compounds in organic synthesis
CH1551.3	**Open Course-Environmental Chemistry**	**CO1**	Students will be provided with an idea about the different components of atmosphere
		CO2	Will provide an idea about the different types of pollutants and remedials of water pollution
		CO3	Students will get an idea about the different types of air pollution
		CO4	Pollutant affecting land and its measures to prevent land pollution

		CO5	A discussion on major environmental disasters, which is meant for understanding the adverse effects of various pollution.
		CO6	Different types of laws and acts that have been enacted for preventing pollution, are discussed, which give an awareness to the students.
Lab II of CH1541, CH1542 CH1543 CH1544	**Inorganic Volumetric Analysis**	**CO1**	Develop skill in weight calculation of primary standards weighing by electronic balance, making of solutions of definite strength
		CO2	Use sophisticated glass wares, calibrate apparatus and develop skill in keen observation, prediction and interpretation of results
		CO3	Perform volumetric titrations under acidimetry alkalimetry, permanganometry, dichrometry, iodometry iodimetry,cerimetry, argentometry and complexometry
		CO4	Compare the advantages and disadvantages of different volumetric techniques
		CO5	Practice Punctuality and regularity in doing inorganic chemistry experiments and submitting Lab records
		CO6	Develop skill in selecting, primary and secondary standards, indicators and safe chemicals
Lab III of CH1541 CH1542 CH1543 CH1545	**Physical Chemistry Experiments**	**CO1**	Develop Scientific outlook and approach in applying principles of physical chemistry in chemical systems/reactions
		CO2	Understand procedures for physical experiments
		CO3	Acquire Instrumentation skill in using conductometer, potentiometer
		CO4	Compare theory with experimental findings
		CO5	Practice Punctuality and regularity in doing physical chemistry experiments

		CO6	Develop skill to measure instrumental reading and enhance arithmetic skill.
Semester 6			
CH1641	**Physical Chemistry II**	**CO1**	Understand basic concepts involved in colloids, thermodynamics, spectroscopy and group theory
		CO2	Apply laws of thermodynamics in physical and chemical processes and real system
		CO3	Understand different laws and principles of physical chemistry
		CO4	Discuss basic concepts of statistical thermodynamics
		CO5	Evaluate physical and chemical quantities using non spectroscopic techniques.
		CO6	Understand the basics of spectroscopic techniques Rotational, Vibrational and Raman Spectroscopy
	Organic Chemistry III	**CO1**	Understand the chemistry of simple heterocyclic compounds
		CO2	Understand the role of heterocyclic compounds in medicinal and pharmaceutical applications
	Physical Chemistry III	**CO1**	Understand the working principle Electro-Chemical cells
		CO2	Design and Determine the potentials of electrochemical systems
		CO3	Assess the nature of electrolytes in terms of dissociation and ionic conductance of electrolytes in terms of mobility of ions
		CO4	Integrate the theory into practical applications of

			conductometric titrations
		CO5	Identify, compare and explain the properties and behaviour of ideal and real gases, knowing kinetic theory of gases and different types of molecular velocities and collision properties.
		CO6	Perform numerical problems under a set of conditions
CH1661.1	**Supramolecular, Nano Particles and Green Chemistry (elective)**	**CO1**	Recognise the necessity of green approaches to protect nature
		CO2	Realises the importance of nanomaterial research
		CO3	Understand different laws and principles of nano, green and supramolecular chemistry
		CO4	Discuss about sustainable development and logical use of natural resources
		CO5	Become aware of pollution caused by industries
		CO6	Motivated to more eco friendly lifestyle
		CO7	Understand the concept of molecular recognition and host guest chemistry, Molecular recognition in DNA and protein structure
		CO8	Understand molecular receptors: tweezers, calixarenes, crown ethers,carcerands, cyclophanes
		CO9	Understand molecular recognition and catalysis
	Lab Course V (Gravimetric Experiments)	**CO1**	Understand precipitation techniques in quantitative context
		CO2	Appreciate the application of silica crucible and sintered crucible in gravimetry

CH1645 **Credits: 2**		**CO3**	Realise the factors affecting gravimetric experiments
		CO4	Take precautionary measures in filtration , drying and incineration of precipitates
		CO5	Practice Punctuality and regularity in analysis and submitting Lab records
CH 1644 **Credit : 3**	**Organic Chemistry experiments**	**CO1**	Discuss the chemistry of common organic reactions.
		CO2	Analyse the organic compounds using their characteristic reactions towards standard reagents
		CO3	Distinguish the reactions of various functional groups
		CO4	Determine physical constants of organic compounds
		CO5	Practice systematic scientific procedures and prepare reports of them.

Name of the program: First degree program in Commerce with Finance (BCom Finance)			
Course Code **L/P** **Credits**	**Course name**	**Course outcomes**	
Semester 1			
CO 1121	**Methodology and Perspectives of Business Education**	**CO1**	**Understand the meaning of sectors of economy, new economic policy, human capital management.**
		CO2	Determine the suitability of setting up a business organisation in the Indian Environment.
		CO3	Distinguish the features of different business Entities

		CO4	Establish the knowledge of participation and presentation in conferences, seminars.
		CO5	Experiment a field study or case study to conduct market survey
CO 1141	**ENVIRONMENTAL STUDIES**	**CO1**	Understanding of ecology, ecosystem,biodiversity and its conservation
		CO2	Understand the need and importance of environmental protection
		CO3	Explain the importance of maintaining and improving the quality of the environment.
		CO4	Compare the characteristics of sustainable and Unsustainable development
		CO5	understand the effect of Human Population towards environment
CO 1142	**MANAGEMENT CONCEPTS AND THOUGHT**	**CO1**	Understand the basic management concepts
		CO2	Understand the different dimensions of management process
		CO3	Acquire knowledge about different management functions and its application in contemporary organisations
		CO4	Understand the new horizons of management and its importance in present scenario
CO1131	**Managerial Economics**	**CO1**	Understand the basic economic tools and theories for business decision making
		CO2	Associate demand determinants to measure elasticity of demand
		CO3	Identify the techniques and approaches of demand forecasting
		CO4	Distinguish the law of production in the short run and long run

		CO5	Understand economies of scale, diseconomies of scale and equilibrium conditions for cost minimization and profit maximization
		CO6	Classify the pricing strategies adopted with regard to types of products
		CO7	Compare phases of business cycles
Semester 2			
CO 1221	**INFORMATICS AND CYBER LAWS**	**CO1**	Identify the digital knowledge resources for managerial decisions
		CO2	Explain informatics skills and attitude relevant to the knowledge society
		CO3	Understand the basic concepts and fundamental knowledge in the field of informatics
		CO4	Evaluate the nature of emerging digital society and the impact of informatics on business decisions
		CO5	Analyse knowledge on cyber world and cyber regulations
CO 1241	**FINANCIAL ACCOUNTING**	**CO1**	Familiarize with the basic concepts, assumptions and principles of accounting
		CO2	Aquintain with the accounting process of specialised business entities such as higher purchase & installment purchase, voyage, package & containers accounts and investment accounts
		CO3	Inculcate skills for preparing the specialised accounts related to depreciation and insurance claims
		CO4	Apply accounting skills in preparation of final accounts of a sole trader
CO1242-	**BUSINESS REGULATORY**	**CO1**	Understand the concept of Mercantile law in India
		CO2	Understand the concepts and provisions of The Indian Contract Act 1872

	FRAME WORK	**CO3**	Understand the various classifications under special contract
		CO4	Understand the concepts and provisions of sales of goods act 1930
		CO5	Understand the functions of regulatory authorities in India
CO1231	**Business Mathematics**	**CO1**	Understand the basic mathematical tools and their applications
		CO2	Familiarize with the mathematical applications in business
		CO3	Impart skills for applying mathematical tools used for financial analysis
		CO4	Stimulate students with the mathematical flair for solving simple to complex business decisions
Semester 3			
CO 1341	**Entrepreneurship Development**	CO1	Understand the significance of Entrepreneurial Development in the economic development of the nation.
		CO2	Employ the knowledge and capacity in preparing proposals for creating an MSMEs
		CO3	Identify the importance of women entrepreneurship for uplifting the life of marginalized women in the society
		CO4	Apply the knowledge on human resource training in the management of HR in an organisation
		CO5	Establish a favourable attitude on entrepreneurial development among the students
Core Course : CO 1342	**Advanced Financial Accounting**	**CO1**	Apply knowledge and skill in preparing different types of branch accounts
		CO2	Explain the procedure involved in dissolution of partnership firm

		CO3	Understand the accounting knowledge in preparing departmental accounting
		CO4	Determine accounting principles and knowledge in preparing accounts for consignment and joint venture transaction
CO1343 Elective Course-I CO 1361	**COMPANY ADMINISTRATION**	**CO1**	Understand the provisions of Indian Companies Act,2013
		CO2	Understand the compliance requirements, governance and CSR of companies
		CO3	Classify the types of companies
		CO4	Explain the process of formation of Companies
		CO5	Explain the procedures for the Constitution of Board of Directors,Board Committees and Board meetings
		CO6	Explain the Provisions relating to Filing of company documents both online and offline
		CO7	Explain the procedure and provisions related to Winding up of Companies.
Elective Course CO 1361.1	**- FINANCIAL MANAGEMENT**	**CO1**	Understand the theoretical foundation of financial management and financial decisions
		CO2	Explain conceptual and analytical knowledge in financial management to make financial decision skillfully
		CO3	Illustrate theories of capital structure and the concept of cost of capital
		CO4	Understand the factors determining dividend policy adopted by companies
Complementary Course III CO 1331	**E-Business**	**CO1**	understand the concepts of e business and e commerce
		CO2	understand the various classification of e business and e commerce
		CO3	Explain the system of e- business and its application

		CO4	Demonstrate Launching of a successful online Business and E commerce.
Semester 4			
CO 1441	**Indian Financial Market**	**CO1**	Understand the Structure of the Indian Financial Market.
		CO2	Identify the different methods of floating capital in Indian Financial Market
		CO3	Analyze the impact of trading activities in BSE and NSE on Indian Economy
		CO4	Understand the Capital Market operations in India
		CO5	Understand the regulatory framework of Financial Market
		CO6	Design a portfolio for dummy trading in Stock Exchange using available online applications
CO 1442	**Banking and Insurance**	**CO1**	Understand the Structure of Banking system, Liquidity Management by banks and negotiable instruments
		CO2	Understand the relationship between banker and customer, opening and operation of accounts by special types of customers.
		CO3	Understand the Acts pertaining to recovery of bank's debt, Banking Ombudsman scheme, Basel norms and management of NPAs
		CO4	Understand the principles of Insurance, Insurance documents, underwriting in Insurance and Claim settlement process in Insurance
		CO5	Understand the functions of RBI and methods of Credit Control by RBI

		CO6	Classify the Insurance businesses in India
		CO7	Compare different modes of electronic banking
		CO8	Analyse the changing scenario of banking sector in India
CO 1443	**Corporate Accounting**	**CO1**	Understand the basic knowledge for the preparation of final accounts of joint stock companies
		CO2	Understand the knowledge and rules regarding Indian Accounting standards and International Financial Reporting Standards (IFRS)
		CO3	Prepare final accounts of banking and insurance companies
		CO 4	Understand knowledge and idea on internal reconstruction of companies
		CO 5	Practice the principles and knowledge for interpretation of financial statement of companies
CO 1461	**Project Finance**	**CO 1**	Understand the meaning of Project life Cycle, Risk analysis, Pattern of financing
		CO 2	Administer the techniques of risk analysis in project appraisal.
		CO 3	Distinguish the projects on the basis of various models PPP model, DBO, BOT, BOO.
		CO4	Devise the skill of social cost benefit analysis in evaluating sustainable project proposals.
		CO 5	Determine the involvement of world bank projects in the economic development of our country
		CO 6	Differentiate the projects on the basis of BMRED
CO1431	**Business Statistics**	**CO1**	Understand statistical techniques applicable to business

		CO2	Apply statistical techniques for quantification of data in business
		CO3	Develop the skills for applying appropriate statistical tools in different business decisions
		CO4	Develop and an ability to collect, present, analyse and interpret the data
		CO5	Impart analytical ability to project the future trends of various business operations
Semester 5			
CORE COURSE IX: CO-1541	**Fundamentals of Income Tax**	**CO1**	Understand the basic concepts of income tax under Income Tax Act 1961
		CO2	Determine the residential status of an individual under Income Tax
		CO3	Determine scope and incidence of income tax
		CO4	Identify the incomes exempted from income tax
		CO5	Explain five heads of income under income tax
		CO6	Calculate tax liability of an individual
CO1542	**Cost Accounting**	**CO1**	Understand Costing as a separate system of accounting
		CO2	Apply the cost accounting system and impart knowledge to account the measures of cost control
		CO3	Develop professional competencies and skills in applying costing for various business decisions
		CO4	Create ability to solve different functional decisions at different organisational levels

		CO5	Developing knowledge among students about cost ascertainment and fixation of selling price
CO 1543	**Marketing Management**	**CO1**	Understand the concept of Marketing and its emerging role in modern business
		CO2	Explain the concepts and components of Marketing Mix
		CO3	Explain Consumer behaviour and Market segmentation in modern marketing
		CO4	Explain the relevance of Product development, Logistics and Advertising
		CO5	Classify the types of Product and Pricing decisions
		CO6	Analyse the marketing strategies pertaining to product, price, physical distribution and promotion.
CO 1561.1	**Financial Services in India**	**CO1**	Understand the role of financial services in Indian Economic system
		CO2	Distinguish fund based and fee based financial services
		CO3	Identify the significance of credit rating agencies in the financial services market.
		CO4	Acquire the knowledge of preparation of project proposal
Open Course **CO 1551.2**	**PRINCIPLES OF MANAGEMENT**	**CO1**	Understand the scope and importance of principles of management.
		CO2	Familiarise the organisational structure of management and administration
		CO3	Understand the concepts and principles of Planning,Organising,directing and Controlling and its various steps.

		CO4	Familiarise staffing procedures and its various sources of recruitment
Open Course **CO 1551.3**	**CAPITAL MARKET OPERATIONS**	**CO1**	Familiarise the students with capital market operations
		CO2	Understand the basics of capital market, capital market instruments and its structure
		CO3	Understand the role of capital market in the economic development of the country
		CO4	Utilise a platform for dummy trading in stock exchange using available softwares.
Semester 6			
Elective Course: **CO 1661.1**	**Taxation Law and Accounts**	**CO1**	Understand the practical skill and knowledge regarding assessment of different persons under the provisions of Income Tax law
		CO2	Apply knowledge and skill for the preparation and filing of income tax return
		CO3	Illustrate powers and duties of income tax authorities in India
		CO4	Understand knowledge and regarding computation of corporate tax
		CO5	Understand the background and models of GST
		CO6	Evaluate the provisions of GST laws in India
CO 1641	**Auditing**	**CO1**	Understand the basic concepts underlying the relevant provisions of auditing and assurance standards, auditor's independence and concept of true and fair value
		CO2	Distinguish different types of audit
		CO3	Articulate the principles of verification and valuation of assets of a concern

		CO4	Apply the knowledge of auditing principles, procedures and techniques in accordance with current legal requirements and professional standards.
		CO5	Understand the concept of investigation and identify the circumstances where investigation is conducted
CO1642	**Applied Costing**	**CO1**	Acquaint the students with different methods and techniques of costing.
		CO2	Enable the students to apply the costing methods and techniques in different types of industries.
		CO3	Develop the skill required for the application of the methods and techniques of costing in managerial decisions.
CO 1643	**Management Accounting**	**CO1**	Enable students to familiarize with the concepts and techniques of management accounting
		CO2	Understand the concepts of managerial decision making
		CO3	Enhance competencies and skills in applying accounting informations for business forecast
		CO4	Develop the competencies for making managerial decisions and managerial control
Open Course II: **CO 1651.3**	**MANAGEMENT OF FOREIGN TRADE**	**CO1**	Understand the basics of foreign trade and role of foreign trade in economic development
		CO2	Acquaint the students with India's foreign trade
		CO3	Acquire the knowledge about the present scenario of international trade and services
		CO4	Identify the role of international agencies in promoting and supporting foreign trade

Name of the program: First degree program in Commerce with Computer Application (BCom Computer Application)			
Course Code L/P Credits	**Course name**	**Course outcomes**	
Semester 1			
CO 1121	**Methodology and Perspectives of Business Education**	**CO1**	Understand the meaning of sectors of economy, new economic policy, human capital management.
		CO2	Determine the suitability of setting up a business organisation in the Indian Environment.
		CO3	Distinguish the features of different business Entities
		CO4	Acquire the knowledge of participation and presentation in conferences, seminars.
		CO5	Design a field study or case study to conduct market survey
CO 1141	**ENVIRONMENTAL STUDIES**	**CO1**	Acquire the knowledge about ecology, eco system,,biodiversity and its conservation
		CO2	understand the need and importance of environmental protection
		CO3	demonstrate the importance of maintaining and improving the quality of the environment.
		CO4	Compare the characteristics of sustainable and Unsustainable development
		CO5	understand the effect of Human Population towards environment

CO 1142	**MANAGEMENT CONCEPTS AND THOUGHT**	**CO1**	Understand the basic management concepts
		CO2	Understand the different dimensions of management process
		CO3	Acquire knowledge about different management functions and its application in contemporary organisations
		CO4	Understand the new horizons of management and its importance in present scenario
		CO5	Understand economies of scale, diseconomies of scale and equilibrium conditions for cost minimization and profit maximization
		CO6	Classify the pricing strategies adopted with regard to types of products
		CO7	Compare phases of business cycles
CO1131	**Managerial Economics**	**CO1**	Understand the basic economic tools and theories for business decision making
		CO2	Associate demand determinants to measure elasticity of demand
		CO3	Identify the techniques and approaches of demand forecasting
		CO4	Distinguish the law of production in the short run and long run
		CO5	Understand economies of scale, diseconomies of scale and equilibrium conditions for cost minimization and profit maximization
		CO6	Classify the pricing strategies adopted with regard to types of products
		CO7	Compare phases of business cycles

Semester 2			
CO 1221	**INFORMATICS AND CYBER LAWS**	**CO1**	Equip the students to effectively utilise the digital knowledge resources
		CO2	Acquire knowledge regarding informatics skills and attitude relevant to the knowledge society
		CO3	Understand the basic concepts and fundamental knowledge in the field of informatics
		CO4	Create an awareness about the nature of emerging digital society and the impact of informatics on business decisions
		CO5	Acquire knowledge on cyber world and cyber regulations
CO 1241	**FINANCIAL ACCOUNTING**	**CO1**	Familiarize with the basic concepts, assumptions and principles of accounting
		CO2	Aquintain with the accounting process of specialised business entities such as higher purchase & installment purchase, voyage, package & containers accounts and investment accounts
		CO3	Inculcate skills for preparing the specialised accounts related to depreciation and insurance claims
		CO4	Apply accounting skills in preparation of final accounts of a sole trader
CO1242-	**BUSINESS REGULATORY FRAMEWORK**	**CO1**	Acquire the knowledge in framework of Indian business law
		CO2	Understand the concepts and provisions of The Indian Contract Act 1872
		CO3	understand the various classifications under special contract
		CO4	understand the concepts and provisions of sales of goods act 1930

		CO5	Understand the functions of regulatory authorities in India
CO1231	**Business Mathematics**	**CO1**	Understand the basic mathematical tools and their applications
		CO2	Familiarize with the mathematical applications in business
		CO3	Impart skills for applying mathematical tools used for financial analysis
		CO4	Stimulate students with the mathematical flair for solving simple to complex business decisions
Semester 3			
CO 1341	**Entrepreneurship Development**	**CO1**	Understand the significance of Entrepreneurial Development in the economic development of the nation.
		CO2	Acquire the knowledge and capacity in preparing proposals for creating an MSMEs
		CO3	Identify the importance of women entrepreneurship for uplifting the life of marginalized women in the society
		CO4	Apply the knowledge on human resource training in the management of HR in an organisation
		CO5	Inculcate a favourable attitude on entrepreneurial development among the students
Core Course CO 1342	**Advanced Financial Accounting**	**CO1**	Acquire knowledge and skill in preparing different types of branch accounts
		CO2	Familiarise the students with the procedure involved in dissolution of partnership firm
		CO3	Understand the accounting knowledge in preparing departmental accounting

		CO4	Apply accounting knowledge and skill in preparing accounts for consignment and joint venture transaction
CO 1343	**COMPANY ADMINISTRATION**	**CO1**	Understand the provisions of Indian Companies Act,2013
		CO2	Understand the compliance requirements, governance and CSR of companies
		CO3	Classify the types of companies
		CO4	Explain the process of formation of Companies
		CO5	Explain the procedures for the Constitution of Board of Directors,Board Committees and Board meetings
		CO6	Explain the Provisions relating to Filing of company documents both online and offline
		CO7	Explain the procedure and provisions related to Winding up of Companies.
CO 1361	**- FINANCIAL MANAGEMENT**	**CO1**	Understand the theoretical foundation of financial management and financial decisions
		CO2	Acquire conceptual and analyticals knowledge in financial management to make financial decision skillfully
		CO3	Familiarise theories of capital structure and the concept of cost of capital
		CO4	Understand the factors determining dividend policy adopted by companies
Complementary Course III CO 1331	**E-Business**	**CO1**	understand the concepts of e business and e commerce
		CO2	understand the various classification of e business and e commerce
		CO3	Acquire knowledge in e business system and its application

		CO4	Acquire knowledge in Launching a successful online Business and E commerce projects
CO 1361.5	**Computer Application for Publications**	CO1	Understand the functional knowledge in the field of free software
		CO2	Create documents using LaTeX software
		CO3	Create documents in Microsoft Word
		CO4	Design pages using Adobe InDesign
		CO5	Create Microsoft Powerpoint presentations with animation, slide transition and hyperlinks
Semester 4			
CO 1441	**Indian Financial Market**	**CO1**	Understand the Structure of the Indian Financial Market.
		CO2	Identify the different methods of floating capital in Indian Financial Market
		CO3	Analyze the impact of trading activities in BSE and NSE on Indian Economy
		CO4	Understand the Capital Market operations in India
		CO5	Understand the regulatory framework of Financial Market
		CO6	Design a portfolio for dummy trading in Stock Exchange using available online applications
CO 1442	**Banking and Insurance**	**CO1**	Understand the Structure of Banking system, Liquidity Management by banks and negotiable instruments

		CO2	Understand the relationship between banker and customer, opening and operation of accounts by special types of customers.
		CO3	Understand the Acts pertaining to recovery of bank's debt, Banking Ombudsman scheme, Basel norms and management of NPAs
		CO4	Understand the principles of Insurance, Insurance documents, underwriting in Insurance and Claim settlement process in Insurance
		CO5	Understand the functions of RBI and methods of Credit Control by RBI
		CO6	Classify the Insurance businesses in India
		CO7	Compare different modes of electronic banking
		CO8	Analyse the changing scenario of banking sector in India
CO 1443	**Corporate Accounting**	**CO1**	Understand the basic knowledge for the preparation of final accounts of joint stock companies
		CO2	Attain knowledge regarding Indian Accounting standards and International Financial Reporting Standards (IFRS)
		CO3	Familiarise the students with the preparation of final accounts of banking and insurance companies
		CO 4	Attain knowledge and idea on internal reconstruction of companies
		CO 5	Familiarise the students with the interpretation of financial statement of companies
CO 1461	**Project Finance**	**CO 1**	Understand the meaning of Project life Cycle, Risk analysis, Pattern of financing
		CO2	Apply the techniques of risk analysis in project appraisal.

		CO3	Distinguish the projects on the basis of various models PPP model, DBO, BOT, BOO.
		CO4	Acquire the skills of social cost benefit analysis in evaluating sustainable project proposals.
		CO5	Determine the involvement of world bank projects in the economic development of our country
		CO6	Differentiate the projects on the basis of BMRED
CO1431	**Business Statistics**	**CO1**	Understand statistical techniques applicable to business
		CO2	Apply statistical techniques for quantification of data in business
		CO3	Develop the skills for applying appropriate statistical tools in different business decisions
		CO4	Develop and an ability to collect, present, analyse and interpret the data
		CO5	Impart analytical ability to project the future trends of various business operations
CO1461.5	**Software for Data Management**	**CO1**	Understand the basics of LibreOffice Calc and R programming
		CO2	Develop theoretical and technical expertise in Microsoft Excel
		CO3	Administer parametric and non-parametric test in SPSS
		CO4	Create database in MS Access
Semester 5			
CORE COURSE IX	**Fundamentals of Income Tax**	**CO1**	Understand the basic concepts of income tax under Income Tax Act 1961

CO-1541		**CO2**	Determine the residential status of an individual under Income Tax
		CO3	Determine scope and incidence of income tax
		CO4	Identify the incomes exempted from income tax
		CO5	Explain five heads of income under income tax
		CO6	Calculate tax liability of an individual
CO1542	**Cost Accounting**	**CO1**	Understand Costing as a separate system of accounting
		CO2	Apply the cost accounting system and impart knowledge to account the measures of cost control
		CO3	Develop professional competencies and skills in applying costing for various business decisions
		CO4	Create ability to solve different functional decisions at different organisational levels
		CO5	Developing knowledge among students about cost ascertainment and fixation of selling price
CO 1543	**Marketing Management**	**CO1**	Understand the concept of Marketing and its emerging role in modern business
		CO2	Explain the concepts and components of Marketing Mix
		CO3	Explain Consumer behaviour and Market segmentation in modern marketing
		CO4	Explain the relevance of Product development, Logistics and Advertising

		CO5	Classify the types of Product and Pricing decisions
		CO6	Analyse the marketing strategies pertaining to product, price, physical distribution and promotion.
CO 1561.1	**Financial Services in India**	**CO1**	**Understand the role of financial services in Indian Economic system**
		CO2	**Distinguish fund based and fee based financial services**
		CO3	**Identify the significance of credit rating agencies in the financial services market.**
		CO4	**Acquire the knowledge of preparation of project proposal**
Open CourseCO 1551.2	**PRINCIPLES OF MANAGEMENT**	**CO1**	Understand the scope and importance of principles of management.
		CO2	Familiarise the organisational structure of management and administration
		CO3	Understand the concepts and principles of Planning,Organising,directing and Controlling and its various steps.
		CO4	Familiarise staffing procedures and its various sources of recruitment
CO 1561.5	**WEB DESIGNING AND PRODUCTION FOR BUSINESS**	**CO1**	Understand the elements of web page, websites, website addresses and animation effects
		CO2	Understand the basics of HTML, CSS and XML
		CO3	Classify types of websites, HTML lists and Hyperlinks

		CO4	Create brochures, online application form, webpage and websites
Semester 6			
CO1641	**Auditing**	**CO1**	Understand the basic concepts underlying the relevant provisions of auditing and assurance standards
		CO2	Distinguish types of audit
		CO3	Articulate the principles of verification and valuation of assets of a concern
		CO4	Apply auditing principles, procedures and techniques in accordance with current legal requirements and professional standards
		CO5	Identify the circumstances where investigation is conducted
CO1642	**Applied Costing**	**CO1**	Acquaint the students with different methods and techniques of costing.
		CO2	Enable the students to apply the costing methods and techniques in different types of industries.
		CO3	Develop the skill required for the application of the methods and techniques of costing in managerial decisions.
CO1643	**Management Accounting**	**CO1**	Enable students to familiarize with the concepts and techniques of management accounting
		CO2	Understand the concepts of managerial decision making
		CO3	Enhance competencies and skills in applying accounting informations for business forecast

		CO4	Develop the competencies for making managerial decisions and managerial control
Elective Course: CO 1661.1	**Taxation Law and Accounts**	**CO1**	Understand the practical skill and knowledge regarding assessment of different persons under the provisions of Income Tax law
		CO2	Familiarise the students with the e knowledge of preparation and filing of income tax return
		CO3	Create an awareness about income tax authorities and their powers and duties
		CO4	Attain knowledge regarding computation of corporate tax
		CO5	Understand the background and models of GST
		CO6	Create employability to the students in GST practices
CO 1661.5	**COMPUTERISED ACCOUNTING**	**CO1**	Understand the procedure for company creation and setting up of accounts in Tally
		CO2	Classify Accounting, Inventory and Payroll vouchers in Tally
		CO3	Create company using Tally and organise business transactions electronically
		CO4	Prepare accounting, inventory and taxation reports, financial statements and budget using Tally

Name of the program: First degree program in English

(BA English)			
Course Code L/P Credits	**Course name**	**Course outcomes**	
Semester 1			
EN 1141 Credits: 4	**Introduction to Literary Studies I**	**CO1**	Introduce varied literary representations.
		CO2	Familiarize students with the nature and characteristics of literature.
Semester 2			
EN 1241 Credits: 4	**Introduction to Literary Studies II**	**CO1**	Cherish a taste for the literary among students.
		CO2	Comprehend the nature and characteristics of different genres of literature.
Semester 3			
EN 1341 Credits: 3	**British Literature I**	**CO1**	Comprehend the origins of English Literature.
		CO2	Understand the specific features of the particular periods.
EN 1321 Credits: 3	**Foundation Course 2 Evolution of the English Language**	**CO1**	Knowledge of the paradigm shifts in the development of English.
		CO2	Well aware of the historical paradigm shifts in the history of English Language.
Semester 4			

EN 1441 **Credits: 4**	**British Literature II**	**CO1**	Sensitize students to the changing trends in English literature in the 18th and the 19th centuries and connect it with the sociocultural and political developments.
		CO2	Develop the critical thinking necessary to discern literary merit.
EN 1442 **Credits: 3**	**Literature of the 20th Century**	**CO1**	Understand social, political, aesthetic and cultural transformation of early twentieth century in relation to literary texts with their specific formal features
		CO2	Know the stylistic features of Modernism and its various literary and aesthetic movements.
Semester 5			
EN 1541 **Credits: 4**	**Literature of Late 20th Century and 21st Century**	**CO1**	Identify the Various socio-cultural changes that evolved in the late modernist period.
		CO2	Relate to the diverse currents of postmodern literature and its reflections in the contemporary ethos
EN 1542 **Credits: 5**	**Post Colonial Literature**	**CO1**	Ability to critique colonial history.
		CO2	Awareness of the socio-political contexts of colonialism and postcolonialism
EN 1543 **Credits: 3**	**20th Century Malayalam Literature in Translation**	**CO1**	Generate knowledge about the varied milieu of the development and growth of Malayalam literature and be sensitive to its socio- cultural and political implications.
		CO2	Get a basic knowledge of the literary and the non-literary works produced in Malayalam.
EN 1544 **Credits: 4**	**Linguistics and Structure of the**	**CO1**	Understand the phonological and grammatical structure of English Language.

	English Language	**CO2**	Be able to analyze actual speech in terms of the principle of linguistics.
EN 1545 **Credits: 4**	**Criticism and Theory**	**CO1**	Analyze and appreciate texts critically, from different perspectives.
		CO2	Appreciate Indian Aesthetics and find linkages between Western thought and Indian critical tradition.
EN 1551.1 **Credits: 3**	**Open Course: 1 Communicative Applications in English**	**CO1**	Learners majoring in some subject other than English will have working knowledge of the type of English that is required in real life situations, especially the globalized workplace.
		CO2	Well trained to write clear, well-framed, polite but concise formal letters and e-mails for a variety of purposes.
Semester 6			
EN 1641 **Credits: 4**	**Gender Studies**	**CO1**	Recognize the patriarchal bias in the formation of history and knowledge.
		CO2	Analyze the ways in which gender, race, ethnicity class, caste and sexuality construct the social, cultural and biological experiences of both men and women in all societies.
EN 1642 **Credits: 4**	**Indian Writing in English**	**CO1**	Make students aware of different aspects of colonization like cultural colonization.
		CO2	Trace the historical and literary genesis and development of Indian Writing in English.
EN 1643 **Credits: 4**	**Film Studies**	**CO1**	Recognize the language of films and use it creatively.
		CO2	Analyze films from both technical and non-technical perspectives.

EN 1644 **Credits: 3**	**World Classics**	**CO1**	Understand the study of Classics as a means of discovery and enquiry into the formations of great literary works and how the rich imagery of these classical works continues beyond the twentieth century.
		CO2	Recognize the diversity of cultures and the commonalities of human experience reflected in the literature of the world.
EN 1661.1 **Credits: 2**	**Elective Course 1 Translation Studies**	**CO1**	Comprehend and practice the skills required to become a professional translator.
		CO2	Help leaners recognize the art involved in translation and encourage translation as a profession.
EN 1661.4 **Credits: 2**	**Elective Course 4 English for the Media**	**CO1**	Generate interest in various aspects of media and thereby to equip them with the basic writing skills required for the same.
		CO2	Enable the students to take up jobs in the media industry- both in the print, broadcast and the new media.

Name of the program: First degree program in Islamic History (BA Islamic History)		
Course Code **L/P** **Credits**	**Course name**	**Course outcomes**
Semester 1		

IH. 1141	**Methodology Of Social Sciences And Muslim Historiography**	**CO1**	Understand basic epistemology of Social sciences
		CO2	Identify the tools and operations in research methodology
		CO3	Analyze the Muslim concept of history with special emphasis on its peculiar features.
Semester 2			
IH. 1241	**LIFE AND TIMES OF PROPHET MUHAMMAD**	**CO1**	Understand the culture and literal development of Pre-Islamic Arabia
		CO2	Indicate the life of Prophet Muhammed as a Prophet and statesman
		CO3	Appraise the religious and moral teachings of Prophet Muhammad.
Semester 3			
IH. 1321	**INFORMATICS**	**CO1**	Understand basic concepts & functional knowledge in the field of Informatics
		CO2	Analyze the social issues and concerns in the use of digital technology
		CO3	Evaluate the status of Islamic knowledge in cyberspace.
IH. 1341	**POLITY AND SOCIETY UNDER THE PIOUS CALIPHS**	**CO1**	Recognize and assess the values and personality of the pious Caliphs
		CO2	Illustrate the administrative system of the Pious Caliphs
		CO3	Evaluate the consolidation and expansion of the Islamic state under the pious Caliphate.

Semester 4			
IH. 1441	**THE UMAYYADS OF DAMASCUS**	**CO1**	Identify the transformation brought out by Umayyads to the Khilafat.
		CO2	Illustrate the administrative system of Umayyads.
		CO3	Evaluate the consolidation and expansion of the Islamic state under Umayyads.
IH. 1442	**THE ABBASIYA CALIPHATE**	**CO1**	Describe the origin and development of Abbasids.
		CO2	Illustrate the intellectual and architectural contributions of Abbasids.
		CO3	Evaluate the administrative system of the Abbasids.
Semester 5			
IH. 1541	**ISLAM IN EUROPE**	**CO1**	Identify the achievements of Muslim rule in Spain.
		CO2	Distinguish Sicily as a centre of cultural transmission under the Muslim rule.
		CO3	Evaluate the intellectual contributions of Muslims in Europe.
IH. 1542	**MUSLIM DYNASTIES BETWEEN 10th AND 15th CENTURIES**	**CO1**	Recognize and identify the succession petty states of Islam with special emphasis on their political role.
		CO2	Analyze the scientific, intellectual and architectural contributions of the Islamic succession states.
		CO3	Integrate and identify the contributions of minor Islamic petty states in Europe.
IH. 1543	**THE OTTOMANS**	**CO1**	Understand the rise and expansion of Ottoman Empire.

	AND TURKISH REPUBLIC (1280-1924)	**CO2**	Analyze the consolidation and expansion of the Ottoman Empire.
		CO3	Evaluate the emergence of revolutionary ideals in the 20th century with special emphasis on the formation of the Turkish Republic.
IH. 1544	**HISTORY OF MEDIEVAL INDIA (710-1526)**	**CO1**	Enumerate the foundation of Muslim rule in India.
		CO2	Analyze the foundation and political heritage of Delhi Sultanate.
		CO3	Evaluate the administrative system of Delhi Sultanate.
IH. 1545	**MEDIEVAL INDIA UNDER THE MUGHALS**	**CO1**	Distinguish the achievements of the Mughal empire.
		CO2	Analyze the conquests and consolidation of the Mughal empire under Akbar.
		CO3	Evaluate the administrative system of the Mughals.
IH. 1551	**ISLAMIC ECONOMICS AND BANKING**	**CO1**	Identify the nature and scope of Islamic Economics.
		CO2	Analyze the distribution of wealth in Islam.
		CO3	Evaluate Islamic banking in the contemporary world.
Semester 6			
IH. 1641	**WEST ASIA IN 19TH AND 20TH CENTURIES**	**CO1**	Understand the historical background of major issues in West Asia.
		CO2	Analyze the political and social movements in the Arab world.
		CO3	Evaluate the effects of World wars in West Asia.

IH. 1643	**KERALA MUSLIMS: HISTORY AND CULTURE**	**CO1**	Understand the circumstances led to the advent of Islam in Kerala.
		CO2	Analyze the resistance of Muslims against European imperialism by introducing few leaders and reformers in Kerala.
		CO3	Assess the educational and cultural development of Muslims in Kerala.
IH. 1644	**CONTEMPORARY DEBATES ON ISLAM**	**CO1**	Familiarize the context of the emergence different sects and movements in Islam
		CO2	Introduce the revivalist and reformist movements in Islam.
		CO3	Discuss on the human rights and gender issues in Islam.
IH. 1651	**MAJOR WORLD RELIGIONS**	**CO1**	Enumerate the origin, growth and philosophy of religion.
		CO2	Distinguish the ritualistic and philosophical features of major world religions.
		CO3	Anticipate the tendency of religious diversity and Cultural pluralism in society.

COMPLEMENTARY COURSES

Name of the department offering the course: Physics				
Name of the Program(s)	**Course Code L/P Credits**	**Course name**	**Course outcomes**	
Semester 1				
BSc Mathematics	**PY1131.1 2 credits**	**Mechanics and Properties of matter**	**CO1**	Understand the idea of moment of inertia apply this to find moment of inertia of different bodies
			CO2	Understand the different types of waves and explain the mechanics of wave propagation
			CO3	Understand mechanical properties of solids and moduli of elasticity and distinguish its applications
			CO4	Identify the applications of surface tension and viscosity
BSc Chemistry	**PY1131.2 2 credits**	**Rotational dynamics and Properties of matter**	**CO1**	Understand the idea of moment of inertia apply this to find moment of inertia of different bodies
			CO2	Understand the different types of waves and explain the mechanics of wave propagation
			CO3	Understand mechanical properties of solids and moduli of elasticity and distinguish its applications

			CO4	Identify the applications of surface tension and viscosity
Semester 2				
BSc Mathematics	**PY1231.1** **Credits: 2**	**Thermal Physics and statistical mechanics**	**CO1**	Understand mode of transfer of heat energy and identify the factors affecting it
			CO2	Determine the temperature of the sun considering heat transfer factors
			CO3	Compare efficiency of different practical heat engines
			CO4	Understand the term entropy and apply the idea to compute entropy changes occurring during physical processes
			CO5	Understand and identify different statistical distributions
BSc Chemistry	**PY1231.2** **Credits: 2**	**Thermal Physics**	**CO1**	Understand mode of transfer of heat energy and identify the factors affecting it
			CO2	Determine the temperature of the sun considering heat transfer factors
			CO3	Compare efficiency of different practical heat engines
			CO4	Understand the term entropy and apply the idea to compute entropy changes occurring during physical processes
			CO5	Identify applications of diffusion
Semester 3				
BSc Mathematics	**PY1331.1**	**Optics, Magnetism and**	**CO1**	Explain interference and diffraction

	Credits: 3	**Electricity**	**CO2**	Identify components of fibre optic communication system and features of optical fibres
			CO3	Illustrate working of lasers
			CO4	Compare different types of magnetic materials
			CO5	Differentiate LCR, LR and other resonance circuits
BSc Chemistry	**PY1331.2** **Credits: 3**	**Optics, Magnetism and Electricity**	**CO1**	Explain interference and diffraction
			CO2	Identify components of fibre optic communication system and features of optical fibres
			CO3	Understand the phenomenon of polarization and identify its applications
			CO4	Compare different types of magnetic materials
			CO5	Differentiate LCR, LR and other resonance circuits
			CO6	Identify the working principle of choke and transformers
Semester 4				
BSc Mathematics	**PY1431.1** **Credits: 2**	**Modern Physics and Electronics**	**CO1**	Understand the concept of Bohr's atom model and properties of the nucleus
			CO2	Explain the phenomenon of radioactivity
			CO3	Understand the basic concepts of quantum mechanics and predict the wave function of a particle in a box
			CO4	Describe the working of semiconductor diode and transistor

			CO5	Summarize the idea of gates and simplify given Boolean expressions.
BSc Chemistry	**PY1431.1** **3 credits**	**Atomic Physics, Quantum Mechanics and Electronics**	**CO1**	Understand the concept of Bohr's atom model and properties of the nucleus
			CO2	Explain the phenomenon of superconductivity
			CO3	Understand the basic concepts of quantum mechanics and predict the wave function of a particle in a box
			CO4	Describe the working of semiconductor diode and transistor
			CO5	Summarize the idea of gates and simplify given Boolean expressions.
			CO6	Identify different spectroscopic techniques used for material characterization
Semester:1,2,3 & 4				
BSc Chemistry, **BSc Mathematics**	**PY1432** **2P** **Credits: 4**	**COMPLEMENTARY PRACTICAL**	**CO1**	Discuss Time period of oscillations for different types of pendulums
			CO2	Compare optical properties of different types of lenses
			CO3	Determine the viscosity and surface tension of liquids
			CO4	Determine properties of interference and diffraction experimentally
			CO5	Illustrate various electronic circuits and draw characteristic curves of the same
			CO6	Record observations and infer results

BSc Chemistry, **BSc Mathematics**	**PY1432** **2P** **Credits: 4**	**COMPLEMENTARY PRACTICAL**	**CO1**	Discuss Time period of oscillations for different types of pendulums
			CO2	Compare optical properties of different types of lenses
			CO3	Determine the viscosity and surface tension of liquids
			CO4	Determine properties of interference and diffraction experimentally
			CO5	Illustrate various electronic circuits and draw characteristic curves of the same
			CO6	Record observations and infer results

Name of the department offering the course: Mathematics				
Semester 1				
BSc Mathematics	**MM 1131.1** **Credits:2**	**Descriptive Statistics**	**CO1**	Understand the elementary knowledge about the collection of statistical data and several graphical methods to present it
			CO2	Compute Measures of central tendency and dispersion
			CO3	Explain skewness and kurtosis and calculate their measures
			CO 4	Demonstrate fitting of curves
			CO 5	Interpret correlation and regression

BSc Physics	**MM 1131.1** **Credits: 3**	**Calculus with applications in Physics - I**	**CO1**	Discuss and apply various techniques of differentiation
			CO2	Discuss various techniques of integration and apply it to find area and volume of geometric objects
			CO3	Describe infinite series and its convergence.
			CO4	Explain basic algebra of vectors and compute distance using vectors
BSc Chemistry	**MM 1131.2** **Credits: 3**	**Calculus with applications in Chemistry I**	**CO1**	Discuss and apply various techniques of differentiation
			CO2	Understand basic knowledge about complex numbers and hyperbolic functions
			CO3	Explain basic algebra of vectors and compute distance using vectors
			CO 4	Discuss various techniques of integration and apply it to find area and volume of geometric objects
Semester 2				
BSc Mathematics	**ST 1231.1** **Credits: 2**	**Probability and Random variables**	**CO1**	Define probability and explain about its different approaches
			CO 2	Derive Baye's Theorem and apply it in various situations
			CO 3	Explain random variables and their probability density function as well as distribution function
			CO 4	define and Compute expectation of a random variable
BSc Physics	**MM 1231.1**	**Calculus with applications in**	**CO1**	Explain complex numbers and hyperbolic functions.

	Credits: 3	**Physics II**	**CO2**	Classify stationary points of a function using partial differentiation.
			CO3	Discuss double integrals and triple integrals.
			CO4	Explain vector differentiation
BSc Chemistry	**MM 1231.2** **Credits 3**	**Calculus with applications in Chemistry II**	**CO1**	Solve different types of partial differential equations
			CO2	Understand the concept of infinite series and its limits
			CO3	Understand various vector operators
			CO 4	Evaluate multiple integrals
Semester 3				
BSc Mathematics	**ST 1331.1** **Credits: 3**	**Statistical Distributions**	**CO1**	Understand Probability Distribution functions and apply it appropriately
			CO2	Understand Central Limit theorem and its application
			CO3	Understand sampling distributions and apply it to get characteristics of population
BSc Physics	**MM 1331.1** **Credits: 4**	**Calculus and Linear Algebra**	**CO1**	Solve various types of ordinary differential equations
			CO2	Understand and evaluate various types of vector integrals
			CO3	Find the Fourier series of functions
			CO4	Understand basic linear algebra
			CO5	Apply diagonalization of matrices
BSc Chemistry	**MM 1331.2**	**Linear Algebra**	**CO1**	Solve system of equations using matrices

	Credits: 4	**, Probability Theory and Numerical Methods**	**CO2**	Explain Eigenvectors of a matrix and its diagonalization
			CO3	Discuss about Binomial, Poisson and Normal distributions
			CO 4	Describe various methods of numerical differentiation and numerical integration with examples
Semester 4				
BSc Mathematics	**ST 1431.1** **Credits: 3**	**Statistical Inference**	**CO1**	Explain the concept of estimation of parameters
			CO2	Explain estimation of parameters and solve problems related to it
			CO3	Explain testing of hypothesis in both large and small samples and examine the validity of hypothesis
BSc Physics	**MM 1431.1**	**Complex Analysis, Special Functions and Probability Theory**	**CO1**	Understand analytic function and evaluate residues
			CO2	understand special functions and apply to evaluate integrals
			CO3	Understand Probability Distribution functions and apply it appropriately
BSc Chemistry	**MM 1431.2**	**Differential Equations, Vector calculus and Abstrac**	**CO1**	Compute the solution of first and higher order differential equations.
			CO2	Evaluate the line, surface and volume integrals.
			CO3	Explain the concept of group and its representation theory.

	Credits: 4	**t Algebra**		

Name of the department offering the course: Chemistry				
Semester 1				
BSc Physics	**CH1131.1**	**THEORETICAL AND ANALYTICAL CHEMISTRY**	**CO1**	Understand fundamentals of thermodynamics, laws of thermodynamics and concept of heat and work
			CO2	Predict spontaneity of reactions and properties of systems in equilibrium
			CO3	Understand various theories of Chemical bonding and predict the stability of atoms
			CO4	Discuss the basic analytical principles and analytical methods used in laboratories in general.
BSc Botany	**CH1131.3**	**ANALYTICAL AND ENVIRONMENTAL CHEMISTRY**	**CO1**	Discuss Bohr atom model and represent electronic configuration of elements
			CO2	Predict the structure of simple molecules based on hybridization
			CO3	Apply the VSEPR theory to explain the geometry of molecules
			CO4	Discuss the theory of volumetric analysis
			CO5	Become aware of threat of chemical pollutants air, water and soil

BSc Zoology	**CH1131.4 Credits: 2**	**THEORETICAL CHEMISTRY**	**CO1**	Differentiate particle and wave nature of matter
			CO2	Understand the relevance of periodic classification of elements
			CO3	Discuss the various types of chemical bonds
			CO4	Apply the VSEPR theory to explain the geometry of molecules
			CO5	Comprehend the different segments of titrations
B.Sc Biochemistry	**CH 1131.6**	**THEORETICAL CHEMISTRY**	**CO1**	Understand various theories of Chemical bonding and predict the stability of atoms
			CO2	Understand the basics of nuclear chemistry and applications
			CO3	Understand the themes of Ionic,covalent and metallic descriptions of chemical bonding
Semester 2				
BSc Physics	**CH1231.1**	**PHYSICAL AND INDUSTRIAL CHEMISTRY**	**CO1**	Define enthalpies of formation, combustion, neutralization, solution and hydration reactions
			CO2	Analyse variation of heats of reaction with temperature
			CO3	Apply Hesse's law for thermochemical calculations
			CO4	Understand basics of chemical and ionic equilibrium, Predict the effect of temperature, pressure and concentration on a system in equilibrium based on Le Chatelier principle
			CO 5	Describe the principles,occurence and extraction of metals

BSc Botany	**CH1231.3**	**INORGANIC & BIOINORGANIC CHEMISTRY**	**CO1**	Understand the biological and environmental aspects of organic compounds
			CO2	Predict the properties of transition metal complexes
			CO3	Apply complexation reactions in quantitative and qualitative analysis
			CO4	Appreciate biological processes like photosynthesis and respiration
			CO5	Realize the use of trace elements in biochemical processes
BSc Zoology	**CH1231.4** **Credits: 2**	**INORGANIC CHEMISTRY**	**CO1**	Appreciate the biological and environmental aspects of organic compounds
			CO2	Predict the properties of transition metal complexes
			CO3	Apply complexation reactions in quantitative and qualitative analysis
			CO4	Understand the role of bioinorganic compounds in living systems
			CO5	Realize the use of trace elements in biochemical processes
BSc Biochemistry	**CH 1231.6**	**PHYSICAL AND ANALYTICAL CHEMISTRY - I**	**CO1**	Understand the basic concepts of thermochemistry and solving the numerical problems based on this
			CO2	Illustrates Le-Chatlier's Principle and salt hydrolysis
			CO3	Understand the concept of specific heat capacity and solve problems based on this
Semester 3				

BSc Physics	**CH1331.1**	**PHYSICAL CHEMISTRY**	**CO1**	Understand fundamentals of electrochemistry
			CO2	Recognize the electrochemical process, electrodes and cells and determine EMF
			CO3	Analyse conductometric and potentiometric titrations curves
			CO4	Recognize symmetry operations and symmetry elements in a molecule
			CO5	State the point group of a molecule
BSc Biochemistry	**CH 1331.6** **Credits: 3**	**PHYSICAL AND ANALYTICAL CHEMISTRY - II**	**CO1**	Interpret adsorption phenomenon and differentiate adsorption from absorption.
			CO2	Understand osmotic pressure and adsorption
			CO3	Understand how chemical kinetics can be used to predict the rate of reaction.
			CO4	Understand the effect of temperature on reaction rates and the theories of catalysis
BSc Botany	**CH 1331.3**	Physical Chemistry	**CO1**	Discuss the principle and application of UV and NMR spectroscopy.
			CO2	Understand Raoults law and its factors responsible for the deviation from Raoults law by taking suitable examples
			CO3	Discuss critical solution temperatures
			CO4	Explain Distribution law and its limitations
			CO5	Understand how chemical kinetics can be used to predict the rate of reaction.

			CO6	Understand the effect of temperature on reaction rates and the theories of catalysis
			CO7	Understand the concepts of acids, bases and buffers
			CO8	Predict the nature of the hydrolysis products of salts and derive the equation for hydrolysis constant
			CO9	Understand the properties of colloids and their application
B.Sc Zoology	**CH 1331.4**	ORGANIC CHEMISTRY	**CO1**	Discuss the synthesis of Aminoacids and peptides with its application.
			CO2	Explain the mechanism and techniques of polymerisation.
			CO3	Classify carbohydrates, nucleic acids, lipids, polymers and drugs
			CO4	Recognise the structural level of organisation of proteins, 3D structure of protein,its functions and denaturation.
Semester 4				
BSc Physics	**CH1431.1**	**SPECTROSCOPY AND ADVANCED MATERIALS**	**CO1**	Illustrate isomerism, geometry and bonding in co ordination complexes
			CO2	Application of co ordination compounds in qualitative and quantitative analysis
			CO3	Define nuclear fission, fusion and decay
			CO4	Compare the penetrating power of alpha, beta nad gamma radiations

			CO5	Application of neutron activation analysis in agriculture and medicine
BSc Botany	**CH1431.3** **Credits: 3**	Organic Chemistry	**CO1**	Understand the structure, function, methods of preparation and reactions of biomolecules and natural products
			CO2	Illustrate isomerism, geometry and bonding in coordination complexes
			CO3	Understand the medicinal plants,phytochemicals derived from plants and utilization of natural resources
			CO4	Explain the preparation and reactions of amino acids and carbohydrates
			CO5	Understand the basic principles of stereochemistry
BSc Zoology	**CH 1431.4** **CREDIT 3**	**PHYSICAL CHEMISTRY**	**CO1**	Discuss the basics of Spectroscopic techniques with its principle and applications
			CO2	Review the principles underlying the working of sophisticated instruments
			CO3	Understand the concept of Raoult”s law in Solutions
BSc Zoology	**CH1432.4** **Credit : 2**	**Lab Course for Zoology**	**CO1**	Understand the safe handling of chemicals,take precaution against accidents and follow safety measures
			CO2	Analysis of the given Organic compound
			CO3	Estimate the amount of substance present in a given solution using Volumetry
			CO4	Practice systematic scientific procedure and prepare report of them

BSc Biochemistry	**CH 1431.6** **Credits: 3**	**ORGANIC CHEMISTRY AND SPECTROSCOPY**	**CO1**	Discuss the separation techniques of filtration and understand the Chromatographic techniques
			CO2	Explain the colligative properties with experiment and also understand the aspects of adsorption with its application
			CO3	Understand the mechanism of organic reactions
			CO4	Understand the preparation and properties of various heterocyclic compounds
			CO5	Understand the isolation and properties of natural products, oils, fats and lipids
Semester 1,2,3,4				
BSc Botany	**CH 1432.3** **Credits: 2**	**LAB COURSE FOR BOTANY**	**CO1**	Obey Lab safety instructions, develop qualities of punctuality, regularity and scientific attitude, outlook and scientific temper
			CO2	Develop skill in safe handling of chemicals, take precaution against accidents and follow safety measures
			CO3	Prepare organic compounds, Conduct chromatographic separation of mixtures, Purify and recrystallise
			CO4	Perform volumetric titrations under acidimetry-alkalimetry, permanganometry, dichrometry, iodimetry, cerimetry, argentometry and complexometry
Semester 3 and 4				

BSc Biochemistry	**CH1432.6** **Credits: 2**	**Lab Course for biochemistry**	**CO1**	Obey Lab safety instructions, develop qualities of punctuality, regularity and scientific attitude, outlook and scientific temper
			CO2	Develop skill in safe handling of chemicals, take precaution against accidents and follow safety measures
			CO3	Develop skill in observation, prediction and interpretation of reactions
			CO4	Prepare organic compounds, Purify and recrystallise
			CO5	Develop skill in weight calculation for preparing standard solutions