

GOVT. SHIVALIK COLLEGE NAYA NANGAL

Department of Mathematics

COURSE OUTCOME

SESSION (2022-2023)

CODE:-

Programme :- B. Sc. MATHEMATICS

Mathematical Knowledge

Familiarize the students with suitable tools of mathematical analysis to handle issues and problems in mathematics and related sciences. A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations , terminology.

Problem Solving Skills

This programme also offers training in problem solving skills.

Analytical & Logical thinking:-

Students 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.

COURSE SPECIFIC OUTCOME

B.Sc. 1st Semester

S. No.	Course	Outcome Semester I
1.	CACULUS I	<ul style="list-style-type: none">To apply notion of derivative in mean value theorem and also in higher order derivatives which arise in all applied sciences.To study functions in detail which is a fundamental structure in all sciences, and to be able to check continuity of a function
2.	DIFFERENTIAL EQUATIONS	<ul style="list-style-type: none">To be able to solve first order and first degree differential equations.Learn various techniques of getting exact solution of solvable first order differential equations and linear differential equations of higher order. To learn methods for solving non homogenous equation .
3.	LINEAR ALGEBRA	<ul style="list-style-type: none">To learn to find Eigen values and Eigen vectors of a matrix which is used in the study of vibrations, chemical reactions and geometry.Understand the concept of vector spaces ,sub spaces, bases, dimension and their properties .

B.Sc. 2nd Semester

S. No.	Course	Outcome Semester II
1.	CACULUS II	<ul style="list-style-type: none">To learn evaluation of double and triple integration and its application to area and volume.To learn evaluation of double and triple integration and its application to area and volume.To find extreme values of multivariable functions using derivatives.
2.	PARTIAL DIFFERENTIAL EQUATIONS	<ul style="list-style-type: none">Power series solution method using ordinary and singular points.To understand the concept of Ordinary differential Equations in more than two variables.Learn methods to solve first order Partial Differential Equations.
3.	ANAYLTIC GEOMETRY	<ul style="list-style-type: none">Relate matrices and linear transformation; compute Eigen values and Eigen vectors of linear transformation.To learn analytical geometry of 2 and 3 dimensions which include study of conics, planes, lines, sphere, cone and cylinder.

B.Sc. 3rd Semester

S. No.	Course	Outcome Semester III
1.	ANALYSIS I	<ul style="list-style-type: none">• To study concept of sequence and series and hence find sum of infinite terms with different methods.• To study notion of lub and glb which helps to learn integrations which helps to find area under any functions
2.	NUMERICAL METHODS	<ul style="list-style-type: none">• Students can find divided difference ,forward , backward formula .• Students study various methods on bisection , regula falsi ,secant methods
3.	MECHANICS	<ul style="list-style-type: none">• Statics: friction, work and energy, virtual work,• Dynamics: conservation of linear momentum, angular momentum and energy, variable mass systems, dynamic equilibrium.

B.Sc. 4th Semester

S. No.	Course	Outcome Semester IV
1.	ANALYSIS II	<ul style="list-style-type: none">• To learn Riemann Integral and its properties in detail, leading to fundamental theorem of calculus and Mean value theorems.• To study pointwise and uniform convergence of sequences and series of functions.
2.	LINEAR PROGRAMMING	<ul style="list-style-type: none">• Understand the theory of the simplex method. And know about the relationships between the primal and dual problems, and to understand sensitivity analysis.• Learn about the applications to transportation, assignment and two-person zero-sum game problems.
3.	DYNAMICS	<ul style="list-style-type: none">• Understand the kinds of motion, absolute and relative velocities and accelerations.• Learn about concurrent forces ,Lami's theorem ,centre of gravity.

B.Sc. 5th Semester

S. No.	Course	Outcome Semester V
1.	MATHEMATICAL METHODS I	<ul style="list-style-type: none">• To learn to evaluate the Fourier series of various even and odd functions.• To learn the evaluation of Laplace transform of different types of functions, their derivatives and integrations
2.	ABSTRACT ALGEBRA	<ul style="list-style-type: none">• Understand the basic concepts of group actions and their applications.• Recognize and use the Sylow theorems to characterize certain finite groups.• Know the fundamental concepts in ring theory such as the concepts of ideals, quotient rings, integral domains, and fields
3.	DISCRETE MATHEMATICS I	<ul style="list-style-type: none">• Learn about partially ordered sets, lattices and their types.• Understand Boolean algebra and Boolean functions, logic gates, switching circuits and their applications

B.Sc. 6th Semester

S. No.	Course	Outcome Semester VI
1.	MATHEMATICAL METHODS II	<ul style="list-style-type: none">• To learn the evaluation of Inverse Laplace transform of functions, their derivatives and integrations, and to learn application of Convolution theorem.• To learn to apply Laplace Transform to solve Ordinary Differential equations with constant coefficients.
2.	ALGEBRA II	<ul style="list-style-type: none">• Learn in detail about polynomial rings, fundamental• properties of finite field extensions, and classification of finite fields.
3.	OPTIMIZATION TECHNIQUES	<ul style="list-style-type: none">• To learn about effective approach to achieve a best solution where a single objective is maximized or minimized.• To learn about how to achieve best design relative to a set of prioritized.