**Govt. College for Women Lakhan Majra, Rohtak**

**Lesson Plan (Odd Semester 2023-24)**

**Name of Assistant Professor – Mr. Vijender**

**Class: - B.Sc./ B.A. 1st  Semester**

**Subject - Mathematics**

**Paper – Calculus**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | Week 1-4 | Definition of the limit of a function. Basic properties of limits, Continuous functions and classification of discontinuities. Differentiability. Successive differentiation. Leibnitz theorem. Maclaurin and Taylor series expansions. |
| 2. | Week 5-8 | Asymptotes in Cartesian coordinates, intersection of curve and its asymptotes, asymptotes in polar coordinates. Curvature, radius of curvature for Cartesian curves, parametric curves, polar curves. Newton’s method. Radius of curvature for pedal curves. Tangential polar equations. Centre of curvature. Circle of curvature. Chord of curvature, evolutes. Tests for concavity and convexity. Points of inflexion. Multiple points. Cusps, nodes & conjugate points. Type of cusps |
| 3. | Week 9-12 | Tracing of curves in Cartesian, parametric and polar co-ordinates. Reduction formulae. Rectification, intrinsic equations of curve. |
| 4. | Week 13-16 | Quardrature (area)Sectorial area. Area bounded by closed curves. Volumes and surfaces of solids of revolution. Theorems of Pappu’s and Guilden. |

**Govt. College for Women Lakhan Majra, Rohtak**

**Lesson Plan (Odd Semester 2023-24)**

**Name of Assistant Professor - Dr. Neelam**

**Class: - B.Sc./ B.A. 1st Semester**

**Subject - Mathematics**

**Paper – Algebra**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | Week 1-4 | Symmetric, Skew-symmetric, Hermitian and skew Hermitian matrices. Elementary Operations on matrices. Rank of a matrices. Inverse of a matrix. Linear dependence and independence of rows and columns of matrices. Row rank and column rank of a matrix. Eigenvalues, eigenvectors and the characteristic equation of a matrix. Minimal polynomial of a matrix. Cayley Hamilton theorem and its use in finding the inverse of a matrix. |
| 2. | Week 5-8 | Applications of matrices to a system of linear (both homogeneous and non– homogeneous) equations. Theorems on consistency of a system of linear equations. Unitary and Orthogonal Matrices, Bilinear and Quadratic forms. |
| 3. | Week 9-12 | Relations between the roots and coefficients of general polynomial equation in one variable. Solutions of polynomial equations having conditions on roots. Common roots and multiple roots. Transformation of equations. |
| 4. | Week 13-16 | Nature of the roots of an equation Descarte’s rule of signs. Solutions of cubic equations (Cardon’s method). Biquadratic equations and their solutions. |

**Govt. College for Women Lakhan Majra, Rohtak**

**Lesson Plan (Odd Semester 2023-24)**

**Name of Assistant Professor - Dr. Pradeep Maan**

**Class: - B.Sc./ B.A. 1st Semester**

**Subject - Mathematics**

**Paper - Solid Geometry**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | Week 1-4 | General equation of second degree. Tracing of conics. Tangent at any point to the conic, chord of contact, pole of line to the conic, director circle of conic. System of conics. Confocal conics. Polar equation of a conic, tangent and normal to the conic. |
| 2. | Week 5-8 | Sphere: Plane section of a sphere. Sphere through a given circle. Intersection of two spheres, radical plane of two spheres. Co-oxal system of spheres Cones. Right circular cone, enveloping cone and reciprocal cone. Cylinder: Right circular cylinder and enveloping cylinder. |
| 3. | Week 9-12 | Central Conicoids: Equation of tangent plane. Director sphere. Normal to the conicoids. Polar plane of a point. Enveloping cone of a coincoid. Enveloping cylinder of a coincoid. |
| 4. | Week 13-16 | Paraboloids: Circular section, Plane sections of conicoids. Generating lines. Confocal conicoid. Reduction of second degree equations. |

**Govt. College for Women Lakhan Majra, Rohtak**

**Lesson Plan (Odd Semester 2023-24)**

**Name of Assistant Professor – Mr. Vijender**

**Class: - B.Sc./ B.A. 3rd Semester**

**Subject - Mathematics**

**Paper – Advanced Calculus**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | Week 1-4 | Continuity, Sequential Continuity, properties of continuous functions, Uniform continuity, chain rule of differentiability. Mean value theorems; Rolle’s Theorem and Lagrange’s mean value theorem and their geometrical interpretations. Taylor’s Theorem with various forms of remainders, Darboux intermediate value theorem for derivatives, Indeterminate forms. |
| 2. | Week 5-8 | Limit and continuity of real valued functions of two variables. Partial differentiation. Total Differentials; Composite functions & implicit functions. Change of variables. Homogenous functions & Euler’s theorem on homogeneous functions. Taylor’s theorem for functions of two variables. |
| 3. | Week 9-12 | Differentiability of real valued functions of two variables. Schwarz and Young’s theorem. Implicit function theorem. Maxima, Minima and saddle points of two variables. Lagrange’s method of multipliers. |
| 4. | Week 13-16 | Curves: Tangents, Principal normals, Binormals, Serret-Frenet formulae. Locus of the centre of curvature, Spherical curvature, Locus of centre of Spherical curvature, Involutes, evolutes, Bertrand Curves. Surfaces: Tangent planes, one parameter family of surfaces, Envelopes. |

**Govt. College for Women Lakhan Majra, Rohtak**

**Lesson Plan (Odd Semester 2023-24)**

**Name of Assistant Professor - Dr. Pradeep Maan**

**Class: - B.Sc./ B.A. 3rd Semester**

**Subject - Mathematics**

**Paper – Statics**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | Week 1-4 | Composition and resolution of forces. Parallel forces. Moments and Couples. |
| 2. | Week 5-8 | Analytical conditions of equilibrium of coplanar forces. Friction. Centre of Gravity. |
| 3. | Week 9-12 | Virtual work. Forces in three dimensions. Poinsots central axis. |
| 4. | Week 13-16 | Wrenches. Null lines and planes. Stable and unstable equilibrium |

**Govt. College for Women Lakhan Majra, Rohtak**

**Lesson Plan (Odd Semester 2023-24)**

**Name of Assistant Professor - Dr. Neelam**

**Class: - B.Sc./ B.A. 3rd Semester**

**Subject - Mathematics**

**Paper – Partial Differential Equations**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | Week 1-4 | Partial differential equations: Formation, order and degree, Linear and Non-Linear Partial differential equations of the first order: Complete solution, singular solution, General solution, Solution of Lagrange’s linear equations, Charpit’s general method of solution. Compatible systems of first order equations, Jacobi’s method. |
| 2. | Week 5-8 | Linear partial differential equations of second and higher orders, Linear and non-linear homogenious and non-homogenious equations with constant co-efficients, Partial differential eqution with variable co-efficients reducible to equations with constant coefficients, their complimentary functions and particular Integrals, Equations reducible to linear equations with constant co-efficients. |
| 3. | Week 9-12 | Classification of linear partial differential equations of second order, Hyperbolic, parabolic and elliptic types, Reduction of second order linear partial differential equations to Canonical (Normal) forms and their solutions, Solution of linear hyperbolic equations, Monge’s method for partial differential equations of second order. |
| 4. | Week 13-16 | Cauchy’s problem for second order partial differential equations, Characteristic equations and characteristic curves of second order partial differential equation, Method of separation of variables: Solution of Laplace’s equation, Wave equation (one and two dimensions), Diffusion (Heat) equation (one and two dimension) in Cartesian Coordinate system. |

**Lesson Plan (Odd Semester 2023-24)**

**Name of Assistant Professor - Mr. Vijender**

**Class: - B.Sc./ B.A. 5th Semester**

**Subject - Mathematics**

**Paper – Real Analysis**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | Week 1-4 | Riemann integral, Integrabililty of continuous and monotonic functions, The Fundamental theorem of integral calculus. Mean value theorems of integral calculus. |
| 2. | Week 5-8 | Improper integrals and their convergence, Comparison tests, Abel’s and Dirichlet’s tests, Frullani’s integral, Integral as a function of a parameter. Continuity, Differentiability and integrability of an integral of a function of a parameter. |
| 3. | Week 9-12 | Definition and examples of metric spaces, neighborhoods, limit points, interior points, open and closed sets, closure and interior, boundary points, subspace of a metric space, equivalent metrics, Cauchy sequences, completeness, Cantor’s intersection theorem, Baire’s category theorem, contraction Principle |
| 4. | Week 13-16 | Continuous functions, uniform continuity, compactness for metric spaces, sequential compactness, Bolzano-Weierstrass property, total boundedness, finite intersection property, continuity in relation with compactness, connectedness , components, continuity in relation with connectedness. |

**Lesson Plan (Odd Semester 2023-24)**

**Name of Assistant Professor - Dr. Neelam**

**Class: - B.Sc./ B.A. 5th Semester**

**Subject - Mathematics**

**Paper – Numerical Analysis**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | Week 1-4 | Finite Differences operators and their relations. Finding the missing terms and effect of error in a difference tabular values, Interpolation with equal intervals: Newton’s forward and Newton’s backward interpolation formulae. Interpolation with unequal intervals: Newton’s divided difference, Lagrange’s Interpolation formulae, Hermite Formula. |
| 2. | Week 5-8 | Central Differences: Gauss forward and Gauss’s backward interpolation formulae, Sterling, Bessel Formula. Probability distribution of random variables, Binomial distribution, Poisson’s distribution, Normal distribution: Mean, Variance and Fitting. |
| 3. | Week 9-12 | Numerical Differentiation: Derivative of a function using interpolation formulae as studied in Sections –I & II. Eigen Value Problems: Power method, Jacobi’s method, Given’s method, HouseHolder’s method, QR method, Lanczos method. |
| 4. | Week 13-16 | Numerical Integration: Newton-Cote’s Quadrature formula, Trapezoidal rule, Simpson’s one- third and three-eighth rule, Chebychev formula, Gauss Quadrature formula. Numerical solution of ordinary differential equations: Single step methodsPicard’s method. Taylor’s series method, Euler’s method, Runge-Kutta Methods. Multiple step methods; Predictor-corrector method, Modified Euler’s method, Milne-Simpson’s method. |

**Lesson Plan (Odd Semester 2023-24)**

**Name of Assistant Professor - Dr. Pradeep Maan**

**Class: - B.Sc./ B.A. 5th Semester**

**Subject - Mathematics**

**Paper – Groups and Rings**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | Week 1-4 | Definition of a group with example and simple properties of groups, Subgroups and Subgroup criteria, Generation of groups, cyclic groups, Cosets, Left and right cosets, Index of a sub-group Coset decomposition, Largrage’s theorem and its consequences, Normal subgroups, Quotient groups, |
| 2. | Week 5-8 | Homoomorphisms, isomophisms, automorphisms and inner automorphisms of a group. Automorphisms of cyclic groups, Permutations groups. Even and odd permutations. Alternating groups, Cayley’s theorem, Center of a group and derived group of a group. |
| 3. | Week 9-12 | Introduction to rings, subrings, integral domains and fields, Characteristics of a ring. Ring homomorphisms, ideals (principle, prime and Maximal) and Quotient rings, Field of quotients of an integral domain. |
| 4. | Week 13-16 | Euclidean rings, Polynomial rings, Polynomials over the rational field, The Eisenstein’s criterion, Polynomial rings over commutative rings, Unique factorization domain, R unique factorization domain implies so is R[X1 , X2,……Xn] |

**Govt. College for Women Lakhan Majra, Rohtak**

**Lesson Plan (Even Semester 2023-24)**

**Name of Assistant Professor – Mr. Vijender**

**Class: - B.Sc./ B.A. 2nd Semester**

**Subject - Mathematics**

**Paper – Number Theory and Trignometry**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | January 2024 | Divisibility, G.C.D.(greatest common divisors), L.C.M.(least common multiple) Primes, Fundamental Theorem of Arithmetic. Linear Congruences, Fermat’s theorem. Wilson’s theorem and its converse. Linear Diophanatine equations in two variables. |
| 2. | February 2024 | Complete residue system and reduced residue system modulo m. Euler’s ø function Euler’s generalization of Fermat’s theorem. Chinese Remainder Theorem. Quadratic residues. Legendre symbols. Lemma of Gauss; Gauss reciprocity law. Greatest integer function [x]. The number of divisors and the sum of divisors of a natural number n (The functions d(n) and V(n)). Moebius function and Moebius inversion formula. |
| 3. | March 2024 | De Moivre’s Theorem and its Applications. Expansion of trigonometrical functions. Direct circular and hyperbolic functions and their properties. |
| 4. | April 2024 | Inverse circular and hyperbolic functions and their properties. Logarithm of a complex quantity. Gregory’s series. Summation of Trigonometry series. |

**Govt. College for Women Lakhan Majra, Rohtak**

**Lesson Plan (Even Semester 2023-24)**

**Name of Assistant Professor - Dr. Neelam**

**Class: - B.Sc./ B.A. 2nd Semester**

**Subject - Mathematics**

**Paper – Ordinary Differential Equations**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | January 2024 | Geometrical meaning of a differential equation. Exact differential equations, integrating factors. First order higher degree equations solvable for x,y,p Lagrange’s equations, Clairaut’s equations. Equation reducible to Clairaut’s form. Singular solutions. |
| 2. | February 2024 | Orthogonal trajectories: in Cartesian coordinates and polar coordinates. Self orthogonal family of curves.. Linear differential equations with constant coefficients. Homogeneous linear ordinary differential equations. Equations reducible to homogeneous. |
| 3. | March 2024 | Linear differential equations of second order: Reduction to normal form. Transformation of the equation by changing the dependent variable/ the independent variable. Solution by operators of non-homogeneous linear differential equations. Reduction of order of a differential equation. Method of variations of parameters. Method of undetermined coefficients. |
| 4. | April 2024 | Ordinary simultaneous differential equations. Solution of simultaneous differential equations involving operators x (d/dx) or t (d/dt) etc. Simultaneous equation of the form dx/P = dy/Q = dz/R. Total differential equations. Condition for Pdx + Qdy +Rdz = 0 to be exact. General method of solving Pdx + Qdy + Rdz = 0 by taking one variable constant. Method of auxiliary equations. |

**Govt. College for Women Lakhan Majra, Rohtak**

**Lesson Plan (Even Semester 2023-24)**

**Name of Assistant Professor - Dr. Pradeep Maan**

**Class: - B.Sc./ B.A. 2nd Semester**

**Subject - Mathematics**

**Paper - Vector Calculus**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | January 2024 | Scalar and vector product of three vectors, product of four vectors. Reciprocal vectors. Vector differentiation. Scalar Valued point functions, vector valued point functions, derivative along a curve, directional derivatives |
| 2. | February 2024 | Gradient of a scalar point function, geometrical interpretation of gradient of scalar field function, character of gradient as a point function. Divergence and curl of vector point function, characters of Div f & and Curl f & as point function, examples. Gradient, divergence and curl of sums and product and their related vector identities. Laplacian operator. |
| 3. | March 2024 | Orthogonal curvilinear coordinates Conditions for orthogonality fundamental triad of mutually orthogonal unit vectors. Gradient, Divergence, Curl and Laplacian operators in terms of orthogonal curvilinear coordinates, Cylindrical co-ordinates and Spherical coordinates. |
| 4. | April 2024 | Vector integration; Line integral, Surface integral, Volume integral. Theorems of Gauss, Green & Stokes and problems based on these theorems. |

**Govt. College for Women Lakhan Majra, Rohtak**

**Lesson Plan (Even Semester 2023-24)**

**Name of Assistant Professor – Mr. Vijender**

**Class: - B.Sc./ B.A. 4th Semester**

**Subject - Mathematics**

**Paper – Sequence and Series**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | January 2024 | Boundedness of the set of real numbers; least upper bound, greatest lower bound of a set, neighborhoods, interior points, isolated points, limit points, open sets, closed set, interior of a set, closure of a set in real numbers and their properties. Bolzano-Weiestrass theorem, Open covers, Compact sets and Heine-Borel Theorem. |
| 2. | February 2024 | Sequence: Real Sequences and their convergence, Theorem on limits of sequence, Bounded and monotonic sequences, Cauchy’s sequence, Cauchy general principle of convergence, Subsequences, Subsequential limits. Infinite series: Convergence and divergence of Infinite Series, Comparison Tests of positive terms Infinite series, Cauchy’s general principle of Convergence of series, Convergence and divergence of geometric series, Hyper Harmonic series or p-series. |
| 3. | March 2024 | Infinite series: D-Alembert’s ratio test, Raabe’s test, Logarithmic test, de Morgan and Bertrand’s test, Cauchy’s Nth root test, Gauss Test, Cauchy’s integral test, Cauchy’s condensation test. |
| 4. | April 2024 | Alternating series, Leibnitz’s test, absolute and conditional convergence, Arbitrary series: abel’s lemma, Abel’s test, Dirichlet’s test, Insertion and removal of parenthesis, rearrangement of terms in a series, Dirichlet’s theorem, Riemann’s Re-arrangement theorem, Pringsheim’s theorem (statement only), Multiplication of series, Cauchy product of series, (definitions and examples only) Convergence and absolute convergence of infinite products. |

**Govt. College for Women Lakhan Majra, Rohtak**

**Lesson Plan (Even Semester 2023-24)**

**Name of Assistant Professor - Dr. Pradeep Maan**

**Class: - B.Sc./ B.A. 4th Semester**

**Subject - Mathematics**

**Paper – Special Functions and Integral Transforms**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | January 2024 | Series solution of differential equations – Power series method, Definitions of Beta and Gamma functions. Bessel equation and its solution: Bessel functions and their propertiesConvergence, recurrence, Relations and generating functions, Orthogonality of Bessel functions. |
| 2. | February 2024 | Legendre and Hermite differentials equations and their solutions: Legendre and Hermite functions and their properties-Recurrence Relations and generating functions. Orhogonality of Legendre and Hermite polynomials. Rodrigues’ Formula for Legendre & Hermite Polynomials, Laplace Integral Representation of Legendre polynomial. |
| 3. | March 2024 | Laplace Transforms – Existence theorem for Laplace transforms, Linearity of the Laplace transforms, Shifting theorems, Laplace transforms of derivatives and integrals, Differentiation and integration of Laplace transforms, Convolution theorem, Inverse Laplace transforms, convolution theorem, Inverse Laplace transforms of derivatives and integrals, solution of ordinary differential equations using Laplace transform. |
| 4. | April 2024 | Fourier transforms: Linearity property, Shifting, Modulation, Convolution Theorem, Fourier Transform of Derivatives, Relations between Fourier transform and Laplace transform, Parseval’s identity for Fourier transforms, solution of differential Equations using Fourier Transforms. |

**Govt. College for Women Lakhan Majra, Rohtak**

**Lesson Plan (Even Semester 2023-24)**

**Name of Assistant Professor - Dr. Neelam**

**Class: - B.Sc./ B.A. 4th Semester**

**Subject - Mathematics**

**Paper – Programming in C and Numerical Methods**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | January 2024 | Programmer’s model of a computer, Algorithms, Flow charts, Data types, Operators and expressions, Input / outputs functions. |
| 2. | February 2024 | Decisions control structure: Decision statements, Logical and conditional statements, Implementation of Loops, Switch Statement & Case control structures. Functions, Preprocessors and Arrays. |
| 3. | March 2024 | Strings: Character Data Type, Standard String handling Functions, Arithmetic Operations on Characters. Structures: Definition, using Structures, use of Structures in Arrays and Arrays in Structures. Pointers: Pointers Data type, Pointers and Arrays, Pointers and Functions. Solution of Algebraic and Transcendental equations: Bisection method, Regula-Falsi method, Secant method, Newton-Raphson’s method. Newton’s iterative method for finding pth root of a number, Order of convergence of above methods. |
| 4. | April 2024 | Simultaneous linear algebraic equations: Gauss-elimination method, Gauss-Jordan method, Triangularization method (LU decomposition method). Crout’s method, Cholesky Decomposition method. Iterative method, Jacobi’s method, Gauss-Seidal’s method, Relaxation method. |

**Lesson Plan (Even Semester 2023-24)**

**Name of Assistant Professor - Dr. Neelam**

**Class: - B.Sc./ B.A. 6th Semester**

**Subject - Mathematics**

**Paper – Real and Complex Analysis**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | January 2024 | Jacobians, Beta and Gama functions, Double and Triple integrals, Dirichlets integrals, change of order of integration in double integrals. |
| 2. | February 2024 | Fourier’s series: Fourier expansion of piecewise monotonic functions, Properties of Fourier Co-efficients, Dirichlet’s conditions, Parseval’s identity for Fourier series, Fourier series for even and odd functions, Half range series, Change of Intervals. |
| 3. | March 2024 | Extended Complex Plane, Stereographic projection of complex numbers, continuity and differentiability of complex functions, Analytic functions, Cauchy-Riemann equations. Harmonic functions. |
| 4. | April 2024 | Mappings by elementary functions: Translation, rotation, Magnification and Inversion. Conformal Mappings, Mobius transformations. Fixed pints, Cross ratio, Inverse Points and critical mappings. |

**Lesson Plan (Even Semester 2023-24)**

**Name of Assistant Professor - Mr. Vijender**

**Class: - B.Sc./ B.A. 6th Semester**

**Subject - Mathematics**

**Paper – Linear Algebra**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | January 2024 | Vector spaces, subspaces, Sum and Direct sum of subspaces, Linear span, Linearly Independent and dependent subsets of a vector space. Finitely generated vector space, Existence theorem for basis of a finitely generated vactor space, Finite dimensional vector spaces, Invariance of the number of elements of bases sets, Dimensions, Quotient space and its dimension. |
| 2. | February 2024 | Homomorphism and isomorphism of vector spaces, Linear transformations and linear forms on vactor spaces, Vactor space of all the linear transformations Dual Spaces, Bidual spaces, annihilator of subspaces of finite dimentional vactor spaces, Null Space, Range space of a linear transformation, Rank and Nullity Theorem, |
| 3. | March 2024 | Algebra of Liner Transformation, Minimal Polynomial of a linear transformation, Singular and non-singular linear transformations, Matrix of a linear Transformation, Change of basis, Eigen values and Eigen vectors of linear transformations. |
| 4. | April 2024 | Inner product spaces, Cauchy-Schwarz inequality, Orthogonal vectors, Orthogonal complements, Orthogonal sets and Basis, Bessel’s inequality for finite dimensional vector spaces, Gram-Schmidt, Orthogonalization process, Adjoint of a linear transformation and its properties, Unitary linear transformations |

**Lesson Plan (Even Semester 2023-24)**

**Name of Assistant Professor - Dr. Pradeep Maan**

**Class: - B.Sc./ B.A. 6th Semester**

**Subject - Mathematics**

**Paper – Dynamics**

| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| --- | --- | --- |
| 1. | January 2024 | Velocity and acceleration along radial, transverse, tangential and normal directions. Relative velocity and acceleration. Simple harmonic motion. Elastic strings. |
| 2. | February 2024 | Mass, Momentum and Force. Newton’s laws of motion. Work, Power and Energy. Definitions of Conservative forces and Impulsive forces. |
| 3. | March 2024 | Motion on smooth and rough plane curves. Projectile motion of a particle in a plane. Vector angular velocity. |
| 4. | April 2024 | General motion of a rigid body. Central Orbits, Kepler laws of motion. Motion of a particle in three dimensions. Acceleration in terms of different co-ordinate systems. |