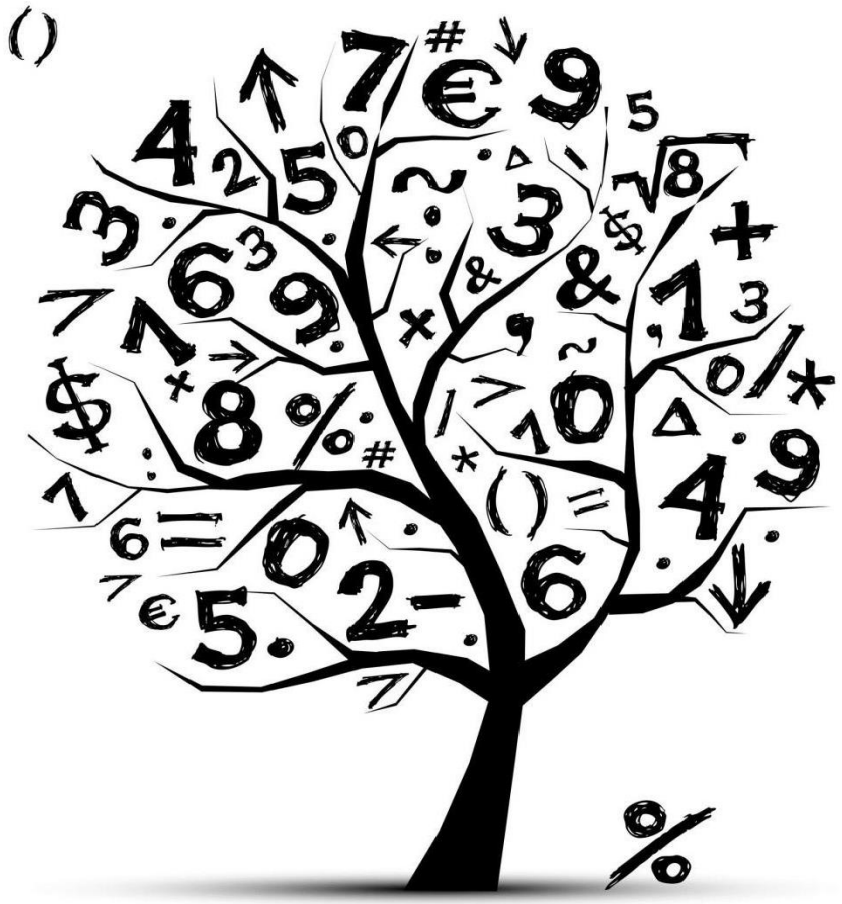
ANDHRA CHRISTIAN COLLEGE: GUNTUR

DEPARTMENT OF MATHEMATICS



B.Sc., MATHEMATICS

COs and PSOs

PROGRAMME SPECIFIC OUTCOMES (PSOs)

The Department of Mathematics, Andhra Christian college, Guntur, offers Three Year (comprising 6 semesters) Undergraduate Programme in Mathematics with objective of empowering students to acquire all-inclusive understanding of Mathematics as an academic discipline. Upon completion of B. Sc. Mathematics Degree Programme successfully, the students shall acquire the following skills and competencies.

PSO 1	Create deep interest in learning mathematics.
PS0 2	Develop broad and balanced knowledge and understanding of definitions, concepts, principles and theorems.
PS0 3	Familiarize the students with suitable tools of mathematical analysis to handle issues and problems in mathematics and related sciences.
PS0 4	Enhance the ability of learners to apply the knowledge and skills acquired by them during the programme to solve specific theoretical and applied problems in mathematics.
PS0 5	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
PS0 6	Encourage the students to develop a range of generic skills helpful in employment, internships and social activities.

COURSE OUTCOMES (COs)

Course Code: MAT1SK

Course Name: Differential Equations

Upon completion of this course, the student will be able to:	
CO 1	Solve linear differential equations. Convert non-exact homogeneous equations to exact differential equations by using integrating factors.
CO 2	Know the methods of finding solutions of differential equations of the first order but not of the first degree.
CO 3	Solve higher-order linear differential equations, both homogeneous and non homogeneous, with constant coefficients.
CO 4	Understand the concept and apply appropriate methods for solving differential equations.

Course Code: MAT2SK

Course Name: Three Dimensional Analytical Solid Geometry

Upon completion of this course, the student will be able to:	
CO 1	Get the knowledge of planes.
CO 2	Basic idea of lines, sphere and cones.
CO 3	understand the properties of planes, lines, spheres and cones.
CO 4	express the problems geometrically and then to get the solution.

Course Code: MAT3SK

Course Name: Abstract Algebra

Upon completion of this course, the student will be able to:	
CO 1	Acquire the basic knowledge and structure of groups, subgroups and cyclic groups. Get the significance of the notation of a normal subgroups.
CO 2	Get the behavior of permutations and operations on them. study the homomorphisms and isomorphisms with applications
CO 3	Understand the ring theory concepts with the help of knowledge in group theory and to prove the theorems.
CO 4	understand the applications of ring theory in various fields.

Course Code: MAT4SK

Course Name: Real Analysis

Upon completion of this course, the student will be able to:	
CO 1	Get clear idea about the real numbers and real valued functions.
CO 2	Obtain the skills of analyzing the concepts and applying appropriate methods for testing convergence of a sequence/ series.
CO 3	Test the continuity and differentiability and Riemann integration of a function.
CO 4	Know the geometrical interpretation of mean value theorems.

Course Code: MAT4SKB

Course Name: Linear Algebra

Upon completion of this course, the student will be able to:	
CO 1	Understand the concepts of vector spaces, subspaces, basises, dimension and their properties
CO 2	understand the concepts of linear transformations and their properties
CO 3	Apply Cayley- Hamilton theorem to problems for finding the inverse of a matrix and higher powers of matrices without using routine methods
CO 4	Learn the properties of inner product spaces and determine orthogonality in inner product spaces.

Course Code: MAT5SKA

Course Name: Multiple integrals and applications of Vector calculus

Upon completion of this course, the student will be able to:	
CO 1	Learn multiple integrals as a natural extension of definite integral to a function of two variables in the case of double integral / three variables in the case of triple integral. Learn applications in terms of finding surface area by double integral and volume by triple integral.
CO 2	Determine the gradient, divergence and curl of a vector and vector identities.
CO 3	Evaluate line, surface and volume integrals.
CO 4	understand relation between surface and volume integrals (Gauss divergence theorem), relation between line integral and volume integral (Green's theorem), relation between line and surface integral (Stokes theorem)

Course Code: MAT5SKB

Course Name: Integral transforms with Applications

Upon completion of this course, the student will be able to:	
CO 1	Evaluate Laplace transforms of certain functions, find Laplace transforms of derivatives and of integrals. Determine properties of Laplace transform which may be solved by application of special functions namely Dirac delta function, error function, Bessel function and periodic function.
CO 2	Understand properties of inverse Laplace transforms, find inverse Laplace transforms of derivatives and of integrals.
CO 3	Solve ordinary differential equations with constant/ variable coefficients by using Laplace transform method.
CO 4	Comprehend the properties of Fourier transforms and solve problems related to finite Fourier transforms.

Programme Specific Outcomes (PSO)

MATHEMATICS PHYSICS COMPUTER SCIENCE

PSO-No	Upon the successful completion of B.Sc., degree with Mathematics as one of the subjects, the students will be able to:	Mapping with POs
PSO - 1	Understand the concepts of vector spaces, group theory, quantum mechanics, optical, thermal, electrical, mechanical properties of a materials, probability, algorithm design, data base	PO1
PSO - 2	Analyze the concepts of mathematics, physics and computers science able to relate them in numerical programming of models of physical systems.	PO4
PSO - 3	To impart knowledge of a broad range of Computer Science skills, tools, and mathematical techniques, and the capability of applying them to analyze and design complex systems.	PO8
PSO - 4	Acquire logical and analytical skills to apply the concepts to model and solve real life problems in related areas.	PO2
PSO-5	Engage in professional development in the fields of InformationTechnology and Computer Science.	PO8