GOVT SHIVALIK COLLEGE NAYA NANGAL

TEACHING PLAN (SESSION 21-22)

SUBJECT-MATHEMATICS

PAPER-DIFFERTIAL EQUATIONS/LINEAR ALGEBRA

TEACHER NAME -   PRIYA WADHWA

Class- B.Sc. I   Sem-I

Sr.no	Date	Subject Matter
1	25/08/2021-1/09/2021	DIFFRENTIAL EQUATIONS: First order differential equations **:** Order and degree of a differential equation, Separable differential equations
2	2/09/2021 10/09/2021	Homogeneous differential equations, equations reducible to Homogenous differential equations , Exact differential equations
3	11/092021-30/09/2021	Linear differential equations and equations reducible to linear differential equations. Higher order differential equations **:** Wronskian,
4	1/10/2021-10/10/2021	Solution of Linear homogeneous and non-homogeneous differential equations of higher order with constant coefficients and with variable coefficients, Method of Variation of Parameters.
5	11/10/2021-22/10/2021	Higher order differential equations **:** Differential operator method, Linear non-homogeneous differential equations with variable coefficients
6	23/10/2021-31/10/2021	Euler's Cauchy method. Frobenius method, Regular point, ordinary point**,** Power Series method.
7	1/11/2021-10/11/2021	Bessel and Legendre Equations, Legendre and Bessel functions and their properties , recurrence relations, orthogonality, Rodriguge formulae. MST WILL BE HELD
8	11/11/2021-20/11/2021	LINEAR ALGEBRA: Vector spaces, Examples, Linear Dependence, Linear Combinations Bases and Dimension, Subspaces, Linear transformation.
9	21/11/2021-30/11/2021	Algebra of linear transformations, Matrices as linear transformations, Matrices and change of basis, Kernel and image

GOVT SHIVALIK COLLEGE NAYA NANGAL

TEACHING PLAN (SESSION 21-22)

SUBJECT-MATHEMATICS

PAPER-PARTIAL DIFFRENTIAL EQUATIONS/ANALYTIC GEOMETRY

TEACHER NAME   -   PRIYA WADHWA

CLASS B.Sc. I   Sem-II

Sr.no	Date	Subject Matter
1	20/3/2022-25/03/2022	Partial differential equations **:** Partial differential equation of first order, Lagrange's solution,, Integral surfaces passing through a given curve.
2	26/03/2022-31/03/2022	surfaces orthogonal to a given system of surfaces, Partial differential equation of first order but of any degree , Charpit's general method of solution.
3	01/04/2022-07/04/2022	Partial differential equations of second and higher order **:** Partial differential equations of the second order and their classification into hyperbolic,elliptic and parabolic types,canonical forms.
4	08/04/2022-15/04/2022	Homogeneous and non-homogeneous partial differential equations with constant coefficients.
5	16/04/2022-25/04/2022	One dimension Wave and Heat equations.
6	26/04/2022-30/04/2022	Two dimensional Laplace equation by separation of variable method and D'Alembert's solution of wave equation.
7	01/05/2022-07/05/2022	Sphere**:** Section of a sphere by a plane. sphere through a given circle. Intersection of a line and sphere, tangent line, tangent plane, angle of intersection of two spheres and condition of orthogonality. MST WILL BE HELD
8	08/05/2022-15/05/2022	Cone**:** general second degree equation of a cone, its intersection with a plane and with a line, enveloping cone, right circular cone, the cone $ax^2 + by^2 + cz^2 = 0$
9	16/05/2022-31/05/2022	Cylinder**:** enveloping cylinder, right circular cylinder

GOVT SHIVALIK COLLEGE NAYA NANGAL

TEACHING PLAN (SESSION 21-22)

SUBJECT-MATHEMATICS   PAPER-ANALYSIS I/MECHANICS

TEACHER NAME   -   PRIYA WADHWA

CLASS- B.Sc- II   SEM - 03

Sr.no	Date	Subject Matter
1	25/08/2021-1/09/2021	ANALYSIS :Sequence: Definition of a sequence, Bounded and Monotonic sequences, Convergent sequence, Cauchy sequences, Cauchy's Convergence Criterion.
2	02/09/2021-10/09/2021	Infinite Series: Definition of a series, Tests of convergence, Comparison test.
3	11/09/2021-30/09/2021	Logarithmic test, Gauss test, Cauchy's root test, Alternating series.Cauchy's integral Ratio test, condensation test, Raabe's test.
4	1/10/2021-10/10/2021	Leibnitz's test. Absolute convergence and conditional convergence. Weierstrass M-Test for Uniform convergence of sequence of functions and series of functions.
5	11/10/2021-22/10/2021	Simple applications. Determination of Radius of convergence of power series.
6	23/10/2021-31/10/2021	Improper integrals: Definition, statements of their conditions of existence. Test of the convergence of improper integral, beta and gamma functions and their convergence. Abel's and Dirichlet's tests.
7	1/11/2021-10/11/2021	Motion of a particle with constant acceleration, acceleration of falling bodies, motion under gravity, MST WILL BE HELD
8	11/11/2021-20/11/2021	Motion of a body projected vertically upward, motion of a two particles connected by a string, motion along a smooth inclined plane.
9	21/11/2021-30/11/2021	constrained motion along a smooth inclined plane. Variable acceleration, Simple harmonic motion, Projectile.

GOVT SHIVALIK COLLEGE NAYA NANGAL

TEACHING PLAN (Session- 2021-22)

SUBJECT-MATHEMATICS   PAPER-ANALYSIS/NUMBERTHEORY

Teacher Name – Priya Wadhwa

Class- B.sc- II   Sem-04

Sr.no	Date	Subject Matter
1	20/3/2022-25/03/2022	ANALYSIS: Functions of bounded Variation and Rectifiable Curves: Properties of Monotonic Functions, Functions of Bounded Variation. Total variation, Additive property of total variation, Total Variation on [a, x] as a function of x.
2	26/03/2022-31/03/2022	functions of bounded variation expressed as the difference of increasing functions, continuous functions of bounded variation, rectifiable curves and arc length.
3	01/04/2022-07/04/2022	Additive and continuity Property of Arc Length Equivalence of Paths and Change of Parameter.
4	08/04/2022-15/04/2022	The Riemann-Stieltjes integrals: Definition, elementary properties, integration by parts, change of variable, reduction to Riemann integral.
5	16/04/2022-25/04/2022	step functions as integrators. Reduction ofThe Riemann-Stieltjes integrals: Definition, elementary properties, integration by parts, change of variable, reduction to Riemann integral, step functions as integrators.
6	26/04/2022-30/04/2022	Reduction of Riemann's condition,comparison theorem ,integrators of bounded variation, mean value theorems for Riemann integrals.
7	01/052022-07/05/2022	Application to cryptography, primitive roots. MST WILL BE HELD
8	08/05/2022-15/05/2022	indices, quadratic residues, Legendre Symbol, Euler's criterion.
9	16/05/2022-31/05/2022	Gauss Lemma., Quadratic reciprocity Law, Jacobi Symbol. Arithmetic functions (n), d(n), (n), a(n), Mobius inversion Formula.

GOVT SHIVALIK COLLEGE NAYA NANGAL

TEACHING PLAN (SESSION 21-22)

SUBJECT-MATHEMATICS   PAPER-ALGEBRA/DISCREATE MATHEMATICS

TEACHER NAME   PRIYA WADHWA

CLASS B.Sc III   Sem-05

Sr.no	Date	Subject Matter
1	28/08/2021-1/09/2021	ALGEBRA: Group: definition, examples, subgroups, counting Principle, Langrange's theorem
2	02/09/2021-10/09/2021	Normal subgroups, Quotient groups, Homomorphisms.
3	11/092021-30/09/2021	Fundamental theorem of homomorphism and related theorems. Cyclic Groups.
4	1/10/2021-10/10/2021	Rings: Definition and examples of Rings, Elementary properties of Rings.
5	11/10/2021-2/10/2021	Sub-rings, Homomorphism, ideals and Quotient Rings
6	21/10/2021 30/10/2021	Field of Quotient of Integral domain,division rings
7	1/11/2021-10/11/2021	Euclidean Rings, Principal ideals, examples. Discrete Mathematics : Graphs and Planar Graphs-Basic Terminology. MST WILL BE HELD
8	11/11/2021-20/11/2021	Multigraphs. Weighted Graphs. Paths and Circuits Shortest paths. Eulerian Paths and Circuits. Travelling Salesman Problem.
9	21/11/2021-30/11/2021	Definition and Examples of Finite State Machines-Equivalent Machines and Finite State Machines as Language Recognizers.

GOVT SHIVALIK COLLEGE NAYA NANGAL

TEACHING PLAN (SESSION 21-22)

SUBJECT-MATHEMATICS

PAPER-ALGEBRAII/DISCREATE MATHEMATICS II

TEACHER NAME   PRIYA WADHWA

CLASS B.Sc III   Sem-06

Sr.no	Date	Subject Matter
1	20/3/2022-25/03/2022	ALGEBRA: Vector spaces, Examples, Linear Dependence, Linear Combinations.
2	26/01/2022-31/03/2022	Bases and Dimension, Subspaces, Quotient spaces , Direct Sum of vector spaces.
3	01/04/2022-07/04/2022	Direct Sum of vector spaces, Dimension of a direct sum, Dual of a vector space.
4	08/04/2022-15/04/2022	Matrices and change of basis. Linear transformation, Algebra of linear transformations.
5	16/04/2022-25/04/2022	Matrices as linear mappings, Kernal and image, Rank and Nullity theorem, Singular and non-singular linear mappings.
6	26/04/2022-30/04/2022	Isomorphism, Composition of linear mappings, Polynomials and linear operators.
7	01/05/2022-07/05/2022	Square matrices as linear operators, matrix representation of a linear operator, Change of basis. characteristic and minimal polynomial for linear operator. MST WILL BE HELD
8	08/05/2022-15/05/2022	Discrete Mathematics : Brief review of Groups and Rings. Boolean AIgebras-Lattices and Algebraic Structures. Duality. Distributive and Complemented Lattices.
9	16/05/2022-31/05/2022	Boolean Lattices and Boolean Algebras. Boolean Functions and Expressions. Prepositional Calculus. Design and Implementation of Digital Networks. Switching circuit.