DEPARTMENT OF MATHEMATICS
SREE KRISHNA COLLEGE GURUVAYTUR

Programme Outcomes, Program Specific Outcomes and Course Outcomes

Programme Name : B.Sc Mathematics

PROGRAMME OUTCOMES

1. Students will acquire Mathematical knowledge, skills , attitudes, values and academic achievements along with domain knowledge of different subjects in the science stream.
2. Enable the students to prepare themselves for higher education leading to M.Sc./MCA degree courses and for scholarship entrance exams like NBHM, GATE, JAM for PG Courses.
3. The mathematics UG students after the completion of the course will gain a thorough knowledge in preparing competitive examinations conducted by KPSC/UPSC/SSC etc.
4. Students will become employable, they will be eligible for career opportunities in industry, army etc.
5. Students might be aware about and capable of developing solution oriented technique in the direction of diverse Social and Environmental issues.
6. Students will get an awareness to become an illuminated citizen with commitment to deliver one's responsibilities within the scope of bestowed rights and privileges.

PROGRAM SPECIFIC OUTCOMES

1. Acquire good knowledge and understanding to solve specific theoretical and applied problems in advanced areas of mathematics.
2. Lead to better logical thinking and reasoning.
3. Familiarize the students with suitable tools of mathematical analysis to handle issues and can be applied immediately to solving real-world problems.
4. 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.
5. Student will be able to apply their skills and knowledge and they can translate information presented verbally into mathematical form.
6. Students are equipped with a positive attitude towards mathematics as an interesting and valuable subject of study.
7. Enabling the students to develop mathematical modelling ability ,creative and analytical skills and they can Formulate and develop mathematical arguments in a logical manner necessary for various kinds of employment

COURSE OUTCOMES

CORE COURSE

FIRST SEMESTER

Subject Code	Subject Name	Course Outcomes
MTS1 B01	BASIC LOGIC & NUMBER THEORY	Students will be able to 1. Prove results involving divisibility, greatest common divisor, least common multiple and a few applications. 2. Understand the theory and method of solutions of LDE 3. Solve linear congruent equations. 4. Learn three classical theorems viz. Wilson's theorem, Fermat's little theorem and Euler's theorem and a few important consequences.

SECOND SEMESTER

Subject Code	Subject Name	Course Outcomes
MTS2 B02	CALCULUS OF SINGLE VARIABLE1	1. Students can apply the ideas of fundamentals of limit, continuity and differentiability in the problem of sketching of curves and in the solution of some optimization problems of interest in real life 2. Students will get a practical way of evaluating the definite integral

THIRD SEMESTER

Subject Code	Subject Name	Course Outcomes
MTS3 B03	CALCULUS OF SINGLE VARIABLE2	1. Students will get the idea of natural logarithm function, inverse function which have a wide variety of phenomenon of interest in science, engineering, mathematics and economics 2. Students will able to study a related notion of convergence of a series 3. Students will be able to handle vectors in dealing with the problems involving geometry of lines, curves, planes and surfaces in space and have acquired the ability to sketch curves in plane and space given in vector valued form.

FOURTH SEMESTER

Subject	Subject Name	Course Outcomes

Code		
MTS4 B04	LINEAR ALGEBRA	1. Student will become competent to perform matrix algebra and also to calculate the inverse and determinant of a matrix. 2. Student will come to understand the concept of Vector Space, the modern view of a matrix as a linear transformation . 3. Students will be able to learn the fundamentals of linear algebra by capturing the ideas geometrically, by justifying them algebraically and by preparing them to apply it in several different fields such as data communication, computer graphics, modelling etc.

FIFTH SEMESTER

Subject Code	Subject Name	Course Outcomes
MTS5 B05	ABSTRACT ALGEBRA	1. Students will understand the abstract notion of a group, learn several examples. 2. Students are taught to check whether an algebraic system forms a group or not and are introduced to some fundamental results of group theory. 3. The idea of structural similarity, the notion of cyclic group, permutation group , various examples and very fundamental results in the areas are also explored
MTS5 B06	BASIC ANALYSIS	Students will be able to 1. Learn and deduce rigorously many properties of real number system by assuming a few fundamental facts about it as axioms. 2. Know about sequences ,their limits, several basic and important theorems involving sequences and their applications 3. Understand some basic topological properties of real number system 4. Get a rigorous introduction to algebraic, geometric and topological structures of complex number system, functions of complex variable, their limit and continuity and so on.
MTS5 B07	NUMERICAL ANALYSIS	Students will be able to 1. Understand several methods such as bisection method, fixed point iteration method, regula falsi method etc. to find out the approximate numerical solutions of algebraic and transcendental equations with desired accuracy. 2. Understand the concept of interpolation and also learn some well-known interpolation techniques. 3. Understand a few techniques for numerical differentiation and integration and also realize their merits and demerits. 4. Find out numerical approximations to solutions of initial value problems and also to understand the efficiency of various methods.
MTS5 B08	LINEAR	Students will be able to

	PROGRAMMING	1. Solve linear programming problems geometrically and understand the drawbacks of geometric methods 2. Solve problems more effectively using simplex algorithm 3. understand duality theory, a theory that establishes relationships between linear programming problems of maximization and minimization and game theory 4. Solve transportation and assignment problems by algorithms that take advantage of the simpler nature of these problems.
MTS5B09	Introduction to Geometry and Theory of Equations	Students will be able to 1. Understand several basic facts about parabola, hyperbola and ellipse (conics) and recognise and classify conics. 2. Understand affine transformations, the inherent group structure, the idea of parallel projections ,the basic properties of parallel projections and the fundamental theorem of affine geometry. 3. Learn to solve polynomial equations upto degree four.

SIXTH SEMESTER

Subject Code	Subject Name	Course Outcomes
MTS6 B10	REAL ANALYSIS	Students will be able to 1. Realise the difference between continuity and uniform continuity and equivalence of these ideas for functions on closed and bounded interval. 2. Understand a few basic and fundamental results of integration theory. 3. Find a justification for 'change of variable formula' used in the practical problem of evaluation of an integral. 4. Learn and find out examples/counter examples to prove or disprove the validity of several mathematical statements that arise naturally in the process/context of learning. 5. Learn the properties of and relationship among two important improper integrals namely beta and gamma functions that frequently appear in mathematics, statistics, science and engineering.
MTS6 B11	COMPLEX ANALYSIS	Students will be able to 1. Understand analytic functions, harmonic functions , their connection and some results related on this topic 2. Know a few fundamental results on contour integration theory and to understand and apply cauchy's integral formula 3. Know a more general type of series expansion 4. See another application of residue theory in locating the region of zeros of an analytic function.
MTS6 B12	CALCULUS OF MULTI VARIABLE	1. Students can understand several contexts of appearance of multivariable functions and their representation using graph and contour diagrams. 2. Students will understand the notion of partial derivative,

Subject Code	Subject Name	Course Outcomes
		their computation and interpretation. 3. Students will find a few real life applications of Lagrange multiplier method in optimization problems. 4. Students will get the idea of double and triple integral, vector field, curl and divergence of a vector field, their evaluation and interpretation, line integral and surface integral
MTS6 B13	DIFFERENTIAL EQUATIONS	1. Students could identify a number of areas where the modelling process results in a differential equation. 2. They will learn about ODE, DE and the a method to approximate the solution successively of a first order IVP 3. Students acquire the knowledge of solving a differential equation 4. Students learn the technique of solving partial differential equations
MTS6 B14 (Elective Paper)	GRAPH THEORY	1. Students will get basic concepts of graph- basic definitions and related terms. 2. They will come to understand the significance of graph in solving real life problems.
MTS6 P15 (PR)	Project	1. Students will think in a critical manner 1. Enabling students problem-solving skills and out of box thinking power about various ideas of mathematics and their applicability, which may lead to empowerment and enhancement of the social welfare at large.

OPEN COURSE

Subject Code	Subject Name	Course Outcomes
MTS5 D03	LINEAR MATHEMATICAL MODELS	1. Problem solving skills of students are enhanced 2. Students will be able to learn and understand the basic concepts of matrices and its operations 3. Students will get the idea to solve linear inequalities by using graphical and simplex method.

COMPLEMENTARY COURSE

FIRST SEMESTER

Subject Code	Subject Name	Course Outcomes
MTS1 C01	MATHEMATICS - 1	Student will be able to 1. Understand the different meaning of differentiability, and its significance in our real life. 2. Learn anti derivative 3. Define and recognize the concept of continuity , some

		basic theorems and they will learn how to apply in real life problems

SECOND SEMESTER

Subject Code	Subject Name	Course Outcomes
MTS2 C02	MATHEMATICS-2	1. Students will be able to define and recognise polar coordinate system an will get the skill to solve problems. 2. Students will get the concept of sequence and series and hence find sum of infinite terms with different methods. 3. Student will come to understand the concept of Vector Space, the modern view of a matrix as a linear transformation . 4. Problem solving skills of students are enhanced

THIRD SEMESTER

Subject Code	Subject Name	Course Outcomes
MTS3 C03	MATHEMATICS-3	1. Students will learn both geometric and analytic interpretation of Vector-Valued Functions, Limits, Continuity, and Derivatives. 2. They will get the knowledge of partial derivatives, directional derivatives, tangent and normal planes ,Double integral Surface Integral 3. Students will be introduced the concept of extension of polar coordinate system in 3-dimension and different type of functions. 4. They will study some definition and results in complex plane.

FOURTH SEMESTER

Subject Code	Subject Name	Course Outcomes
MTS4 C04	MATHEMATICS-4	1. Students will get some basic knowledge of ordinary and higher order differential equations. 2. They are introduced the concept of Laplace transformation and they can apply this idea in solving differential equation, these have significance in physics and chemistry field 3. They will get problem solving skills in the field of Fourier Series.