Programme Outcomes - Department of Mathematics (UG)

B.Sc., Mathematics

GPO No.	Programme Outcomes
PO1	Demonstrate a computational ability in solving a wide array of mathematical problems.
PO2	Utilize mathematical skills to solve theoretical and applied problems.
PO3	Identify applications of Mathematics in various disciplines and Society.
PO4	Become successful professionals by demonstrating logical and analytical thinking.
PO5	Provide a systematic understanding of the concepts and theories of Mathematics and enhance career prospects in a huge array of fields.
PO6	To make the students with moral and ethical reasoning and to trigger their self confidence to excel their quality of life.
PO7	To explore the new frontiers of knowledge in Mathematics.

Programme Specific Outcomes - Department of Mathematics (UG)

PSO No.	Intended Programme Specific Outcomes
PSO1	Understand the foundations of Mathematics and perform basic computations in higher Mathematics.
PSO2	Apply mathematical ideas to develop problems solving skills.
PSO3	Create, analyze and develop generic skills for their career.

Course Outcome - Department of Mathematics

B.Sc., Mathematics

FIRST SEMESTER

Core – 1   **Calculus (U20MA101)**

CO No.	Course Outcome
CO1	Find the series solutions of radius of curvature, pedal equations
CO2	Demonstrate beta and gamma function, curvature
CO3	Application of maxima and minima, multiple points, p-r Equations
CO4	Analyze the asymptotes, Jacobians
CO5	Evaluate double and triple integrals, change of variables in double and triple integrals

Core – 2   **Classical Algebra (U20MA102)**

CO No.	Course Outcome
CO1	Understand various methods of solving equations
CO2	Analyze the nature of the roots of the equations
CO3	Form different kind of equation using transformation
CO4	Determine the sum of the series and determine approximate value of real root by Newton's method and Horner's method
CO5	Gain knowledge of removal of terms using theorems like Rolle's theorem and Strum's theorem

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Elective- Generic-1   Theory of Equations and Matrices (U20MA1A1)

CO No.	Course Outcome
CO1	Familiar with the concept of Eigen values and Eigen vectors
CO2	Understand the theory of equations, relation between the roots and coefficients, reciprocal equations
CO3	Apply concept of matrices, characteristic equation of a Matrix
CO4	Analyze the properties of Theory of equations, Simultaneous linear equations
CO5	Explain transformation of equations, approximation solutions to equation, Newton's and Horner's method

Elective Generic Lab   Statistics for Physical Sciences (U20MA2AP)

CO No.	Course Outcome
CO1	Apply the data into diagrammatic presentation and graphic representation
CO2	Distinguish between grouped data and ungrouped data
CO3	Understand the concept of measures of central tendency
CO4	Evaluate measures of dispersion
CO5	

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Second Semester

CORE - 3: **Analytical Geometry of Three Dimensions (U20MA203)**

CO No.	Course Outcome
CO1	Find the angle between planes, Length of perpendicular, coplanar lines.
CO2	Demonstrate the direction cosines, the angle between twoplanes, the angle bisectors of two planes.
CO3	Application of Equation of a line in different forms, Sphere, Tangent plane.
CO4	Analyze Shortest distance between two lines, coaxial system of spheres, Radical Planes.
CO5	Evaluate Equation of a cone , cone with vertex at the origin, Tangent plane and normal, Right circular cylinder, enveloping cylinder.

CORE - 4: **Differential Equations (U20MA204)**

CO No.	Course Outcome
CO1	Solvable for x, y, p, linear equations of second order.
CO2	Understand the ordinary differential equation, partial differential equations.
CO3	Application of Lagrange's differential equations.
CO4	Analyze the homogenous equations, Newton's law.
CO5	Evaluate equation reducible for homogenous equations.

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ELECTIVE GENERIC - 2: Vector Calculus(U20MA2A2)

CO No.	Course Outcome
CO1	Find the solution of double and triple integrals, Volume Integrals.
CO2	Understand the divergence and curl, surface.
CO3	Apply concept of green's, stokes and divergences Theorem.
CO4	Analyze the Gradient, Vector algebra.
CO5	Explain vector differentiation, Surface and volume integrals.

Third Semester

Core –05   Sequences and Series (U20MA305)

CO No.	Course Outcome
CO1	define sequences and series and understand these concepts
CO2	demonstrate the behavior of sequence and series
CO3	illustrate the concept of convergence and divergence and analyze some test of convergence and divergence
CO4	evaluate the problems on sequences and series
CO5	create the new sequences using the number series concept

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Core – 06 　　　　　　　　　　**Statistics – I (U20MA306)**

CO No.	Course Outcome
CO1	remember and understand the concepts of Moments, Skewness, Kurtosis, Correlation, Regression, Theory of Attributes, Random variables and some special distribution functions
CO2	calculate Moments, Skewness, Kurtosis, Correlation, Regression, consistency of data. Apply the least square principle for fitting straight lines, theorems on expectations and the properties of some special distribution functions
CO3	analyze Moments, Skewness, Kurtosis, the properties of Correlation and Regression, criteria for independent, theory of attributes, random variables and some special distribution functions
CO4	evaluate the problems in Moments, Skewness, Kurtosis, Correlation, Regression, theory of attributes, random variables and some special distribution functions
CO5	find the solutions in statistical problems using Moments, Skewness, Kurtosis, the properties of Correlation and Regression, theory of attributes, random variables and some special distribution functions

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Elective –Generic- 3(Allied)   **MS Office (U20MA3A3)**

CO No.	Course Outcome
CO1	remember the basic skills and understand the essential information's of MS office
CO2	apply different statistical functions in MS office and demonstrate how to effectively merge e-mails
CO3	analyze various functions in MS office
CO4	evaluate different functions in MS office
CO5	develop skills to using MS office

Elective -Generic Lab(Allied)   **MS Office**   **Lab (U20MA4AP)**

Employability Enhancement: I Mathematics for Competitive Examinations – I (U20MA3EEA)

CO No.	Course Outcome
CO1	remember and understand the basic formulas for ratio and proportion , profit and loss and averages
CO2	apply the knowledge of sequencing and find the figure using quantitative reasoning and Mathematical analysis methodologies to understand and solve problems
CO3	analyze the concept of problems with pipes and cisterns, age problems, Partnership, percentage , profit and loss
CO4	evaluate the problems on pipes and cisterns, profit and loss
CO5	find the solutions towards simplification related problems on average, pipes and cisterns, age problems, Partnership, percentage , proportion , profit and loss

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Employability Enhancement I   Astronomy-I (U20MA3EEB)

CO No.	Course Outcome
CO1	remember and understand the basic concepts of Spherical Trigonometry, The celestial bodies , earth rotation , Geocentric parallax and Kepler's Law
CO2	apply Spherical Trigonometry, The celestial bodies, , earth rotation , Geocentric parallax and Kepler's Law
CO3	analyze the concepts of Spherical Trigonometry, The celestial bodies , earth rotation , Geocentric parallax and Kepler's Law
CO4	determine the solutions using the concepts of Spherical Trigonometry, The celestial bodies , earth rotation , Geocentric parallax and Kepler's Law
CO5	find the solutions using the concepts of Spherical Trigonometry, The celestial bodies , earth rotation , Geocentric parallax and Kepler's Law

Fourth Semester

Core - 07   Abstract Algebra (U20MA407)

CO No.	Course Outcome
CO1	remember and understand the concepts of groups and rings
CO2	apply the theorems on algebra to solve problems
CO3	analyze the concepts of groups, subgroups, group homomorphism and isomorphism, rings, fundamental theorem and division algorithm
CO4	evaluate the problems on groups, subgroups, isomorphism, homomorphism of groups and rings
CO5	develop the abstract skills for studying the groups and rings

Core –08   **Statistics – II (U20MA408)**

CO No.	Course Outcome
CO1	remember and understand the concepts of Index Numbers, Test of significance for the large sample and small sample, Type I and Type II Errors, analysis of variance and statistical quality control
CO2	explain Index Numbers, apply the concept of Null hypothesis and Alternate hypothesis to find the test of significance for the large and small samples, apply one way, two way classification method, Latin square principle. Find Mean chart, Range chart P-chart
CO3	analyze Unit test, Commodity Reversal test, Time Reversal test, circular test, test of significance for large and small samples, analysis of variance using Latin square and analyze the process control and product control, acceptance sampling
CO4	evaluate Index Numbers, test of significance for the large and small samples, analysis of variance, Mean chart, Range chart P-chart, Goodness of fit
CO5	find the index numbers, test of significance for large and small samples using the data. Find the solution for statistical problems using analysis of variance and SQC

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Elective Generic-4 (Allied)   Programming in C (U20MA4A4)

CO No.	Course Outcome
CO1	remember and understand commands and operators of C language
CO2	Apply C declarations, Operators and Expressions, Managing inputs and output operations, arrays and user – defined functions to solve the problems in mathematical sciences
CO3	Analyze mathematical problems using C operators and arrays
CO4	evaluate the mathematical problems using the concepts of C programming
CO5	develop knowledge about textual information, Characters and Strings

Elective Generic Lab-2   M S Office & C Programming Lab (U20MA4AP)

CO No.	Course Outcome
CO1	find methods to promote inclusion of women in development of all sectors
CO2	demonstrate how gender has been socially constructed and maintained through a variety of institutions
CO3	apply concepts and theories of Women's Studies to life experiences and processes
CO4	analyze socio-political systems and contemporary issues from feminist perspective
CO5	evaluate the extent to which women can contribute to preservation of environment and natural resources