

MAR GREGORIOS COLLEGE OF ARTS & SCIENCE

B.SC.MATHEMATICS

PROGRAMME SPECIFIC OUTCOMES

PSO1: To enhance Computational skills and Mathematical reasoning.

PSO2: Develops the ability to think critically, logically and analytically

PSO3: To develop broad and balanced knowledge and understanding of definitions, concepts, principles and theorems.

PSO4: Preparing the students to enhance career opportunities in Industries, Commerce, Education and Research.

PSO5: Provide students/learners sufficient knowledge and skills enabling them to undertake further studies in Mathematics and its allied areas on multiple disciplines concerned with Mathematics.

COURSE OUTCOMES

COURSE NAME	COURSE OUT COMES
SEMESTER- I	
Algebra	CO1. To study about polynomial functions and various methods to find out the roots of polynomial equations. 'Solving equations' was an important problem from the beginning of study of Mathematics itself.
	CO2.Solve the reciprocal equations. Transform the equation through roots multiplied by a given number, increase the roots and decrease the roots, removal of terms. Compute a real root of an equation by Horner's method.
	CO3.Understand and be able to apply basic definitions and concepts in set and function theory.
	CO4.Solve a system of linear equations by row-reducing its augmented form and express a system of simultaneous linear equations in matrix form.
	CO5.Prove results involving divisibility and greatest common divisors. Prove relations involving prime numbers.
Differential Calculus	CO1. To acquire knowledge about Successive differentiation
	CO2. To know about Total differential of a function
	CO3. To obtain knowledge about Envelopes
	CO4. To know about Polar coordinates
	CO5. To know about Asymptotes
	CO1. To know about solution of algebraic equations
	CO2. To acquire knowledge about finite differences

Calculus of Finite difference and Numerical Analysis - I	CO3. To know about solutions of simultaneous linear equations
	CO4. To know about interpolation with equal intervals
	CO5. To acquire knowledge of interpolation with unequal intervals
SEMESTER- II	
Trigonometry	CO1. Expansion of $\sin nx$, $\cos nx$, $\tan nx$ and powers of sines and cosines in terms of functions of multiples of x .
	CO2. Learn to form an equation with trigonometric roots
	CO3. Define and illustrate the concept of hyperbolic functions and inverse hyperbolic function.
	CO4. Define and illustrate the concept of logarithms of complex numbers
	CO5. Students will acquire Knowledge about Sum of Trigonometric Series
Integral calculus and Vector Analysis	CO1. To acquire Knowledge about Integration and its geometrical applications
	CO2. To know double and triple integrals
	CO3. To acquire Knowledge about improper integrals
	CO4. To acquire Knowledge about Vector differentiation
	CO5. To acquire Knowledge about Vector integration
Calculus of Finite difference and Numerical Analysis - II	CO1. To acquire knowledge about numerical differentiation
	CO2. To acquire knowledge about numerical integration
	CO3. To know difference equations
	CO4. To obtain knowledge of numerical solutions of ordinary differential equations
	CO5. To obtain knowledge of numerical solutions of ordinary differential equations
SEMESTER- III	
Analytical Geometry	CO1. To analyze characteristics and properties of two dimensional geometric shapes.
	CO2. To analyze characteristics and properties three dimensional geometric shapes.
	CO3. To develops mathematical arguments about geometric relationships.
	CO4. Concept of lines and planes.
	CO5. Geometry and its applications in real world.
Differential Equations	CO1. To acquire knowledge About the methods of solving Ordinary Differential Equations
	CO2. To acquire knowledge About Partial Differential Equations.
	CO3. To introduces Differential Equation as a powerful tool in solving problems in Science.
	CO4. To know about complete integral
	CO5. To know about method of variation of parameters

Mathematical Statistics - I	CO1. To acquire the knowledge of laws of probability and Baye's theorem
	CO2.To obtains the concept of Random Variables and their types.
	CO3.To understands uniqueness and Chebychev's Inequality.
	CO4.To obtains the method of solving problems in Correlation and Regression.
	CO5.To know the concept in various distributions
SEMESTER- IV	
Transform Techniques	CO1. Students will acquire knowledge about Laplace Transforms
	CO2.To acquire knowledge about Inverse Laplace Transforms
	CO3.To apply Laplace transform in solving Ordinary Differential Equations with constant coefficients,
	CO4.To solves simultaneous Ordinary Differential Equations.
	CO5.To solve problems in Fourier series and Fourier transforms.
Statistics	CO1. Able to analyze force systems in plane and also in space.
	CO2.Able to solve two and three dimensional rigid body static equilibrium problems.
	CO3. To learn general motion of a rigid body, equivalent systems of forces ,parallel forces and forces along the sides of a triangle couples
	CO4.Able to determine the centroid of planes, center of gravity of masses
	CO5.Discuss the equilibrium of a uniform cable hanging freely under its own weight.
Mathematical Statistics - II	CO1. To obtain the knowledge of sampling theory and its distributions.
	CO2.To acquires the concept of Estimator and its types.
	CO3.To understands the method of solving problems in various tests.
	CO4.To knows the format of framing ANOVA and ANOCOVA table.
	CO5.To studies the theory of Neyman Pearson Lemma.
E.V.S	CO1. To know about environmental policies and practices
	CO2. Human communities and the environment
	CO3. Environmental ethics
	CO4. Environmental communications
	CO5. To obtain the experience of Field work
SEMESTER- V	
Algebraic Structures - I	CO1. Introduction to groups
	CO2. To know about normal subgroups and quotient groups.
	CO3. To study Cayleys theorem
	CO4. To acquire the knowledge about Rings
	CO5.The field of quotients of an integral domain- Euclidean Rings

Real Analysis - I	CO1.To obtains the knowledge of functions and accountability.
	CO2.To understands the concept of a Sequence and its types.
	CO3.To acquires the knowledge of divergent and Cauchy sequences.
	CO4.To knows the definition of Series and its theorems.
	CO5.To studies the concept of limits and metric spaces.
Dynamics	CO1. Able to evaluate velocity and acceleration of a particle in rectangular and cylindrical coordinate systems and angular velocity of rigid bodies that are in plane motion.
	CO2.Deal with the kinematics and kinetics of the rectilinear and planar motions of a particle including the constrained oscillatory motions of particles.
	CO3. Students should be able to describe the trajectory of an object in projectile motion and perform explicit finite element simulations of materials, components and structures subjected to impact loading.
	CO4.Learn that a particle moving under a central force describes a plane curve and know the Kepler's laws of the planetary motions, which were deduced by him long before the mathematical theory given by Newton.
	CO5.Solve the properties in M.I of area and volumes and apply these properties in equilibrium problems.
Discrete Mathematics	CO1. To know about sets and integers
	CO2. To acquire knowledge of Boolean algebra and applications
	CO3. To know about designing of switching circuits
	CO4. To acquire knowledge of recurrence relations
	CO5.To know about proportional logic and predicate logic
Programming Language in 'c'	CO1. Introduction to C variables and operators
	CO2. To study decision making and branching
	CO3. To study about arrays, strings and its functions
	CO4. To study various functions and user defined functions
	CO5. To acquire knowledge about File management.
SEMESTER- VI	
Algebraic Structures-II	CO1. To know about vector spaces
	CO2. To know about dual spaces
	CO3. To acquire knowledge of inner product spaces
	CO4.To know about algebra of linear transformations
	CO5. To know about matrices , canonical and triangular forms
Real Analysis - II	CO1. To acquire the knowledge of continuous functions connectedness, completeness.
	CO2.To obtains the concept of bounded and totally bounded.
	CO3.To acquires the definition and properties of Rieman Integral.
	CO4.To understands the theory of derivatives and its theorems.
	CO5.To knows the definition and theorems on uniform and point

	wise convergence.
Complex Analysis	CO1. To acquire knowledge about Analytic Functions
	CO2. To acquire knowledge about Bilinear Transformations
	CO3. To acquire knowledge about Complex Integration
	CO4. To acquire knowledge about Series expansions
	CO5. To acquire knowledge about Residues
Graph Theory	CO1. To know about basic definitions of graph theory
	CO2. To know about degree sequences
	CO3. To acquire knowledge of Eulerian and Hamiltonian graphs
	CO4. To obtain knowledge trees
	CO5. To know about directed graphs
Operations Research	CO1. To know about linear programming
	CO2. To acquire knowledge of assignment and transportation problems
	CO3. To know about sequencing problems
	CO4. To acquire knowledge of queuing theory
	CO5. To know about networking