

**BSc. MATHEMATICS**

**PROGRAMME AND  
COURSE OUTCOMES**

## BSc. Mathematics

### Programme Outcomes

<b>PO1</b>	Acquires knowledge in functional areas of Mathematics and apply in all the fields of learning
<b>PO2</b>	Equips the student with skills to analyse problems, formulate a hypothesis, evaluate and validate results, and draw reasonable conclusions thereof.
<b>PO3</b>	Employs mathematical ideas encompassing logical reasoning, analytical, numerical ability, theoretical skills to model real-world problems and solve them
<b>PO4</b>	Develops critical thinking, creative thinking, self-confidence for eventual success in career
<b>PO5</b>	Analyse, interpret solutions and to enhance their Entrepreneurial skills, Managerial skill and leadership
<b>PO6</b>	Recognizes the need for lifelong learning and demonstrate the ability to explore some mathematical content independently
<b>PO7</b>	To prepare the students to communicate mathematical ideas effectively and develop their ability to collaborate both intellectually and creatively in diverse contexts
<b>PO8</b>	Imbibes effective scientific and/or technical communication in both oral and writing
<b>PO9</b>	Continues to acquire relevant knowledge and skills appropriate to professional activities and demonstrate highest standards of ethical issues in mathematical sciences

## Course Outcomes

### Semester 1

<b>COURSE TYPE</b>	LANGUAGE COURSE I
<b>COURSE NAME</b>	LANGUAGE SKILLS
<b>COURSE CODE</b>	EN111.1
<b>CREDIT</b>	4
<b>HOURS</b>	5
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Master the language for personal and professional growth.
<b>CO2</b>	Acquire basic language skills through interactive classroom sessions.
<b>CO3</b>	Connect language with literature.

<b>COURSE TYPE</b>	ADDITIONAL LANGUAGE I
<b>COURSE NAME</b>	MALAYALAM POETRY
<b>COURSE CODE</b>	ML 1111.1
<b>CREDIT</b>	3
<b>HOURS</b>	4
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Gaining an awareness of the historical development of Malayalam poetry.
<b>CO2</b>	The poetic taste and interest in poetry is developed.
<b>CO3</b>	A finer understanding of poetic elements emerges.
<b>CO4</b>	Ability to critically analyse poems.
<b>CO5</b>	Comparatively defining writing poems.
<b>CO6</b>	Preparing a poetry review.

<b>COURSE TYPE</b>	LANGUAGE COURSE I
<b>COURSE NAME</b>	HINDI KAHANI SAHITYA
<b>COURSE CODE</b>	HN 1111.1
<b>CREDIT</b>	3
<b>HOURS</b>	4

<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Recollect the main works of the representative story writers
<b>CO2</b>	Understand the craft of the different story writers
<b>CO3</b>	Analyse and evaluate the works of the story writers they studied
<b>CO4</b>	Understand how the resource language is used as a medium in creative writing

<b>COURSE TYPE</b>	LANGUAGE COURSE I
<b>COURSE NAME</b>	GRAMMAR, COMMUNICATION, POETRY, HISTORY OF SYRIAC LITERATURE
<b>COURSE CODE</b>	SR 1111.1
<b>CREDIT</b>	3
<b>HOURS</b>	4
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	To communicate effectively
<b>CO2</b>	Understand the craft of constructing conversations
<b>CO3</b>	Articulation and expression of ideas
<b>CO4</b>	Understand and assimilate ideas in a text

<b>COURSE TYPE</b>	FOUNDATION COURSE I
<b>COURSE NAME</b>	WRITINGS ON CONTEMPORARY ISSUES
<b>COURSE CODE</b>	EN1121
<b>CREDIT</b>	2
<b>HOURS</b>	4
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Sensitize students to the major issues in the society and the world.
<b>CO2</b>	Introduce and provide varied perspectives on contemporary issues.
<b>CO3</b>	Encourage critical and analytical skill.

<b>COURSE TYPE</b>	CORE COURSE I
<b>COURSE NAME</b>	METHODS OF MATHEMATICS
<b>COURSE CODE</b>	MM 1141
<b>CREDIT</b>	4
<b>HOURS</b>	4
<b>COURSE OUTCOMES</b>	

<b>CO1</b>	Define maxima, minima, critical points and points of inflection.
<b>CO2</b>	Apply the concept of differentiation in real life situation
<b>CO3</b>	Explain logic and various proof techniques
<b>CO4</b>	Illustrate decomposition of an integer into prime factors

<b>COURSE TYPE</b>	I COMPLEMENTARY COURSE I
<b>COURSE NAME</b>	DESCRIPTIVE STATISTICS AND BIVARIATE ANALYSIS
<b>COURSE CODE</b>	ST 1131.1
<b>CREDIT</b>	3
<b>HOURS</b>	4
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Explains the concepts of statistical survey, sampling, census and various sampling methods like SRS, systematic sampling, stratified sampling
<b>CO2</b>	Design questionnaire and carry out surveys
<b>CO3</b>	Collect and present raw data using frequency tables as well as appropriate graphs
<b>CO4</b>	Summarize data using various measures of central tendency, dispersion, skewness and kurtosis
<b>CO5</b>	Explain the concepts of scatter diagram, correlation and calculate the correlation between two variables
<b>CO6</b>	Explain the concepts of regression, fit various regression equations to give data sets and predict values of response variables

<b>COURSE TYPE</b>	II COMPLEMENTARY COURSE I
<b>COURSE NAME</b>	MECHANICS AND PROPERTIES OF MATTER
<b>COURSE CODE</b>	PY 113.1
<b>CREDIT</b>	2
<b>HOURS</b>	4
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Recognizes the dynamics of rigid bodies of different shapes and their applications.
<b>CO2</b>	Understands the basics of simple harmonic motion and mechanical waves and their applications.

<b>CO3</b>	Understands the concepts of moduli of elasticity and applications
<b>CO4</b>	Explains the properties of fluids such as surface tension and viscosity and their applications with examples.

## Semester 2

<b>COURSE TYPE</b>	LANGUAGE COURSE III
<b>COURSE NAME</b>	ENVIRONMENTAL STUDIES AND DISASTER MANAGEMENT
<b>COURSE CODE</b>	EN1121.1
<b>CREDIT</b>	5
<b>HOURS</b>	5
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Engage with a wide range of issues in environmental studies and disaster management.
<b>CO2</b>	Acquire values for environmental protection and conservation.
<b>CO3</b>	Recognise the ecological basis for regional and global environmental issues
<b>CO4</b>	Manage natural disasters and other emergency situations
<b>CO5</b>	Develop a critical vocabulary related to environmental studies and disaster management.

<b>COURSE TYPE</b>	LANGUAGE COURSE IV
<b>COURSE NAME</b>	ENGLISH GRAMMAR USAGE AND WRITING
<b>COURSE CODE</b>	EN1212.1
<b>CREDIT</b>	4
<b>HOURS</b>	4
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Acquire good understanding of modern English grammar.
<b>CO2</b>	Write grammatically and idiomatically correct language.
<b>CO3</b>	Improve verbal communication skill.
<b>CO4</b>	Minimize mother tongue influence.

<b>COURSE TYPE</b>	LANGUAGE COURSE V
<b>SEMESTER</b>	II
<b>COURSE NAME</b>	LITERATURE OF PROSE
<b>COURSE CODE</b>	ML 1211.1
<b>CREDIT</b>	3
<b>HOURS</b>	4
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Enables general awareness of major literary forms in Malayalam prose.

<b>CO2</b>	Researching and analysing the evolution of prose forms.
<b>CO3</b>	The imaginative ability to analyse texts is developed.
<b>CO4</b>	Comparatively observes the writing style of the writers.
<b>CO5</b>	Critical studies are prepared by analysing the content, language, socio-political perspective and aesthetic level of the writings.

<b>COURSE TYPE</b>	LANGUAGE COURSE V
<b>COURSE NAME</b>	KATHETAR HIDI GADYA VIDHAAYEIN
<b>COURSE CODE</b>	HN 1211.1
<b>CREDIT</b>	3
<b>HOURS</b>	4
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Recollect the main works of the prescribed writers
<b>CO2</b>	Understand the forms of various prose writing in Hindi
<b>CO3</b>	Analyses & evaluate the prose forms prescribed, with respect to the craft and the relevance

<b>COURSE TYPE</b>	LANGUAGE COURSE V
<b>COURSE NAME</b>	GRAMMAR, COMMUNICATION, POETRY, HISTORY OF SYRIAC LITERATURE
<b>COURSE CODE</b>	SR 1211.1
<b>CREDIT</b>	3
<b>HOURS</b>	4
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	To enrich vocabulary and conversational articulation
<b>CO2</b>	Understand the forms of various genres of writings in Syriac
<b>CO3</b>	Analyse and evaluate the of history of Syriac literature

<b>COURSE TYPE</b>	FOUNDATION COURSE II
<b>COURSE NAME</b>	Foundations of Mathematics
<b>COURSE CODE</b>	MM 1221
<b>CREDIT</b>	3
<b>HOURS</b>	4
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Describes the integration of a function and learn its physical



	interpretation through various examples
<b>CO2</b>	Demonstrates various applications of integration
<b>CO3</b>	Computes tangent lines to polar curves, arc length and area
<b>CO4</b>	Sketches conic sections such as parabola, ellipse and Hyperbola
<b>CO5</b>	Distinguishes the cylindrical and spherical coordinate systems

<b>COURSE TYPE</b>	I COMPLEMENTARY COURSE II
<b>COURSE NAME</b>	PROBABILITY AND RANDOM VARIABLES
<b>COURSE CODE</b>	ST 1231.1
<b>CREDIT</b>	2
<b>HOURS</b>	4
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Distinguishes between random and non-random experiments
<b>CO2</b>	Evaluate the probabilities of events using classical, statistical and axiomatic approaches
<b>CO3</b>	Identify independent events, calculate conditional probability and application of Bayes theorem
<b>CO4</b>	Distinguish between discrete and continuous random variables with its probability distributions
<b>CO5</b>	Assess the independence of random variables
<b>CO6</b>	Calculate mgf and characteristic function

<b>COURSE TYPE</b>	II COMPLEMENTARY COURSE II
<b>COURSE NAME</b>	THERMAL PHYSICS AND STATISTICAL MECHANICS
<b>COURSE CODE</b>	PY 1231.1
<b>CREDIT</b>	2
<b>HOURS</b>	4
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Distinguish the various process of heat transmission
<b>CO2</b>	Recognize the different thermodynamic processes
<b>CO3</b>	Recognize the difference of petrol and diesel engines
<b>CO4</b>	Obtain the concept of entropy and apply it to physical situations
<b>CO5</b>	Identify different statistical distribution

## Semester 3

<b>COURSE TYPE</b>	LANGUAGE COURSE VI
<b>COURSE NAME</b>	ENGLISH FOR CAREER
<b>COURSE CODE</b>	EN1311.1
<b>CREDIT</b>	4
<b>HOURS</b>	5
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Introduce students to the language skills required for appearing in career oriented competitive examinations.
<b>CO2</b>	Develop cognitive, logical, verbal and analytical skills necessary to succeed in competitive examinations.
<b>CO3</b>	Provide the pattern of questions based on common models of competitive tests.
<b>CO4</b>	Help students to prepare for and appear in competitive examinations.

<b>COURSE TYPE</b>	LANGUAGE COURSE VII
<b>COURSE NAME</b>	LANGUAGE AWARENESS AND CREATIVITY
<b>COURSE CODE</b>	ML 1311.1
<b>CREDIT</b>	4
<b>HOURS</b>	5
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Understanding the usage patterns of Malayalam language.
<b>CO2</b>	Acquiring the skill to use language correctly.
<b>CO3</b>	Gaining proficiency in elementary grammar lessons and self-assessment.
<b>CO4</b>	Gaining practical training in translation and conducting and evaluating translation essays.
<b>CO5</b>	Gaining insight into the creative lives of writers and observing them comparatively.
<b>CO6</b>	Creating new compositions.

<b>COURSE TYPE</b>	LANGUAGE COURSE VII
<b>COURSE NAME</b>	HINDI KAVITA SAAHITYA
<b>COURSE CODE</b>	HN 1311.1
<b>CREDIT</b>	4
<b>HOURS</b>	5

<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Appreciates ancient and modern Hindi poems.
<b>CO2</b>	Critically evaluates the contribution of Ancient and modern poets to the development of Hindi poetry
<b>CO3</b>	Elucidates key lines of poetry with reference to context.

<b>COURSE TYPE</b>	LANGUAGE COURSE VII
<b>COURSE NAME</b>	GRAMMAR, COMMUNICATION, PROSE, HISTORY OF SYRIAC PEOPLE IN INDIA
<b>COURSE CODE</b>	SR 1311.1
<b>CREDIT</b>	3
<b>HOURS</b>	5
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	To develop LSRW skills.
<b>CO2</b>	Critically evaluate the aesthetics of literature
<b>CO3</b>	Understands how past influences the present

<b>COURSE TYPE</b>	CORE COURSE II
<b>COURSE NAME</b>	Elementary Number Theory and Calculus – I
<b>COURSE CODE</b>	MM 1341
<b>CREDIT</b>	4
<b>HOURS</b>	5
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Explain the concept of congruence
<b>CO2</b>	Analyse linear system of congruence equations
<b>CO3</b>	Define the concept of limit, continuity, derivative of vector valued functions
<b>CO4</b>	Illustrate various applications of multivariable calculus

<b>COURSE TYPE</b>	I COMPLEMENTARY COURSE III
<b>COURSE NAME</b>	Statistical Distributions
<b>COURSE CODE</b>	ST 1331.1
<b>CREDIT</b>	3
<b>HOURS</b>	5
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Define various discrete and continuous standard distributions and explain their theoretical properties

<b>CO2</b>	Solve numerical problems associated with discrete and continuous standard distributions
<b>CO3</b>	Fit binomial, Poisson and normal distributions to data sets and calculate theoretical frequencies
<b>CO4</b>	Explain the laws of large numbers and apply them to solve numerical problems
<b>CO5</b>	Define sampling distributions (normal, Chi-square, Students t and F) and solve numerical problems

<b>COURSE TYPE</b>	II COMPLEMENTARY COURSE III
<b>COURSE NAME</b>	OPTICS MAGNETISM AND ELECTRICITY
<b>COURSE CODE</b>	PY 1331.1
<b>CREDIT</b>	3
<b>HOURS</b>	5
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Differentiate the optical phenomena - interference and diffraction
<b>CO2</b>	Explain the principle behind the experiments -Newton's rings, air wedge and diffraction grating
<b>CO3</b>	Understand the working and application of laser in the field of Fiber Optics
<b>CO4</b>	Distinguish different magnetic materials
<b>CO5</b>	Attain knowledge about the theory of magnetism
<b>CO6</b>	Explain the production of ac and its characteristics and also about ac circuits

## Semester 4

<b>COURSE TYPE</b>	LANGUAGE COURSE VIII
<b>COURSE NAME</b>	READINGS IN LITERATURE
<b>COURSE CODE</b>	EN 141.11
<b>CREDIT</b>	4
<b>HOURS</b>	5
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Familiarize with various genres of writing.
<b>CO2</b>	Able to effectively read and appreciate literature
<b>CO3</b>	Acquire critical thinking by reading between the lines

<b>COURSE TYPE</b>	LANGUAGE COURSE IX
<b>COURSE NAME</b>	LITERATURE OF VISUAL ARTS
<b>COURSE CODE</b>	ML 1411.1
<b>CREDIT</b>	4
<b>HOURS</b>	5
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Discovers and describes the richness and diversity of Kerala's visual arts.
<b>CO2</b>	Examining the evolution from composition to practice.
<b>CO3</b>	Kathakali, OttanTullal, Drama and Cinema art forms and the literary works based on them are evaluated together.
<b>CO4</b>	Critically enjoying the visual arts.
<b>CO5</b>	Writing Plays and Screen plays.
<b>CO6</b>	Leads the creative expression of arts such as acting, screen play writing, Play writing

<b>COURSE TYPE</b>	LANGUAGE COURSE IX
<b>COURSE NAME</b>	HINDI KAVITA SAAHITYA
<b>COURSE CODE</b>	HN 1411.1
<b>CREDIT</b>	4
<b>HOURS</b>	5
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Appreciate and evaluate one act plays with respect to craft and subject.
<b>CO2</b>	Understand the correct usages in Hindi and write grammatically correct sentences in Hindi.
<b>CO3</b>	Define parts of speech and identify the parts of speech in a given

	sentence.
<b>CO4</b>	Translate simple passages from English to Hindi.

<b>COURSE TYPE</b>	LANGUAGE COURSE IX
<b>COURSE NAME</b>	GRAMMAR, COMMUNICATION, PROSE, HISTORY OF SYRIAC PEOPLE IN INDIA
<b>COURSE CODE</b>	SR 1411.1
<b>CREDIT</b>	3
<b>HOURS</b>	5
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Enhance integral development through effective communication
<b>CO2</b>	Understand the correct usages in Syriac and write grammatically correct sentences.
<b>CO3</b>	Develop imagination by comprehending the aesthetics of literature.
<b>CO4</b>	To apply historical knowledge in solving present problems

<b>COURSE TYPE</b>	CORE COURSE IV
<b>COURSE NAME</b>	ELEMENTARY NUMBER THEORY AND CALCULUS – II
<b>COURSE CODE</b>	MM 1441
<b>CREDIT</b>	4
<b>HOURS</b>	5
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Define the concepts of Matrix operations their algebraic properties, System of linear operations and their Matrix representation, Gauss- Jordan Elimination
<b>CO2</b>	Describe the concepts of Multiple integrals
<b>CO3</b>	Apply double and triple integrals to solve real life problems
<b>CO4</b>	Describe the concepts potential functions, line integrals and surface integrals

<b>COURSE TYPE</b>	I COMPLEMENTARY COURSE IV
<b>COURSE NAME</b>	Statistical Inference
<b>COURSE CODE</b>	ST 1431.1
<b>CREDIT</b>	3
<b>HOURS</b>	5

<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Analyse a sample to draw valid inferences about the parameters of a statistical population
<b>CO2</b>	Explain the properties of estimators and solve numerical problems for the point and interval estimation of the parameters.
<b>CO3</b>	Explain the concept of testing statistical hypothesis
<b>CO4</b>	Identify two types of errors, compute level of significance and power of test
<b>CO5</b>	Conduct tests for hypothesis about the population mean and proportion using large samples
<b>CO6</b>	Conduct test for hypothesis about the homogeneity and independence using Chi-square statistic. Carry out and interpret ANOVA

<b>COURSE TYPE</b>	II COMPLEMENTARY COURSE IV
<b>COURSE NAME</b>	MODERN PHYSICS AND ELECTRONICS
<b>COURSE CODE</b>	PY 1431.1
<b>CREDIT</b>	3
<b>HOURS</b>	5
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Recognize different atomic models
<b>CO2</b>	Identify radioactive process and its applications
<b>CO3</b>	Understand the concepts Quantum Mechanics, Planck's hypothesis and applications
<b>CO4</b>	Obtain the theoretical concept of working of various electronic circuits
<b>CO5</b>	Obtain the knowledge about basics of Digital electronics and its applications

<b>COURSE TYPE</b>	I COMPLEMENTARY COURSE V
<b>COURSE NAME</b>	Practical Using R
<b>COURSE CODE</b>	ST 1432.1
<b>CREDIT</b>	4
<b>HOURS</b>	5
<b>COURSE OUTCOME</b>	
<b>CO1</b>	Use R built in functions to solve numerical problems associated with topics covered in various semesters

## Semester 5

<b>COURSE TYPE</b>	CORE COURSE VI
<b>COURSE NAME</b>	REAL ANALYSIS I
<b>COURSE CODE</b>	MM 1541
<b>CREDIT</b>	4
<b>HOURS</b>	5
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Understands the fundamental properties of Real Numbers that corroborate the formal development of Real Analysis
<b>CO2</b>	Demonstrates and understand the theory of real sequences and series
<b>CO3</b>	Ability to check the convergence or divergence of different sequences and series
<b>CO4</b>	Understands and performs simple proofs
<b>CO5</b>	understands the concepts related to limit of functions

<b>COURSE TYPE</b>	CORE COURSE V
<b>COURSE NAME</b>	COMPLEX ANALYSIS I
<b>COURSE CODE</b>	MM 1542
<b>CREDIT</b>	3
<b>HOURS</b>	4
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Understands the algebraic operations of complex numbers, complex functions
<b>CO2</b>	Understands the limits, continuity and differentiability of complex functions
<b>CO3</b>	Analyses analytic function and other elementary functions
<b>CO4</b>	Applies contour integration, Cauchy's theorem and Cauchy's integral formula

<b>COURSE TYPE</b>	CORE COURSE VI
<b>COURSE NAME</b>	ABSTRACT ALGEBRA- GROUP THEORY
<b>COURSE CODE</b>	MM 1543
<b>CREDIT</b>	4
<b>HOURS</b>	5
<b>COURSE OUTCOMES</b>	



<b>CO1</b>	Applies algebraic way of thinking
<b>CO2</b>	Examines abstractly about algebraic structures
<b>CO3</b>	Analyses a given structure in detail
<b>CO4</b>	Compares structures

<b>COURSE TYPE</b>	CORE COURSE VII
<b>COURSE NAME</b>	DIFFERENTIAL EQUATIONS
<b>COURSE CODE</b>	MM 1544
<b>CREDIT</b>	3
<b>HOURS</b>	3
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Solves linear first order ordinary differential equations
<b>CO2</b>	Solves homogeneous and non homogeneous linear differential equations with constant coefficients

<b>COURSE TYPE</b>	CORE COURSE VIII
<b>COURSE NAME</b>	MATHEMATICS SOFTWARE – LATEX & SAGEMATH
<b>COURSE CODE</b>	MM 1545
<b>CREDIT</b>	4
<b>HOURS</b>	4
<b>COURSE OUTCOME</b>	
<b>CO1</b>	Knows the basics of typesetting an article for a scientific publication
<b>CO2</b>	Typeset mathematical expressions in a LATEX document
<b>CO3</b>	Understands the basics of making a slideshow presentation using Beamer

<b>COURSE TYPE</b>	OPEN COURSE
<b>COURSE NAME</b>	BUSINESS MATHEMATICS
<b>COURSE CODE</b>	MM 1551.2
<b>CREDIT</b>	2
<b>HOURS</b>	3
<b>COURSE OUTCOME</b>	
<b>CO1</b>	Develops ability to solve problems related to simple and compound interest which would help the students while appearing for competitive examinations

<b>CO2</b>	Develops the skill to mathematically formulate the problems of business and economics and solving them using the techniques of calculus
<b>CO3</b>	Gets introduced to the concepts of index numbers and its use in business and economics
<b>CO4</b>	Gets aware of the significance of time series analysis in various realms of economics and business
	Develops ability to solve problems related to simple and compound interest which would help the students while appearing for competitive examinations

<b>COURSE TYPE</b>	PROJECT/DISSERTATION
<b>COURSE NAME</b>	PROJECT/DISSERTATION
<b>COURSE CODE</b>	MM 1646
<b>CREDIT</b>	4
<b>HOURS</b>	1
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Gains knowledge on a topic of choice.
<b>CO2</b>	Research and analyse the content or matter.
<b>CO3</b>	Assimilate and present the matter in specific model.

## Semester 6

<b>COURSE TYPE</b>	CORE COURSE IX
<b>COURSE NAME</b>	REAL ANALYSIS II
<b>COURSE CODE</b>	MM 1641
<b>CREDIT</b>	4
<b>HOURS</b>	5
<b>COURSE OUTCOME</b>	
<b>CO1</b>	Understands the concepts of continuity, differentiability and integrability, more rigorously
<b>CO2</b>	Understands the fundamental properties of continuous functions on intervals
<b>CO3</b>	Understands the basic theory of derivatives
<b>CO4</b>	Gets an exposure to the theory behind the integration

<b>COURSE TYPE</b>	CORE COURSE X
<b>COURSE NAME</b>	COMPLEX ANALYSIS II
<b>COURSE CODE</b>	MM 1642
<b>CREDIT</b>	3
<b>HOURS</b>	4
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Understand Sequence, Series and power series representation of complex functions
<b>CO2</b>	Understand singular points, zeroes and residue of complex functions
<b>CO3</b>	Apply Taylor's series, Laurent series and Residue theorem
<b>CO4</b>	Understand conformal mapping, Linear fractional transformation and cross- ratio

<b>COURSE TYPE</b>	CORE COURSE XI
<b>COURSE NAME</b>	ABSTRACT ALGEBRA - RING THEORY
<b>COURSE CODE</b>	MM 1643
<b>CREDIT</b>	3
<b>HOURS</b>	4
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	Construct substructures

<b>CO2</b>	Understands and proves fundamental results and solve algebraic problems using appropriate techniques
<b>CO3</b>	Demonstrates insight into abstract algebra with focus on algebraic theories
<b>CO4</b>	Develops new structures based on given structures

<b>COURSE TYPE</b>	CORE COURSE XII
<b>COURSE NAME</b>	CORE COURSE 6
<b>COURSE CODE</b>	INTEGRAL EQUATIONS
<b>CREDIT</b>	MM 1644
<b>HOURS</b>	4
<b>COURSE OUTCOME</b>	
<b>CO1</b>	Categorises and solves different integral equations using various techniques
<b>CO2</b>	Enables to apply Laplace Transforms to various industry related and applied problems
<b>CO3</b>	Analyses the properties of certain functions using Fourier series
<b>CO4</b>	Analyses the nature of New Social Movements in Kerala and the underlying reasons for its emergence.

<b>COURSE TYPE</b>	ELECTIVE COURSE
<b>COURSE NAME</b>	GRAPH THEORY
<b>COURSE CODE</b>	MM 1661.1
<b>CREDIT</b>	2
<b>HOURS</b>	3
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	To define and understand the fundamental concepts of graph theory
<b>CO2</b>	To apply the concepts and theorems that are treated in the course for problem solving and proofs
<b>CO3</b>	To write combinatorial proofs , including those using basic graph theory proof techniques such as minimal counter examples, double counting and mathematical induction

<b>COURSE TYPE</b>	PROJECT/DISSERTATION
<b>COURSE NAME</b>	PROJECT/DISSERTATION
<b>COURSE CODE</b>	PS 1645
<b>CREDIT</b>	3

<b>HOURS</b>	3
<b>COURSE OUTCOMES</b>	
<b>CO1</b>	To inculcate proficiency to identify appropriate research topics and presentation
<b>CO2</b>	Research and analyse the content or matter.
<b>CO3</b>	Assimilate and present the matter in specific model.