



**OFFICE OF THE PRINCIPAL, S.K.C.G. (AUTONOMOUS) COLLEGE,
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PROGRAMME OUTCOME

Department of Mathematics (UG)

Objectives	Programme Outcome
To enable students gain requisite knowledge and acquire ability to apply them as and when required	On graduation, the student will have the following abilities: a) A fundamental as well as a higher level of understanding, comprehension, analysis and articulation of concepts studied. b) Will have the ability to identify problems/issues and come up with creative solutions.

SEMESTER - I

COURSE OUTCOME		Papers	Learning Outcome & ATTAINMENT Level
CO 1	After completing the Calculus , students are expected to be able to use Leibnitz's rule to evaluate derivatives of higher order.	Core Course Paper I & II GE-I	SGPA on basis of Credits earned from MSE (Mid Semester Examinations or CIA-Continuous Internal Assessments) & ESE (End Semester Examinations)
CO 2	Students able to study the geometry of various types of functions.		
CO 3	evaluate the area, volume using the techniques of integrations,		
CO 4	Students able to identify the difference between scalar and vector, acquired knowledge on some the basic properties of vector functions.		
CO 5	The acquired knowledge will help students in simple mathematical modeling. They can study advance courses in mathematical modeling, computer science, statistics, physics, chemistry etc.		
CO 6	After completing the course, students are expected to be able to apply knowledge of calculus and differential equations in the areas of their own interest.		

SEMESTER - II

COURSE OUTCOME		Papers	LO & ATTAINMENT Level
CO 1	On successful completion of Real Analysis , students will be able to handle fundamental properties of the real numbers that lead to the formal development of real analysis.	Core Course Paper III & IV GE -II	SGPA on basis of Credits earned from MSE (Mid Semester Examinations or CIA-Continuous Internal Assessments) & ESE (End Semester Examinations)
CO 2	Student will understand limits and their use in sequences, series, differentiation and integration.		
CO 3	Students will appreciate how abstract ideas and rigorous methods in mathematical analysis can be applied to important practical problems.		
CO 4	A student completing the Differential equations is able to solve differential equations and is able to model problems in nature using Ordinary Differential Equations.		
CO 5	This is also prerequisite for studying the course in Partial Differential Equations and models dealing with Partial Differential Equations.		
CO 6	The acquired knowledge will help students to study further courses in mathematics like, group theory, ring theory and field theory and linear algebra. It has applications not only in higher mathematics but also in other science subjects like computer science, statistics, physics, chemistry etc.		

SEMESTER - III

<p>CO 1</p>	<p>The objective of the Theory of Real functions is to have knowledge on limit theorems on functions, limits of functions, continuity of functions and its properties, uniform continuity, differentiability of functions, algebra of functions and Taylor's theorem and, its applications.</p>	<p>Core Course Paper V, VI & VII GE -III</p>	<p>SGPA on basis of Credits earned from MSE (Mid Semester Examinations or CIA-Continuous Internal Assessments) & ESE (End Semester Examinations)</p>
<p>CO 2</p>	<p>The student how to deal with real functions and understands uniform continuity, mean value theorems also.</p>		
<p>CO 3</p>	<p>A student learning Group theory gets idea on concept and examples of groups and their properties . He understands cyclic groups, permutation groups, normal subgroups and related results. After this course he can opt for courses in ring theory, field theory, commutative algebras, linear classical groups etc. and can be apply this knowledge to problems in physics, computer science, economics and engineering</p>		
<p>CO 4</p>	<p>After completing PDEs & Systems of ODEs, a student will be able to take more courses on wave equation, heat equation, diffusion equation, gas dynamics, non linear evolution equations etc.</p>		
<p>CO 5</p>	<p>All these courses(C-VII) are important in engineering and industrial applications for solving boundary value problem</p>		
<p>CO 6</p>	<p>On successful completion of this course, students will be able to handle fundamental properties of the real numbers that lead to the formal development of real analysis and understand limits and their use in sequences, series, differentiation and integration.</p>		

SEMESTER IV

COURSE OUTCOME		PAPER S	LO & ATTAINMENT Level
CO 1	Students can handle physical problems to find an approximated solution. After getting trained a student can opt for advance courses in Numerical analysis in higher mathematics.	Core Course Paper VIII, IX & X GE –IV SECC-II	SGPA on basis of Credits earned from MSE (Mid Semester Examinations or CIA-Continuous Internal Assessments) & ESE (End Semester Examinations)
CO 2	Use of good mathematical software will help in getting the accuracy one need from the computer and can assess the reliability of the numerical results, and determine the effect of round off error or loss of significance		
CO 3	On successful completion of the Topology of Metric Spaces students will learn to work with abstract topological spaces. This is a foundation course for all analysis courses in future		
CO 4	After completing this Ring Theory , this will help students to continue more courses in advanced Ring theory modules, Galois groups		
CO 5	Quantitative & Logical Thinking : Students will demonstrate the ability to understand and communicate mathematical principles and to follow an extended line of formal reasoning. A student who is competent in Quantitative Reasoning is able to: 1. Read and identify mathematical information that is relevant in a problem. It will help students for competitive exams like Banking,SSC,OPSC,UPSC,OSSSC etc..		
CO 6	Students can handle physical problems to find an approximated solution. After getting trained a student can opt for advance courses in Numerical analysis in higher mathematics. Use of good mathematical software will help in getting the accuracy one need from the computer and can assess the reliability of the numerical results, and determine the effect of round off error or loss of significance.		

SEMESTER V

COURSE OUTCOME		PAPERS	LO(Learning Outcome) & ATTAINMENT Level
CO 1	After reading the Multivariate Calculus a student will be able to calculate partial derivatives,directional derivatives,extremum values and can calculate double, triple and line integrals. He will have idea of basic vector calculus including green's theorem, divergence theorem.and stokes theorem.	Core Course Paper XI & XII DSE-I &II	SGPA on basis of Credits earned from MSE (Mid Semester Examinations or CIA-Continuous Internal Assessments) & ESE (End Semester Examinations)
CO 2	He can take courses in calculus on manifolds, Differential geometry and can help in numerical computations involving several variables.		
CO 3	The student will use this knowledge wherever he/She goes after undergraduate program. It has applications in computer science, finance mathematics, industrial mathematics, bio mathematics .		
CO 4	After completing the course, students are expected to be able to apply knowledge of calculus and differential equations in the areas of their own interest		
CO 5	The acquired knowledge will help students to study further courses in mathematics like, group theory, ring theory and field theory and linear algebra.		
CO 6	It has applications not only in higher mathematics but also in other science subjects like computer science, statistics, physics, chemistry etc.		

SEMESTER VI

COURSE OUTCOME		PAPERS	Learning Outcome & ATTAINMENT Level
CO 1	Students will be able to handle certain integrals not evaluated earlier and will know a technique for counting the zeros of polynomials. This course is prerequisite to many other advance analysis courses.	Core Course Paper XIII & XIV DSE-III & DSE IV Project work	SGPA on basis of Credits earned from MSE (Mid Semester Examinations or CIA-Continuous Internal Assessments) & ESE (End Semester Examinations) The final CGPA attained at the Final Semester is calculated taking all SGPAs of all semester and grading is done to award 1 st /2 nd Class Honors with Distinction.
CO 2	The knowledge of automorphism helps to study more on field theory. Students learn on direct products, group actions, class equations and their applications with proof of all results. This course helps to opt for more advanced courses in algebra and linear classical groups.		
CO 3	After completing this Differential Geometry a student will learn on Serret-Frenet formulae, relation between tangent, normal and binormals, first and second fundamental forms and ideas on various curvatures. He has scope to take more advanced courses in surface theory and geometry.		
CO 4	Upon successful completion of this course students will be able to know the basic definitions and theorems in number theory, to identify order of an integer, primitive roots.		
CO 5	Euler's criterion, the Legendre symbol, Jacobi symbol and their properties, to understand modular arithmetic number-theoretic functions and apply them to cryptography.		
CO 6	Basic concepts of research, general laboratory practices, Data collection and documentation, scientific writing and its presentation through oral, Power Point and Poster methods and how to conceptualize, design and execute a science Project. On completion of all six semesters, a Botany Graduate should be able to express, articulate and write scientifically on any of the chapters/Topics mentioned above		