BA / BSc / BCom - Program Outcomes

On completion of undergraduate programme, the student is expected to achieve the following programme outcomes

PO1	Knowledge (Remembering)	• Demonstrate basic factual and procedural knowledge in the chosen field of study. • Recall and recognize key concepts, terms, and theories. • Summarize and explain fundamental principles and historical developments.
PO2	Comprehension (Understanding)	• Interpret and explain the significance of information and concepts. • Translate complex ideas into simpler terms for understanding. • Compare and contrast different theories or viewpoints within the discipline.
PO3	Application (Applying)	• Apply theoretical knowledge to practical situations or real-world problems. • Use appropriate methods and techniques to solve discipline-specific problems. • Demonstrate the ability to implement concepts in hands-on experiences or internships.
PO4	Analysis (Analyzing):	• Break down complex issues into their component parts. • Identify patterns, relationships, and causes within the discipline. • Evaluate the validity of arguments and evidence.
PO5	Synthesis (Creating)	• Integrate knowledge from various sources to develop innovative solutions. • Design and create original projects, research, or products. • Generate new ideas, hypotheses, or theories within the field.
PO6	Evaluation (Evaluating)	• Assess the quality and reliability of information and data. • Critically evaluate the strengths and weaknesses of different approaches. • Make informed judgments and recommendations based on evidence.

B.Sc Mathematics - Programme Specific Outcome (PSO)

On completion of undergraduate programme, the student is expected to achieve the following programme specific outcomes:

PSO1	Think in a critical manner.
PSO2	Formulate and develop mathematical arguments in a logical manner.
PSO3	Student should get adequate exposure to global and local concerns that explore them many aspects of mathematical sciences.
PSO4	Student should be able to apply their skills and knowledge that is translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion.
PSO5	Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.

BSc Mathematics Course Outcomes (CO)

BSc Botany - Course Outcomes (CO)

Semester	Course Code	Course Title	Course Outcome Code	Course Outcome
Sem I	CC-1	Analytic Geometry 2D, Higher Algebra & Trigonometry	CO1	To study the transformations like rotation and translation of objects in 2D and their geometrical significance.
			CO2	To learn analytical geometry of 2D which include study of conics.
			CO3	Student gets the knowledge about fundamental concepts of Mathematics such as set theory and number theory
			CO4	Students will get the knowledge in the area De-Moivre's theorem, trigonometric function, hyperbolic function.
			CO5	Students will get the knowledge in the area inverse circular and hyperbolic function, logarithmic of a complex quantity Gregory's series.
	CC-2	Differential Calculus & Vector Calculus	CO1	to understand differentiation and fundamental theorem in differentiation and various rules.
			CO2	Finding extreme values of function.
			CO3	Vector calculus motivates the study of vector differentiation and integration in two and three dimensional spaces.
			CO4	To understand the applications of vector algebra to geometry and mechanics, concurrent forces in a plane, theory of couples, system of parallel forces.
			CO5	Geometrical representation and problem solving on MVT and Rolls theorem.
Sem II	CC-3	Analysis I	CO1	Recognize bounded, convergent, divergent, Cauchy and monotonic sequences and to calculate their limit superior,

				limit inferior, and the limit of a bounded sequence.
			CO2	Use the ratio, root, alternating series and limit comparison tests for convergence and absolute convergence of an infinite series of real numbers.
			CO3	To study concept of sequence and series and hence find sum of infinite terms with different methods.
			CO4	To study notion of lub and glb which helps to learn integrations which helps to find area under any functions.
			CO5	To learn basic properties of real numbers and its subsets which is backbone of Real Analysis.
	CC-4	Integral Calculus & Analytic Geometry 3D	CO1	Students acquired knowledge of integral calculus and applied it on various fields of science.
			CO2	They understand about basic idea of integration of functions.
			CO3	Get the basic ideas and properties of planes, lines and sphers.
			CO4	Express the problem geometrically and then to get the solution.
			CO5	They will be able to understand basic three-dimensional objects like plane, sphere and different type equations of these objects.
Sem III	CC-5	Theory of Real Functions	CO1	To study functions in detail which is a fundamental structure in all sciences, and to be able to check continuity of a function.
			CO2	To learn all the properties of real numbers and all the basic mathematical concepts about the real number set like continuity , differentiability
			CO3	By studying all basic about real numbers, the students can able to apply those concepts in higher mathematics.
			CO4	To learn Riemann Integral and its properties in detail, leading to fundamental theorem of calculus and Mean value theorems.
			CO5	To understand application of Mean value theorems.
	CC-6	Group Theory & Matrices	CO1	To learn fundamental properties and mathematical tools such as closure, identity, inverse and generators.
			CO2	To study algebraic structure ‘Groups’ in detail which is useful in study of Rings, Modules, Algebraic topology, Analysis
			CO3	To enhance abstract thinking of students.
			CO4	To learn to compare two different algebraic structures and study transfer of properties in-between these structures through homomorphism and isomorphism
			CO5	To learn basic matrix algebra and method to find solutions to system of linear equations. Also to learn eigen values and eigenvectors of matrix.
	CC-7	Differential Equations	CO1	To learn methods to solve higher order linear differential equation both homogeneous and non-homogeneous with constant coefficient.
			CO2	To learn the application of ordinary differential equation in geometrical and mechanical problems through method to find Orthogonal Trajectories.
			CO3	Understand the concept and apply appropriate methods for

				solving differential equation.
			CO4	To apply notion of derivative in mean value theorem and also in higher order derivatives which arise in all applied sciences
			CO5	Learn methods to solve first order Partial Differential Equations
Sem IV	CC-8	Analysis II	CO1	To study different tests for solving improper integrals of first and second kind.
			CO2	Understand Integrability and theorems on integrability. Recognize the difference between point wise and uniform convergence of a sequence of functions.
			CO3	Illustrate the effect of uniform convergence on the limit function with respect to continuity, differentiability and integrability.
			CO4	Study improper integration using Riemann integration.
			CO5	To analyze convergence and divergence of improper integrals through different tests.
	CC-9	Mechanics I	CO1	To understand about static forces and its resolution.
			CO2	To understand about equilibrium of forces.
			CO3	To apply the knowledge of friction, Centre of gravity, virtual work in real life situation.
			CO4	To understand about Stable and unstable equilibrium position.
			CO5	To apply the knowledge of forces in three dimensions.
	CC-10	Ring Theory	CO1	The fundamental concept of Rings, Fields, subrings, integral domains and the corresponding morphisms.
			CO2	To study the algebraic structure Ring in detail through various examples.
			CO3	The course will enable the students to learn about
			CO4	Learn in detail about polynomial rings fundamental properties of finite field extensions and classification of finite fields.
			CO5	Appreciate the significance of unique factorization in rings and integral domains.
Sem V	CC-11	Analysis III {Metric Space & Complex Analysis)	CO1	To equip students with basic mathematical tools such as open & close sets, continuity, connectedness, compactness which can be used to study general topology and real & complex analysis.
			CO2	To enhance abstract thinking and visualization of students.
			CO3	To learn basic algebraic properties of complex numbers and limit and continuity of Complex functions.
			CO4	To learn tools which are useful in finding integration of Complex valued functions.
			CO5	To increase problem solving ability by solving examples and counter-examples of various concepts involved.
	CC-12	Linear Algebra	CO1	To learn the importance of linear transformation in Physics, Engineering, Social sciences and various branches of Mathematics.
			CO2	To learn to find Eigen values and Eigen vectors of a matrix which is used in the study of vibrations, chemical reactions and geometry.
			CO3	To learn Inner Product spaces and Gram-Schmidt process

				of orthogonalization.
			CO4	Know the basic terminology of linear algebra in Euclidean spaces, including linear independence, spanning, basis, rank, nullity, subspace, and linear transformation.
			CO5	To learn the importance of linear transformation in Physics, Engineering, Social sciences and various branches of Mathematics.
	DSC-1	Number Theory	CO1	Students learn the properties of the set of integers in detail.
			CO2	Students can find integer solutions to the system of equations which arises in real life problems.
			CO3	Students study various theorems on primes and also learn congruence which are used in cryptography.
			CO4	Students will gain the knowledge about g.c.d, l.c.m., fundamental theorem of arithmetic, linear congruence, Fermat's theorem, Wilson's theorem.
			CO5	Students will gain the knowledge about the area complete residue system, Euler's theorem, Fermat's theorem, Chinese remainder theorem, gauss lemma
	DSC-2	Probability and Statistics	CO1	Students will be able to analyze the raw data.
			CO2	Define probability density function, probability distribution • Derive mathematical expectation, binomial, poisson, normal distribution
			CO3	Solve the problems of large samples and small samples
			CO4	They will understand different type of distributions such as Normal, Binomial, Poisson.
			CO5	Students learnt applications of Probability and statistics in Economics, Psychology, Education and Geography.
Sem VI	CC-13	Mechanics II	CO1	Basic terminologies of Dynamics.
			CO2	They will understand about Stable and unstable equilibrium position.
			CO3	Students will be able to apply the knowledge of forces in three dimensions.
			CO4	Be proficient in the use of mathematical methods to analyze the forces and motion a system.
			CO5	Be able to identify, formulate, and solve science and engineering problems.
	CC-14	Numerical Analysis	CO1	To learn to apply the various numerical techniques for solving real life problems.
			CO2	Solve problems using Newton forward formula and Newton backward formula.
			CO3	The problems which cannot be solved by usual formulae and methods can be solved approximately by using numerical techniques.
			CO4	To fit curve to the data by using 5 different methods of interpolation as well as extrapolation.
			CO5	To find approximate solutions to difficult differential equations occurring in engineering sciences.
	DSC-3	Linear Programming	CO1	Students were able to analyze the significance of approximation in day to day calculations.
			CO2	Students understood LPP in business management

				approach
			CO3	Student will understand about formulation of Linear Programming problem and its graphical solution.
			CO4	They will analyze the basic property of convex and concave functions. CO 03: Student will understand about solution of Linear programming problem by Simplex method. CO 04: They will apply the big M- Technique, The two-phase method, Principle of duality in linear programming problem.
			CO5	Student will be able to solve Transportation and Assignment problems.
	DSC-4	Fluid Mechanics	CO1	Identify how to derive basic equations and know the related assumptions.
			CO2	Describe the principles of motion for fluids.
			CO3	Use Euler's and Bernoulli's equations and the conservation of mass to determine velocities, pressure and accelerations for incompressible and in viscid fluids.
			CO4	Study analytical solutions to variety of simplified problems.
			CO5	Grasp the basic ideas of dimensional flows and fluid flows.