Indo-American College
Not just another college
Permanently Affiliated to THIRUVALLUVAR UNIVERSITY, Vellore.
Accredited by NAAC with 'B' Grade
Recognised Under Section 2 (f) & 12 (b) of UGC Act.
T.N.Govt.G.O.MS. No.172, Higher Education Dept, dt.27-4-1998

DEPARTMENT OF MATHEMATICS
PROGRAMME OUTCOMES (B. Sc)

PO1:	**Disciplinary Knowledge:** Capable of demonstrating comprehensive knowledge and Understanding of one or more disciplines that form a part of an undergraduate programme of Study.
PO 2:	**Critical Thinking:** Capability to apply analytic thought to a body of knowledge, analyse and evaluate evidence, arguments, claims, beliefs on the basis of empirical evidence, identify relevant assumptions or implications; formulate coherent arguments; critically evaluate practices, Policies and theories by following scientific approach to knowledge development.
PO 3:	**Problem Solving:** Capacity to extrapolate from what one has learned and applies their competencies to solve different kinds of non-familiar problems, rather than replicate curriculum content knowledge; and apply one's earning to real life situations.
PO 4:	**Analytical Reasoning:** Ability to evaluate the reliability and relevance of evidence, identify logical flaws and holes in the arguments of others; analyze and synthesize data from a variety of sources, draw valid conclusions and support them with evidence and examples and addressing opposing viewpoints.
PO 5:	**Scientific Reasoning:** Ability to analyse, interpret and draw conclusions from quantitative/ qualitative data; and critically evaluate ideas, evidence, and experiences from an open minded and reasoned perspective.
PO 6:	**Self-directed & Lifelong Learning:** Ability to work independently, identify and manage a project. Ability to acquire knowledge and skills, including "learning how to learn", through self-placed and self-directed learning aimed at personal development, meeting economic, social and cultural objectives.

COURSE OUTCOMES

Course Code	Course Name	Course Outcomes
FMA11	Algebra	• To solving polynomial equations, summation of an infinite series, matrices, and elementary number theory, To learn the different methods to solve polynomial equations, To understand the methods of the sum to infinity of a binomial, exponential, and logarithmic series, To find the Eigen values and Eigen vectors of a given square matrix, To acquire a basic knowledge of different types of

FMA12	Trigonometry	numbers, a number of divisors of a positive integer.
		• To expose the topics such as expansions of trigonometric functions, hyperbolic functions, inverse circular, and inverse hyperbolic functions, To gain the knowledge of expansions of $\cos n\theta$ and $\sin n\theta$ in powers of $\cos\theta$ and $\sin\theta$, To acquire the knowledge of hyperbolic and inverse hyperbolic functions, Basic knowledge about the Logarithm of complex quantities,To understand and carry out the calculations of summation of trigonometric series.
Semester II		
FMA21	Calculus	• This course introduces the basic concepts of differential and integral calculus, To know about the angle between two curves and the radius of curvature,To inculcate a strong knowledge about evolutes and envelopes, Knowledge about reduction formulae and properties of definite integrals,To acquire the knowledge about evaluation of double and triple integrals.
FMA22	Analytical Geometry of Three Dimensions	• To understand the fundamental concepts of analytical solid geometry, Knowledge about the symmetrical form of a straight line and the shortest distance between two skew lines, To acquire the basic knowledge of a sphere, section of a sphere by a plane, To demonstrate knowledge of the different types of cones and related problems, To inculcate the study about different types of cylinders.
Semester III		
CMA31	Differential Equations	• This course aims to provide logical skills in the formation of differential equations, to expose to different techniques of finding solutions to these equations and in addition stress is laid on the application of these equations in geometrical and physical problems.
Semester IV		
CMA41	Vector Analysis and Fourier Analysis	• This course covers the topics in vector and tensor calculus which are essential tools of modern applied mathematics. To develop deep understanding of key concepts followed by problems of applied nature. The portion on Fourier analysis will lead to post-graduate studies and research in pure as well as applied mathematics.
CMA42	Mechanics	• To provide a basic knowledge of the behavior of various types of forces and stresses the development of skills in the formation of suitable mathematical models and problems solving techniques.
		• Knowledge about the equilibrium of a particle under the action of several forces. Domain knowledge about applications involving frictional forces. To acquire

		knowledge about simple harmonic motions. Basic knowledge about different types of Impacts.
Semester V		
CMA51	Abstract Analysis	• This course aims to impart emphasis on concepts and technology of the groups and rings as these algebraic structures have applications in Mathematical Physics, Mathematical Chemistry and Computer Science.
CMA52	Real Analysis I	• To understand various limiting behavior of sequences and series. To explore the various limiting processes viz.continuity, uniform continuity, differentiability and integrability and to enhance the mathematical maturity and to work comfortably with concepts.
CMA53	Complex Analysis I	• This course provides a modern treatment of concepts and techniques of complex function theory. • To gain knowledge about the complex number system, the complex function and complex integration.
CMA54	Programming in C Language	• To develop programming skill in the Computer Language C
Semester VI		
CMA61	Linear Algebra	• To study the Algebraic structures of Vector Spaces and Linear Transformation.
CMA62	Real Analysis II	• To understand Integration process of Riemann. To develop the understanding of point wise and uniform convergence of sequence and series of functions. To enhance the mathematical maturity and to work comfortably with concepts.
CMA63	Complex Analysis II	• To gain knowledge about complex Integration and series. This course provides methods to solve problems in pure as well as in applied mathematics.
Elective(Semester V & VI)		
CEMA64A	Graph Theory	• To study and develop the concepts of graphs, sub graphs, trees connectivity, Eulerian and Hamiltonian graphs, matching colorings of graphs and planar graphs.
BEMA55A	Operation Research	• To develop computational skills and logical thinking in formulating industry ,oriented problems as a mathematical problems and obtaining optimal solutions tothe problems, To learn about splitting and arranging the activities of a project as a network diagram and determine a critical path and its duration, Knowledge about programme evaluation and review techniques (PERT), Basic knowledge about inventory control models and determining EOQ levels, To study steady-state analysis

		of various queuing models with finite and infinite Capacities.
Skill Based Subjects (Semester III, IV, V & VI)		
CSMA32	Mathematics for Competitive Examinations I and II	• To introduce the concepts of mathematics with emphasis on analytical ability, and computational skills are required to write the competitive examinations.
CSMA43 CSMA56	Mathematics for Competitive Examinations II	• To introduce concepts of mathematics with emphasis on analytical ability and computational skill needed in competitive examinations.
Allied (Semester I, II, III & IV)		
CAMA13A CAMA23A	Numerical Methods I& II	• To know the methods of solving simultaneous linear equations, To acquire knowledge about forward differences and Backward differences and their relationship, Knowledge about central difference operators and problems based on various • Central differences formulae, To study Newton's divided difference formula and problems based on Lagrange's interpolation formula, Knowledge about Summation of series up to n terms.
CAMA13B CAMA23B	Mathematical Statistics I & II	• To know the Statistical investigations and the applications of sampling techniques in our day-to-day life, to Learn the applications of Chi-square distribution. To understand the concepts such as Students t, F, and Z distributions and their • Properties, To know the various methods of estimation and testing of hypothesis techniques, To apply ANOVA technique to verify whether all samples are drawn from the same population.