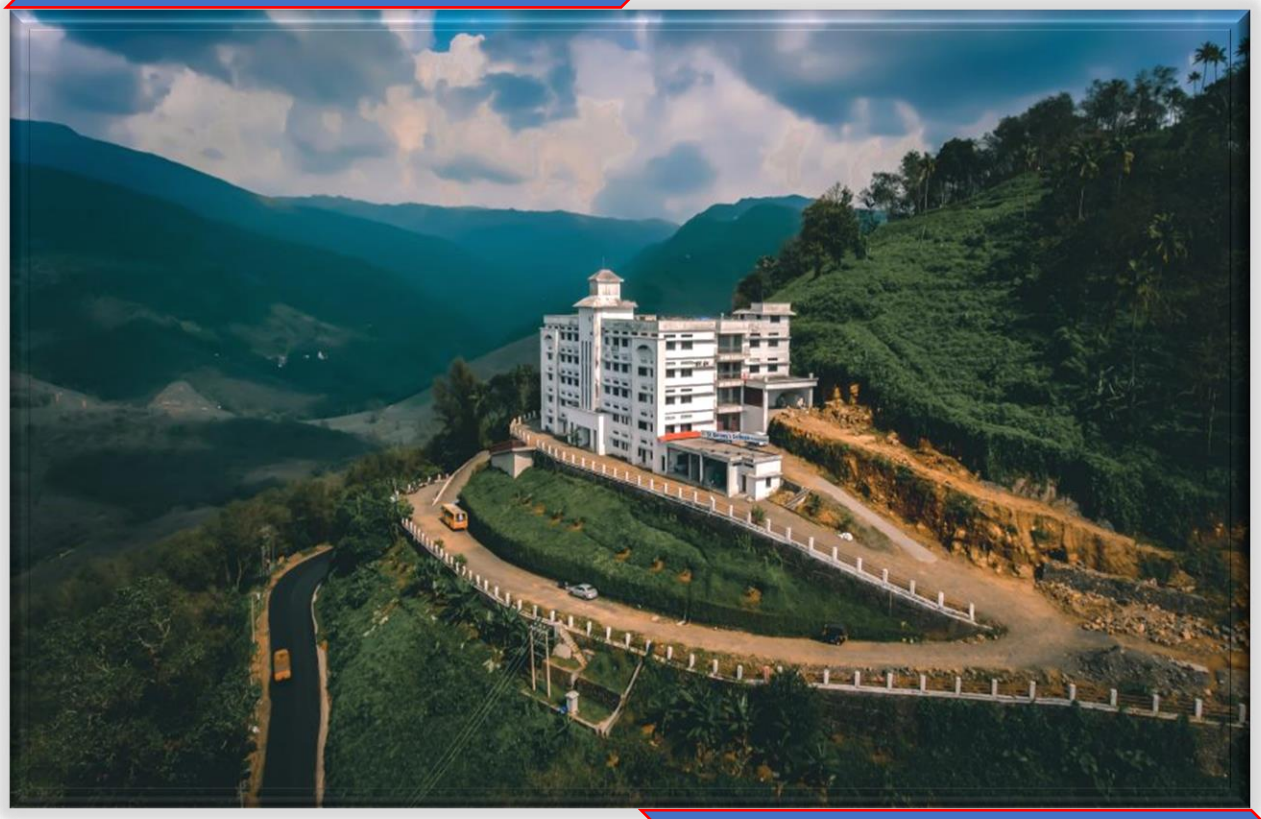
ST. ANTONY'S COLLEGE

PERUVANTHANAM

(AFFILIATED TO MG UNIVERSITY, ACCREDITED BY GOVT. OF KERALA)

PSO & CO



BSC.MATHEMATICS

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DEPARTMENT OF MATHAMATICS

PO

PSO	PO STATEMENT
PSO 1	Comprehend, analyse, synthesise, evaluate, and make generalizations so as to solve mathematical problems. Collect, organize, represent, analyse, interpret data and make conclusions and predictions from its results. apply mathematical knowledge and skills to familiar and unfamiliar situations.
PSO 2	Mathematics is an exciting and varied degree that can open up a lot of opportunities for students. The study of mathematics makes you better at solving problems. It gives you skills that you can use across other subjects and apply in many different job roles.
PSO 3	By studying math you develop analytical skills and an analytical attitude. You learn to pay attention to all the assumptions involved in a given problem or situation, and you learn to break down a complicated problem into a series of tractable steps.
PSO 4	Math encourages logical reasoning, critical thinking, creative thinking, abstract or spatial thinking, problem-solving ability, and even effective communication skills.
PSO 5	Students must demonstrate mastery in the three basic areas of mathematics: algebra, analysis, and topology/geometry on a basic level in lower division courses and at an advanced level in upper division courses.

CORE COURSE

COURSE OUTCOMES

NAME OF THE PROGRAMME: BSc. Mathematics			
COURSE CODE	**COURSE TITLE**	**COURSE OUTCOMES**	
SEMESTER 1			
MM1CRT01	**Foundation of Mathematics**	**COI**	To provide logic framework in all areas of basic mathematics
		CO2	To familiarize sets and functions
		CO3	To familiarize basic concepts of logic an
		CO4	To familiarize mathematical Symbols and standard methods of proofs
		CO5	Students can learn to construct simple proofs for statements
SEMESTER 2			
MM2CRT01	**Analytic Geometry, Trigonometry and Differential Calculus**	**COI**	To attain foundation of basic Mathematics
		CO2	To familiarize real and imaginary parts of a circular and hyperbolic functions of a complex variable
		CO3	To understand polar equation of a line, circle, conic, tangents and normals
		CO4	To familiarize with limits of indeterminate forms

		CO5	To find higher order derivatives of product of two functions.
SEMESTER 3			
MM3CRT01	**Calculus**	**COI**	To learn powerful tools for tackling topics in Calculus
		CO2	To have a deeper knowledge of Taylor's and Maclaurin's series, points of inflexion and curvature
		CO3	To familiarize the concepts of Asymptotes and Envelopes
		CO4	To attain techniques for finding area and volume by double and triple integration
		CO5	To get deeper knowledge on partial derivatives and its applications
SEMESTER 4			
MM4CRT01	**Vector Calculus, Theory of numbers and Laplace Transforms**	**CO1**	To learn powerful tools for tackling topics in the theory of equations.
		CO2	To understand directional derivatives, gradient vectors, tangent planes and normal lines
		CO3	Conceive the concept of Laplace transform and apply it for solving differential equations

		CO4	To familiarize with congruence and its properties
		CO5	To get deep knowledge on line integrals and surface integrals and applications of Green's theorem, Stokes' theorem and Divergence theorem.
SEMESTER 5			
MM5CRT01	**Mathematical Analysis**	**CO1**	To get an introduction about the basic properties of Real numbers.
		CO2	To familiarize sequences and their limits
		CO3	To Learn how to find limits of finite and infinite functions
		CO4	To understand the concept of series
		CO5	To learn test for convergence and absolute convergence
MM5CRT02	**Differential Equations**	**CO1**	To give an in-depth knowledge of differential equations
		CO2	Describe the origin of the first order partial differential equations

		CO3	To understand the orthogonal trajectories and family of curves
		CO4	To learn methods of solutions of Differential Equations dx/P = dy/Q = dz/R
		CO5	To learn to use Lagrange's method for solving the first order linear equations
MM5CRT03	**Abstract Algebra**	**CO1**	To introduce the basic concepts from abstract algebra, especially the notion of groups.
		CO2	To familiarize Permutations and Castle's theorem
		CO3	To understand the concepts of Homomorphism, Isomorphism and Automorphism
		CO4	To identify different types of groups- normal subgroup, simple group, cyclic group, alternating group
		CO5	To conceive the concepts of Rings, Fields, Integral Domains, Ideals and Factor Rings and their basic properties
MM5CRT04	**Human Rights and Mathematics for**	**CO1**	To encourage students to research, investigate how and why things happen

	Environmental Studies		and make their own decisions about complex environmental issues
		CO2	To develop and enhance critical and creative thinking skills which help to foster a new generation of informed consumers, workers as well as policy or decision makers
		CO3	To help the students in acquiring the basic knowledge about environment and inform them about the social norms that provide unity with environmental characteristics and create positive attitude about environment
		CO4	To develop the sense of awareness among the students about the environment and its various problems
		CO5	To help the students in realizing the inter-relationship between man and environment for protecting the nature and natural resources
SEMESTER 6			
MM6CRT01	**Real Analysis**	**CO1**	To understand Continuous Functions, Uniform Continuity of Functions

			and Monotone and Inverse Functions
		CO2	To know pointwise and uniform convergence and interchange of Limits
		CO3	To familiarize Riemann integral and Riemann integrable functions
		CO4	To learn to apply Mean Value Theorem, L' Hospital Rule and Taylor's Theorem
		CO5	To get a preliminary idea of sequence and series of functions
MM6CRT02	**Graph Theory and Metric Spaces**	**CO1**	To learn basic concepts of graph and be able to represent graphs in matrix form
		CO2	To understand the ideas of trees and their properties
		CO3	To familiarize application of graph theory in real life problems
		CO4	To familiarize with Euler graphs and Hamiltonian graphs
		CO5	To conceive the concepts of Metric Spaces, Open sets and Closed Sets
MM6CRT03	**Complex Analysis**	**CO1**	To familiarize the concepts of analytical and harmonic functions
		CO2	To understand elementary complex functions and their properties

		CO3	To understand the theory and techniques of complex integration
		CO4	To familiar with the theory and application of the power series expansion of analytic functions
		CO5	To get deep knowledge of the theory and applications of residues in complex integration and calculation of indefinite integrals
MM6CRT04	**Linear Algebra**	**CO1**	To learn how to solve system of linear equations using matrices
		CO2	To have a deep knowledge of the theory and concepts of matrices in a broader sense
		CO3	To familiarize the concepts of linear transformations and linear Isomorphism
		CO4	To understand the concepts of vector spaces, subspaces, linear combination of vectors, spanning set, linear independence and basis
		CO5	To understand Eigen values, Eigen vectors and Eigen space

COMPLEMENTARY COURSE

COURSE OUTCOMES

NAME OF THE PROGRAMME:			
COURSE CODE	**COURSE TITLE**	**COURSE OUTCOMES**	
SEMESTER 1			
ST1CMT01	**Descriptive Statistics**	**COI**	To understand the concepts of statistical population and sample
		CO2	To understand the concepts of Central Tendency, Dispersion, Skewness, Kurtosis
		CO3	To familiarize with the concept of Index Numbers - Laspeyer's, Paasche's and Fisher's index numbers
		CO4	To learn Time-Reversal and Factor-Reversal tests for index numbers
		CO5	To learn different methods of sampling - simple random sample, systematic, stratified and cluster
CA1CMT01	**Computer Fundamentals**	**CO1**	**To obtain the knowledge of various input and output devices**
		CO2	**To understand the conversion of numbers from one system to another**
		CO3	**To get an idea of logic gates and its operations**
		CO4	**To get the knowledge of computer softwares and its languages**

		CO5	**To obtain an awareness of different types of operating systems and its functions**
SEMESTER 2			
ST2CMT01	**Probability Theory**	**COI**	To understand probability theory which includes basic concepts and important properties
		CO2	To familiarize the concepts of random variables - discrete and continuous and its properties
		CO3	To understand the concepts of Correlation (Scatter diagram, Karl Pearson's and Spearman's rank correlation coefficients) and Regression (fitting of polynomial equations of degree one and two)
		CO4	To understand Bivariate Random Variables - discrete and continuous and its properties
		CO5	To conceive identification of regression equations
CA2CMT02	**Programming in C Language**	**CO1**	**To be aware of the Programming language and translators of computer**
		CO2	**To know how to build a program in C language with the help of tokens, data types and operators**
		CO3	**To be able to write a simple program by using the concept of control structures and looping statements**
		CO4	**To understand the concepts of arrays and functions**
		CO5	**To understand the concept of pointers in C**

SEMESTER 3			
ST3CMT03	**Probability Distributions**	**COI**	To learn Mathematical expectations and its important properties
		CO2	To understand probability distributions (discrete/ continuous) such as Uniform, Bernoullis, Binomial, Poisson, Geometric, Exponential, Gamma - one and two parameters, Beta (type 1 and type 2), Normal distribution and its properties
		CO3	To familiarize with Sampling distributions including t, F and Chi-square distributions
		CO4	To understand Law of Large Numbers
		CO5	To learn Central Limit theorem
CA3CMT03	**Web Technology and Programming**	**CO1**	**The students will familiarize with types of communication media used in data transmission**
		CO2	**To give knowledge about protocols used in communication**
		CO3	**To familiarize with web server and proxy server**
		CO4	**To study about the creation of a website**
		CO5	**To know the concepts of networking tools**
SEMESTER 4			
ST4CMT04	**Statistical Inference**	**CO1**	To understand the concepts of Estimation, Estimators and Estimates
		CO2	To know large sample test using Neyman-Pearson approach

		CO3	To learn properties of good estimators and methods of estimation
		CO4	To learn point estimation and interval estimation
		CO5	To know properties of good estimators
CA4CMT04	**Visual Programming Techniques**	**COI**	**To understand visual basic applications**
		CO2	**To understand how to perform operations and store results**
		CO3	**To understand the concepts of data-driven program execution flow control in visual basic programming**
		CO4	**To understand additional visual basic controls**
		CO5	**To understand loops to do repetition in visual basic**