LESSON PLAN

Session: 2025-2026 **Class: B.A/B.Sc. Sem- I**

Teacher Incharge: Ms. Sonia **Paper code: B23-MAT-101**

Nomenclature of the paper: Calculus

Month	Week	Topics to be covered
July	22.07.2025-31.07.2025	€-S definition of limit of a function. Limit and Continuity of a real valued function, Basic properties of limits
August	01.08.2025– 09.08.2025	continuous functions and classification of discontinuities, differentiability.
	11.08.2025– 16.08.2025	Application of L Hospital Rule to Indeterminate forms.
	18.08.2025– 23.08.2025	Successive differentiation, Leibnitz theorem, Maclaurin and Taylor' series. Assignment and Test Series
	25.08.2025– 31.08.2025	Asymptotes-Horizontal, vertical and oblique asymptotes in Cartesian coordinates, intersection of curve and its asymptotes, asymptotes in polar coordinates.
September	01.09.2025 –06.09.2025	Curvature, radius of curvature of Cartesian curves.
	08.09.2025 –13.09.2025	Radius of curvature of parametric curves, polar curves, Newton's method.
	15.09.2025 –20.09.2025	Radius of curvature for pedal curves, tangential polar equations.
	22.09.2025–30.09.2025	Centre of curvature, circle of curvature, chord of curvature and evolutes.
October	01.10.2025– 04.10.2025	Tests for concavity and convexity, points of inflexion, multiple points,
	06.10.2025– 11.10.2025	Cusps, nodes and conjugate points, types of cusps. Revision and Sessional.
	13.10.2025– 18.10.2025	Tracing of curves in Cartesian, parametric and polar coordinates.
	19.10.2025– 26.10.2025	Diwali Vacations
	27.10.2025– 31.10.2025	Reduction formulae, Rectification, intrinsic equation of curve.
November	01.11.2025-08.11.2025	Quadrature, Sectorial area.
	10.11.2025- 15.11.2025	Area bounded by closed curves, Volume and surface area of solids of revolutions
	17.11.2025-24.11.2025	Volume and surface area of solids of revolutions examples. Revision and Tests
	25.11.24-onwards	---------- University Examination ----------

LESSON PLAN

Session: 2025-2026 **Class: B.A/B.Sc. Sem- III**

Teacher Incharge: Ms. Meenakshi **Paper code: B23-MAT-301**

Nomenclature of the paper: Differential Equations –I

Month	Dates	Topics covered
July	22.07.2025-31.07.2025	Basic concepts and genesis of ordinary differential equations, Order and degree of a differential equation
August	01.08.2025– 09.08.2025	Solutions of differential equations of first order and first degree, Exact differential equations, Integrating factor
	11.08.2025– 16.08.2025	Revision of Previous Chapters with class tests. First order higher degree equations solvable for x, y and p.
	18.08.2025– 23.08.2025	Lagrange's equations, Clairaut's form and singular solutions.
	25.08.2025– 31.08.2025	Orthogonal trajectories of one-parameter families of curves in a plane. Revision of Previous Chapters with class tests.
September	01.09.2025 –06.09.2025	Solutions of linear ordinary differential equations with constant coefficients, linear non-homogeneous differential equations.
	08.09.2025 –13.09.2025	Linear differential equation of second order with variable coefficients. Method of reduction of order, method of undetermined coefficients.
	15.09.2025 –20.09.2025	Method of variation of parameters. Cauchy-Euler equation.
	22.09.2025–30.09.2025	Revision of Previous Chapters with class tests. Assignment based on unit I and II
October	01.10.2025– 04.10.2025	Solution of simultaneous differential equations, total differential equations.
	06.10.2025– 11.10.2025	Genesis of Partial differential equations (PDE), Concept of linear and non-Linear PDEs. Revision of Previous Chapters with class tests.
	13.10.2025– 18.10.2025	Complete solution, general solution and singular solution of a PDE. Linear PDE of first order. Lagrange's method for PDEs of the form: $P(x, y, z)\,p + Q(x, y, z)\,q = R(x, y, z)$, where $p=\partial z/\partial x$ and $q=\partial z/\partial y$.
	19.10.2025– 26.10.2025	Diwali vacations
	27.10.2025– 31.10.2025	Integral surfaces passing through a given curve. Surfaces orthogonal to a given system of surfaces. Compatible systems of first order equations.
November	01.11.2025-08.11.2025	Charpit's method, Special types of first order PDEs. Assignment based on unit III and IV
	10.11.2025- 15.11.2025	Jacobi's method. Second Order Partial Differential Equations with Constant Coefficients.
	17.11.2025-24.11.2025	Unit wise test of all covered Units.

	25.11.24-onwards	---------- University Examination ----------

LESSON PLAN

Session: 2025-2026 **Class: B.A/B.Sc. Sem- V**

Teacher Incharge: Dr. Poonam Saini **Paper code: B23-MAT-501**

Nomenclature of the paper: Sequences and Series

Month	Week	Topics to be covered
July	22.07.2025-31.07.2025	Boundedness of the set of real numbers, Least upper bound and Greatest lower bound of a set.
August	01.08.2025– 09.08.2025	Archimedean, algebraic and ordered properties in R. The real number system as a complete ordered field.
	11.08.2025– 16.08.2025	Neighbourhoods, interior points, isolated points, limit points, Open sets, closed sets, interior of a set, closure of a set in real numbers and their properties.
	18.08.2025– 23.08.2025	Bolzano-Weierstrass theorem. Open covers, compact sets and Heine-Borel theorem.
	25.08.2025– 31.08.2025	Denumerable and non-denumerable sets. Revision and test
September	01.09.2025 –06.09.2025	Denumerability of integers, rationals and non-denumerability of real numbers.
	08.09.2025 –13.09.2025	Sequences: Real sequences and their convergence, Theorems on limit of sequence, Bounded and monotonic sequences,
	15.09.2025 –20.09.2025	Cauchy's sequence, Cauchy general principle of convergence, Subsequences and subsequential limits
	22.09.2025–30.09.2025	Limit superior and limit inferior. Revision and test
October	01.10.2025– 04.10.2025	Infinite series: Convergence and divergence of Infinite Series, Comparison tests of positive terms infinite series, Cauchy's general principle of Convergence of series
	06.10.2025– 11.10.2025	Convergence and divergence of geometric series, Hyper Harmonic series or p- series, D-Alembert's ratio test, Raabe's test, Logarithmic test,
	13.10.2025– 18.10.2025	Logarithmic test, Cauchy's nth root test, De-Morgan and Bertra, Gauss Test, Cauchy's integral test, Cauchy's condensation test.
	19.10.2025– 26.10.2025	Diwali vacations
	27.10.2025– 31.10.2025	Alternating series, Absolute and conditional convergence, Leibnitz test. Arbitrary series
November	01.11.2025-08.11.2025	Abel's and Dirichlet's test, Insertion and removal of parenthesis, Re-arrangement of terms in a series,
	10.11.2025- 15.11.2025	Riemann's re-arrangement theorem and Pringsheim's theorem (statement only). Cauchy product of series (definitions and examples only).
	17.11.2025-24.11.2025	Revision of previous chapters
	25.11.24-onwards	---------- University Examination ----------

LESSON PLAN

Session: 2025-2026 **Class: M.Sc. Sem- I**

Teacher Incharge: Ms. Meenakshi **Paper code: M24-MAT-101**

Nomenclature of the paper: Real Analysis

Month	Dates	Topics to be covered
August	18.08.2025– 23.08.2025	Definition and existence of the Riemann-Stieltjes integral.
	25.08.2025– 31.08.2025	Properties of the integral, integration and differentiation, the fundamental theorem of calculus, integration of vector-valued functions, rectifiable curves.
September	01.09.2025 –06.09.2025	Sequences and series of functions: Pointwise and uniform convergence of sequences of functions, Cauchy criterion for uniform convergence,
	08.09.2025 –13.09.2025	Dini"s theorem, uniform convergence and continuity, uniform convergence and Riemann integration, uniform convergence and differentiation. Assignment and Test Series
	15.09.2025 –20.09.2025	Convergence and uniform convergence of series of functions,Weierstrass M-test, integration and differentiation of series of function
	22.09.2025–30.09.2025	existence of a continuous nowhere-differentiable function, the Weierstrass approximation theorem. Assignment and Test Series
October	01.10.2025– 04.10.2025	Functions of several variables: Linear transformations, the space of linear transformations on Rn to Rm as a metric space
	06.10.2025– 11.10.2025	open sets, continuity, derivative in an open subset of Rn, chain rule, partial derivatives, continuously differentiable mappings
	13.10.2025– 18.10.2025	The contraction principle, the inverse function theorem, the implicit function theorem. Revision Test
	19.10.2025– 26.10.2025	Diwali Vacations
	27.10.2025– 31.10.2025	Fourier Series: Formulation of convergence problems, the necessary andsufficient condition for the Fouriesr series for f at x to converge to f(x)
November	01.11.2025-08.11.2025	The (C,1) summability of Fourier series, Fejer theorem, The theory of Fourier series, Bessel"s inequality, Riesz Fischer theorem
	10.11.2025- 15.11.2025	Parseval's equality, convergence of Fourier series, Riemann-Lebesgue theorem, Orthonormal expansions in[ ], Bessel's inequality for generalized Fourier series.
	17.11.2025-24.11.2025	Revision And test series
	25.11.24-onwards	---------- University Examination ----------

LESSON PLAN

Session: 2025-2026 **Class: M.Sc. Sem- I**

Teacher Incharge: Ms. Sonia **Paper code: M24-MAT-102**

Nomenclature of the paper: Complex Analysis

Month	Dates	Topics to be covered
August	18.08.2025– 23.08.2025	Analytic functions; Harmonic functions; Reflection principle
	25.08.2025– 31.08.2025	Elementary functions: Exponential, Logarithmic, Trigonometric, Hyperbolic, Inverse trigonometric , Inverse hyperbolic, Complex exponents;
September	01.09.2025 –06.09.2025	Complex Integration: Definite integral; Contours; Branch cuts.
	08.09.2025 –13.09.2025	Assignment and Test Series
	15.09.2025 –20.09.2025	Cauchy-Goursat theorem; Simply/ multiply connected domains; Cauchy integral formula,
	22.09.2025–30.09.2025	Morera's theorem; Liouville's theorem , Maximum modulus principle
October	01.10.2025– 04.10.2025	Power series: Taylor series; Laurent series; Uniform/ absolute convergence.
	06.10.2025– 11.10.2025	Assignment and Test Series. Differentiation, integration, multiplication, division of power series;
	13.10.2025– 18.10.2025	Singularities; Poles; Residues; Cauchy's residue theorem; Zeros of an analytic function ;Evaluation of improper integrals; Jordan's lemma. Assignment and Test Series
	19.10.2025– 26.10.2025	Diwali Vacations
	27.10.2025– 31.10.2025	Indented paths; Integration along a branch cut; Definite integrals involving sines and cosines; Winding number of closed curve;
November	01.11.2025-08.11.2025	Argument principle; Rouche's theorem; Schwarz Lemma ;
	10.11.2025- 15.11.2025	Transformations: linear, bilinear (Mobius), sine, z2, z 1/2 ;
	17.11.2025-24.11.2025	Mapping: Isogonal; Conformal; Scale factors; Local inverses; harmonic conjugates. Revision and test
	25.11.24-onwards	---------- University Examination ----------

LESSON PLAN

Session: 2025-2026 **Class: M.Sc. Sem- I**

Teacher Incharge: Ms. Simranjot **Paper code: M24-MAT-103**

Nomenclature of the paper: Theory of Ordinary Differential Equations

Month	Dates	Topics to be covered
August	18.08.2025-23.08.2025	Existence and Uniqueness of Solutions: Existence of solutions; Initial value problem, ε-approximate solution,
	25.08.2025-31.08.2025	Equicontinuous set of functions Ascoli lemma, Cauchy–Peano existence theorem and its corollary, Uniqueness of solutions;
September	01.09.2025-06.09.2025	Uniqueness of solutions; Lipschitz condition, Gronwall's inequality Inequality involving approximate solutions, Method of successive approximations, Picard-Lindelöf theorem
	08.09.2025-13.09.2025	Continuation of solutions, Maximal interval of existence, Extension theorem. Theory of linear differential equations: Linear Differential Equation(LDE) of order n, Basic theory of homogeneous linear equation,
	15.09.2025-20.09.2025	Wronskian theory: Definition, necessary and sufficient condition for linear dependence and linear independence of solutions of homogeneous LDE, Abel's Identity, Fundamental sets, More Wronskian theory,
	22.09.2025-30.09.2025	Reduction of Orde ,Non-homogeneous linear differential equation of order n: Variation of parameters.
October	01.10.2025-04.10.2025	Adjoint equations, Lagrange's Identity, Green's formula, Self adjoint equation of second order.Linear differential equation of order n with constant coefficients, Characteristic roots, Fundamental set. Revision Test
	06.10.2025-11.10.2025	Linear second order equations: Preliminaries, Superposition principle, Riccati's equation, Prüffer transformation. Oscillations of second order differential equations: Zero of a solution,
	13.10.2025-18.10.2025	Oscillatory and non-oscillatory equations, Abel's formula, Common zeros of solutions and their linear dependence, Sturm separation theorem, Sturm fundamental comparison theorem and its corollaries
	19.10.2025-26.10.2025	Diwali Vacations
	27.10.2025-31.10.2025	Elementary linear oscillations, Comparison theorem of Hille-Wintner, Oscillations of $x'' + a(t)x = 0$.. Revision Test

November	01.11.2025-08.11.2025	Second order boundary value problems (BVP): Linear problems; periodic boundary conditions, regular linear BVP,
	10.11.2025-15.11.2025	singular linear BVP;non-linear BVP, Sturm-Liouville BVP; Definition,Characteristic values and Characteristic functions. Orthogonality of characteristic functions.
	17.11.2025-24.11.2025	Green's functions: Definition and Properties. Applications of boundary value problems, Picard's theorem. Revision And test series
	25.11.24-onwards	---------- University Examination ----------

LESSON PLAN

Session: 2025-2026 **Class: M.Sc. Sem- I**

Teacher Incharge: Ms. Simranjot **Paper code: M24-MAT-104**

Nomenclature of the paper: Mechanics of Solids

Month	Dates	Topics to be covered
August	18.08.2025– 23.08.2025	Tensor Algebra: Coordinate-transformation, Cartesian Tensors of different order. Properties of tensors. Isotropic tensors of different orders and relation between them.
	25.08.2025– 31.08.2025	Symmetric and skew symmetric tensors. Tensor invariants. Deviatoric tensors. Eigen-values and eigen-vector of tensor.
September	01.09.2025 –06.09.2025	Tensor invariants. Deviatoric tensors. Eigen-values and eigen-vector of tensor. Tensor Analysis. Scalar, vector, tensor functions, Comma notation. Gradient, divergence and curl of a vector / tensor field.
	08.09.2025 –13.09.2025	Analysis of Strain: Affine transformation, Infinitesimal affine deformation. Strain tensor, Geometrical Interpretation of strain component.
	15.09.2025 –20.09.2025	Strain quadric of Cauchy. Principal strains,Invariants, General infinitesimal deformation. Examples of strain,Equations of compatibility.
	22.09.2025–30.09.2025	Analysis of Stress: Stress Vector, Stress tensor, Equations of equilibrium, Revision Test
October	01.10.2025– 04.10.2025	Transformation of coordinates. Stress quadric of Cauchy, Principal stresses. Maximum normal and shear stresses. Mohr's circles. Examples of stress.
	06.10.2025– 11.10.2025	Equations of Elasticity: Generalised Hooke's Law, Anisotropic symmetries, Homogeneous Isotropic media. Homogeneous Isotropic media. ,Elasticity moduli for Isotropic media.
	13.10.2025– 18.10.2025	Equilibrium and dynamic equations for an isotropic elastic solid. Strain energy function and its connection
	19.10.2025– 26.10.2025	Diwali Vacations
	27.10.2025– 31.10.2025	Beltrami-Michell compatibility equations. Uniqueness of solution. Clapeyron"s theorem, Saint-Venant's principle.Revision Test
November	01.11.2025-08.11.2025	Variational Methods: Variational problems and Euler's Equations, Theorem of minimum potential energy, Theorem of minimum complementary energy
	10.11.2025- 15.11.2025	Reciprocal theorem of Betti and Rayleigh. Ritz method:one and two dimensional cases. Galerkin method. Method of Kantorovich.

		Wave propagation in infinite regions. Surface waves
	17.11.2025-24.11.2025	Revision And test series
	25.11.24-onwards	---------- University Examination ----------

LESSON PLAN

Session: 2025-2026 **Class: M.Sc. Sem- I**

Teacher Incharge: Ms. Sonia **Paper code: M24-MAT-105**

Nomenclature of the paper: Advanced Algebra

Month	Dates	Topics to be covered
August	18.08.2025– 23.08.2025	Normal subgroup, quotient group, normalizer and centralizer of a non-empty subset of a group G,
	25.08.2025– 31.08.2025	Commutator subgroups of a group. first, second and third isomorphism theorems, correspondence theorem, Aut(G), Inn(G), automorphism group of a cyclic group, G-sets,
September	01.09.2025 –06.09.2025	orbit of an element in group G, Cayley's theorem. conjugate elements and conjugacy classes, class equation of a finite group G and its applications,
	08.09.2025 –13.09.2025	Burnside theorem. normal series, composition series, Jordan Holder theorem, Zassenhaus lemma. Scheier's refinement theorem, solvable group, nilpotent group. Assignment-1 and Test Series.
	15.09.2025 –20.09.2025	Cyclic decomposition, even and odd permutation, Alternation group An, simplicity of the Alternating group An (n>5).
	22.09.2025–30.09.2025	Cauchy's theorem, Sylow's first, second and third theorems and its applications to group of smaller orders.
October	01.10.2025– 04.10.2025	Groups of order p2 and pq (q>p). Modules, submodules, direct sums, finitely generated modules, cyclic module.
	06.10.2025– 11.10.2025	R-homomorphism, quotient module, completely reducible modules, Assignment-II and Test Series . Schur's lemma, free modules, representation of linear mapping, rank of linear mapping.
	13.10.2025– 18.10.2025	Similar linear transformation, invariant subspaces of vector spaces, reduction of a linear transformation to triangular form,
	19.10.2025– 26.10.2025	Diwali Vacations
	27.10.2025– 31.10.2025	Nilpotent transformation, index of nilpotency of a nilpotent transformation. Cyclic subspace with respect to a nilpotent transformation
November	01.11.2025-08.11.2025	Assignment-III and Test Series. Uniqueness of the invariants of a nilpotent transformation. Primary decomposition theorem. Jordan blocks.
	10.11.2025- 15.11.2025	Jordan canonical forms, cyclic module relative to a linear

		transformation
	17.11.2025-24.11.2025	Rational canonical form of a linear transformation and its elementary divisors, uniqueness of elementary divisors.

LESSON PLAN

Session: 2025-2026 **Class: M.Sc. Sem- III**

Teacher Incharge: Ms. Sonia/ Ms.Simranjot **Paper code: M24-MAT-301**

Nomenclature of the paper: Fluid Mechanics

Month	Dates	Topics to be covered
August	01.08.2025– 09.08.2025	Kinematics of fluid in motion: Real fluids and ideal fluids, Velocity at a point of a fluid. Lagrangian and Eulerian method.
	11.08.2025– 16.08.2025	Stream lines, Path lines and Streak lines. Vorticity and Circulation, Vortex lines, Velocity potential, Irrotational and rotational motions. Acceleration at a point of fluid, Local and particle rates of change.
	18.08.2025– 23.08.2025	Equation of continuity. Raynold"s Transport Theorem. Rates of change of material integrals. Analysis of local fluid motion.
	25.08.2025– 31.08.2025	Properties of fluids. Boundary Conditions, Boundary surfaces. Equation of Motion: Lagrange's and Euler's equations of Motion.
September	01.09.2025 –06.09.2025	Bernoulli'sequation, Applications of the Bernoulli Equation in one–dimensional flow problems, Steady motion under conservative body forces.
	08.09.2025 –13.09.2025	Kelvins circulation theorem, Vorticity equation. Energy equation for incompressible flow. Kinetic energy of irrotational flow
	15.09.2025 –20.09.2025	Kelvins minimum energy theorem. Mean value of the velocity potential. Kinetic energy of infinite liquid. Uniqueness theorems.
	22.09.2025–30.09.2025	Axially symmetric flows. Sphere at rest in a uniform stream, Sphere in motion in fluid at rest at infinity. Equation of motion of a sphere.
October	01.10.2025– 04.10.2025	Kinetic energy generated by impulsive motion. Motion of two concentric, spheres.
	06.10.2025– 11.10.2025	Three-dimensional sources, sinks and doublets. Images of sources, sinks and doublets in rigid impermeable infinite plane and in impermeable spherical surfaces.
	13.10.2025– 18.10.2025	Sinks and doublets in rigid impermeable infinite plane and in impermeable spherical surfaces.
	19.10.2025– 26.10.2025	Diwali Vacations
	27.10.2025– 31.10.2025	Two-dimensional flows: Use of cylindrical polar coordinates, Stream function, Some fundamental stream functions,
November	01.11.2025-08.11.2025	Axisymmetric flow, Equations satisfied by Stokes"s stream function in irrotational flow, Basic Stokes"s stream functions
	10.11.2025- 15.11.2025	Boundary conditions satisfied by the stream function. Irrotational plane flows: Complex potential, Image systems in plane flows.
	17.11.2025-24.11.2025	Milne-Thomson circle theorem. Circular cylinder in uniform stream

		with circulation. Blasius theorem.
	25.11.24-onwards	---------- University Examination ----------

LESSON PLAN

Session: 2025-2026 **Class: M.Sc. Sem- III**

Teacher Incharge: Ms. Meenakshi **Paper code: M24-MAT-302**

Nomenclature of the paper: Functional Analysis

Month	Days	Topics to be covered
August	01.08.2025– 09.08.2025	Normed linear spaces, Banach spaces, finite dimensional normed spaces and subspaces,
	11.08.2025– 16.08.2025	equivalent norms, compactness and finite dimension, F.Riesz"s lemma.
	18.08.2025– 23.08.2025	Bounded and continuous linear operators, differentiation operator, integral operator
	25.08.2025– 31.08.2025	bounded linear extension, bounded linear functionals, normed spaces of operators, dual spaces with examples.
September	01.09.2025 –06.09.2025	Hahn-Banach theorem for normed linear spaces, application to bounded linear functionals on C[a,b]
	08.09.2025 –13.09.2025	Riesz-representation theorem for bounded linear functionals on C[a,b]
	15.09.2025 –20.09.2025	adjoint operator, norm of the adjoint operator. Reflexive spaces,
	22.09.2025–30.09.2025	uniform boundedness theorem and some of its applications to the space of polynomials and Fourier series.
October	01.10.2025– 04.10.2025	Strong and weak convergence, open mapping theorem, bounded inverse theorem, closed linear operators, closed graph theorem.
	06.10.2025– 11.10.2025	Inner product spaces, Hilbert spaces and their examples, Schwarz inequality, continuity of inner product
	13.10.2025– 18.10.2025	orthogonal complements and direct sums, minimizing vector, orthogonality, projection theorem, characterization of sets in Hilbert spaces whose span is dense.
	19.10.2025– 26.10.2025	Diwali Vacations
	27.10.2025– 31.10.2025	Orthonormal sets and sequences, Bessel"s inequality, series related to orthonormal sequences and sets
November	01.11.2025-08.11.2025	total (complete) orthonormal sets and sequences, Parseval"s identity, separable Hilbert spaces.
	10.11.2025- 15.11.2025	Riesz representation theorem for bounded linear functionals on a Hilbert space, sesquilinear form, Riesz representation theorem for bounded sesquilinear forms on Hilbert spaces

	17.11.2025-24.11.2025	Hilbert-adjoint operator, its existence and uniqueness, properties of Hilbert-adjoint operators, self- adjoint, unitary and normal operators.
	25.11.24-onwards	---------- University Examination ----------

LESSON PLAN

Session: 2025-2026 **Class: M.Sc. Sem- III**

Teacher Incharge: Ms. Simranjot **Paper code: M24-MAT-306**

Nomenclature of the paper: Elasticity

Month	Dates	Topics to be covered
August	01.08.2025– 09.08.2025	Extension: Extension of beams by longitudinal forces, Beam stretched by its own weight, Bending of beams by terminal couples.
	11.08.2025– 16.08.2025	Torsion: Torsion of a circular shaft, Torsion of cylindrical bars, Torsional rigidity.
	18.08.2025– 23.08.2025	Torsion and stress functions. Lines of shearing stress
	25.08.2025– 31.08.2025	Torsion of an elliptic cylinder. Simple torsion problems, effect of grooves.
September	01.09.2025 –06.09.2025	Torsion of rectangular beam, Torsion of a triangular prism. Solution of torsion problems by means of conformal mapping.
	08.09.2025 –13.09.2025	Torsion-membrane analogy, Torsion of hollow beams, Torsion of anisotropic beams
	15.09.2025 –20.09.2025	Flexure of beams by terminal loads, Flexure of circular and elliptic beams
	22.09.2025–30.09.2025	Bending of rectangular beams, Bending of circular pipes.
October	01.10.2025– 04.10.2025	Two dimensional problems: Plane deformation, Generalized plane stress, Plane elastostatic problems.
	06.10.2025– 11.10.2025	Airy stress function. General solution of biharmonic equation, Stresses and displacements in terms of complex potentials.
	13.10.2025– 18.10.2025	The structure of functions $\varphi(z)$ and $\psi(z)$. First and second boundary value problems in plane elasticity
	19.10.2025– 26.10.2025	Diwali Vacations
	27.10.2025– 31.10.2025	Existence and uniqueness of the solutions.
November	01.11.2025-08.11.2025	Three dimensional problems: General solutions; Concentrated forces; Deformation of elastic half-space by normal loads
	10.11.2025- 15.11.2025	The problem of Boussinesq. Elastic sphere: pressures, harmonics, equilibrium. Betti"s Integration method.
	17.11.2025-24.11.2025	Vibrations of elastic solids, Wave propagation in infinite regions, Surface waves.
	25.11.24-onwards	---------- University Examination ----------

LESSON PLAN

Session: 2025-2026 **Class: M.Sc. Sem- III**

Teacher Incharge: Dr. Poonam Saini **Paper code: M24-MAT-307**

Nomenclature of the paper: Advanced Numercial Analysis

Month	Dates	Topics to be covered
August	01.08.2025– 09.08.2025	Error Analysis: Errors, Absolute, relative and percentage errors; Significant digits and numerical instability, Propagation of errors in arithmetic operations
	11.08.2025– 16.08.2025	Significant errors, Representation of numbers in computer, Normalized floating point representation and its effects.
	18.08.2025– 23.08.2025	Solution of Polynomial and Transcendental Equations: Iteration methods; First order, second order and higher order methods,
	25.08.2025– 31.08.2025	Accelaration of the convergence, Efficiency of a method, Newton-Raphson method for multiple roots, Modified Newton-Raphson method
September	01.09.2025 –06.09.2025	Muller method and Chebyshev method, Birge-Vieta method, Bairstow method, Graeffe"s root squaring method, Solutions of systems of non-linear equations.
	08.09.2025 –13.09.2025	Systems of Linear Equations: Matrix inverse methods, Triangularization method, Cholesky Method, Matrix partition method,
	15.09.2025 –20.09.2025	Operation count, Ill-conditioned linear systems, Moore-Penrose inverse method, Least square solutions for inconsistent systems. Iteration methods Successive over relaxation (SOR) method, Convergence analysis.
	22.09.2025–30.09.2025	Eigen values and eigen vectors, bounds on eigen values, Given"s method, Rutishauser method, Householder"s method for symmetric matrices
October	01.10.2025– 04.10.2025	Power method. Numerical Differentiation based on difference formulae, Richardson"s extrapolation method, Cubic spline method, Method of undetermined coefficients.
	06.10.2025– 11.10.2025	Weddle"s rule, Newton-Cotes method, Gauss- Legendre, Gauss-Chebyshev, Gauss-Laguerre, and Gauss-Hermite integration methods. Composite integration method. Euler-Maclaurin"s formula, Romberg Integration, Double integration.
	13.10.2025– 18.10.2025	Numerical Solution of Ordinary Differential Equations: Estimation of local truncation error of Euler and single step methods. Bounds of local truncation error and convergence

		analysis of multistep methods, Predictor-Corrector methods; Adams-Bashforth methods,
	19.10.2025– 26.10.2025	Diwali Vacations
	27.10.2025– 31.10.2025	Adams-15 ,Moulton formula, Milne-Simpson method, System of Differential Equations. Finite difference method for solving second order IVPs andBVPs, Shooting method for boundary value problems.
November	01.11.2025-08.11.2025	Solving Partial Differential Equations: Finite difference approximations to partial derivatives, solving parabolic equations using implicit and explicit formulae, C-N scheme and ADI methods;
	10.11.2025- 15.11.2025	Solving elliptic equations using Gauss-elimination, Gauss-Seidel method, SOR method, and ADI method
	17.11.2025-24.11.2025	solving hyperbolic equations using method of characteristics, explicit and implicit methods, Lax-Wendroff"s method.
	25.11.24-onwards	---------- University Examination ----------

LESSON PLAN

Session: 2025-2026 **Class: M.Sc. Sem- III**

Teacher Incharge: Ms Deepshikha **Paper code: M24-MAT-313**

Nomenclature of the paper: Integral Equation

Month	Dates	Topics to be covered
August	01.08.2025– 09.08.2025	Definition of Integral Equations and their classifications. Eigen values and Eigen functions.
	11.08.2025– 16.08.2025	Special kinds of Kernel, Convolution Integral. The inner or scalar product of two functions
	18.08.2025– 23.08.2025	Reduction to a system of algebraic equations. Fredholm alternative, Fredholm theorem, Fredholm alternative theorem, an approximate method.
	25.08.2025– 31.08.2025	Revision and test series.
September	01.09.2025 –06.09.2025	Method of successive approximations, Iterative scheme for Fredholm and Volterra Integral equations of the second kind.
	08.09.2025 –13.09.2025	Conditions of uniform convergence and uniqueness of series solution. Some results about the resolvent Kernel. Application of iterative scheme to Volterra integral equations of the second kind.
	15.09.2025 –20.09.2025	Classical Fredholm"s theory, the method of solution of Fredholm equation, Fredholm"s First theorem,
	22.09.2025–30.09.2025	Fredholm"s second theorem, Fredholm"s third theorem.
October	01.10.2025– 04.10.2025	Symmetric Kernels, Complex Hilbert space. An orthonormal system of functions, Riesz-Fisher theorem
	06.10.2025– 11.10.2025	A complete two-Dimensional orthonormal set over the rectangle Fundamental properties of Eigen values and Eigen functions for symmetric Kernels.
	13.10.2025– 18.10.2025	Expansion in eigen functions and Bilinear form. Hilbert-Schmidt theorem and some immediate consequences.
	19.10.2025– 26.10.2025	Diwali Vacations
	27.10.2025– 31.10.2025	Definite Kernels and Mercer"s theorem. Solution of a symmetric Integral Equation. Approximation of a general 2 -Kernel (not necessarily symmetric) by a separable Kernel. The operator method in theory of integral equations. Rayleigh-Ritz method for finding the first eigenvalue.
November	01.11.2025-08.11.2025	The Abel Integral Equation. Inversion formula for singular integral equation with Kernel of the type h(s)-h(t), 0< ✔ <1,
	10.11.2025- 15.11.2025	Cauchy"s principal value for integrals solution of the Cauchy-type singular integral equation
	17.11.2025-24.11.2025	closed contour, unclosed contours and the Riemann-Hilbert problem. The Hilbert-Kernel, solution of the Hilbert-Type singular Intergal equation.

	25.11.24-onwards	---------- University Examination ----------

LESSON PLAN

Session: 2025-2026 **Class: B.Com. Sem- I**

Teacher Incharge: Ms. Meenakshi/ Ms. Simranjot **Paper code: B23-COM-104**

Nomenclature of the paper: Business Mathematics-I

Month	Week	Topics to be covered
July	22.07.2025-31.07.2025	Representation of sets, Equivalent sets.
August	01.08.2025– 09.08.2025	Power sets, Complement of a set, Venn diagrams: Union and intersection of sets, De-Morgan's Laws.
	11.08.2025– 16.08.2025	Logical Statements and Truth Tables.
	18.08.2025– 23.08.2025	Logarithms: Laws of Operations, Log Tables.
	25.08.2025– 31.08.2025	Arithmatic and Geometric Progression.
September	01.09.2025 –06.09.2025	Assignment and Revision Test.
	08.09.2025 –13.09.2025	Definition of a Matrix, order, equality and type of matrices.
	15.09.2025 –20.09.2025	Operation on Matrices-Addition, Multiplication and Multiplication with a scalar and their simple properties.
	22.09.2025–30.09.2025	Determinant of a square matrix, properties of determinants, minors,
October	01.10.2025– 04.10.2025	Co-factor and application of determinants in finding the area of triangle.
	06.10.2025– 11.10.2025	Adjoint and Inverse of a square matrix, Solution of a system of linear equations by examples.
	13.10.2025– 18.10.2025	Revision of previous topics on matrices. Revision and Sessionals.
	19.10.2025– 26.10.2025	Diwali Vacations
	27.10.2025– 31.10.2025	Different type of Interest rates, Type of Annuties
November	01.11.2025-08.11.2025	Present value and amount of annuity.
	10.11.2025- 15.11.2025	Valuation of simple loans and debantures.
	17.11.2025-24.11.2025	Problems related to sinking funds. Revisions and class tests.
	25.11.24-onwards	---------- University Examination ----------

LESSON PLAN

Session: 2025-2026 **Class: BCA Sem- I**

Teacher Incharge: Ms. Sonia **Paper code: B23-CAP-104**

Nomenclature of the paper: Mathematical foundation for Computer science-I

Month	Week	Topics to be covered
July	22.07.2025-31.07.2025	Sets and their representations, Empty set,
August	01.08.2025– 09.08.2025	Finite and infinite sets, Subsets, Equal sets, Power sets, Universal set, Union and intersection of sets, Difference of two sets
	11.08.2025– 16.08.2025	Complement of a set, Venn diagram, De-Morgan's laws and their applications.
	18.08.2025– 23.08.2025	An introduction to matrices and their types, Operations on matrices,
	25.08.2025– 31.08.2025	Symmetric and skew-symmetric matrices, Minors, Co-factors. Determinant of a square matrix Assignment of Matrix and its Types
September	01.09.2025 –06.09.2025	Adjoin and inverse of a square matrix, Solutions of a system of linear equations up to order 3.
	08.09.2025 –13.09.2025	Quadratic equations, Solution of quadratic equations. Arithmetic progression
	15.09.2025 –20.09.2025	Geometric progression, Harmonic progression, Arithmetic mean (A.M.), Geometric mean (G.M.)
	22.09.2025–30.09.2025	Harmonic mean (H.M.), Relation between A.M., G.M. and H.M.
October	01.10.2025– 04.10.2025	The concept of differentiation, differentiation of simple functions,
	06.10.2025– 11.10.2025	Problems involving formulation and solution of quadratic equations in one variable
	13.10.2025– 18.10.2025	Use of differentiation for solving problems related to real-life situations
	19.10.2025– 26.10.2025	Diwali Vacations
	27.10.2025– 31.10.2025	Test of unit I and II Problems to find first derivatives of functions.
November	01.11.2025-08.11.2025	Differentiation of simple algebraic, trigonometric and exponential functions
	10.11.2025- 15.11.2025	Problems based on De Morgan's Laws. Problems related to Venn diagrams.

	17.11.2025-24.11.2025	Problems to find inverse of a matrix. Problems to find determinant of a square matrix

LESSON PLAN

Session: 2025-2026 **Class: BBA Sem- I**

Teacher Incharge: Ms. Deepshikha **Paper code: B23-MAT-104**

Nomenclature of the paper: Business Mathematics-I

Month	Week	Topics to be covered
July	22.07.2025-31.07.2025	Set Theory: Representation of sets, equivalent sets, power set
August	01.08.2025– 09.08.2025	complement of a set. Venn Diagrams: Union and Intersection of sets.
	11.08.2025– 16.08.2025	Quadratic Equations with real roots
	18.08.2025– 23.08.2025	Relations between roots and coefficient of the quadratic equations
	25.08.2025– 31.08.2025	Problem related to set theory and equivalent sets.
September	01.09.2025 –06.09.2025	Methods of solving a quadratic equation
	08.09.2025 –13.09.2025	Methods- factoring, using the quadratic formula Completing the square.
	15.09.2025 –20.09.2025	Binomial Theorem (positive index)
	22.09.2025–30.09.2025	Test of unit I and II
October	01.10.2025– 04.10.2025	Properties of Limits and function
	06.10.2025– 11.10.2025	Practice sum of limit and function
	13.10.2025– 18.10.2025	Matrix System: Matrices, definition Basic operations on matrices (Addition and multiplication
	19.10.2025– 26.10.2025	Diwali Vacations
	27.10.2025– 31.10.2025	Properties of Determinants, calculation of value of determinants upto third order.
November	01.11.2025-08.11.2025	Determinant of a square matrix,
	10.11.2025- 15.11.2025	Inverse of a square matrix, Cramer's rule
	17.11.2025-24.11.2025	Assignment and test series
	25.11.24-onwards	---------- University Examination ----------

LESSON PLAN

Session: 2025-2026 **Class: B.Sc. MDC Sem- III**

Teacher Incharge: Dr.Poonam Saini **Paper code: B23-MAT-303**

Nomenclature of the paper: Mathematics for All

Month	Dates	Topics to be covered
July	22.07.2025-31.07.2025	The concept of a set, Types of sets, Operations on sets
August	01.08.2025– 09.08.2025	Venn diagram, De-Morgan's laws. The concept of a function, Elementary functions and their graphical representation.
	11.08.2025– 16.08.2025	Solution of simple quadratic and cubic equations, Solution of simultaneous linear equations up to three variables.
	18.08.2025– 23.08.2025	Arithmetic progression, Geometric progression.
	25.08.2025– 31.08.2025	The concept of differentiation, differentiation of simple functions, second order differentiation
September	01.09.2025 –06.09.2025	Maxima and minima of a function
	08.09.2025 –13.09.2025	Use of differentiation for solving problems related to real-life situations.
	15.09.2025 –20.09.2025	Integration of simple algebraic, trigonometric and exponential functions.
	22.09.2025–30.09.2025	Presentation of data: Frequency distribution and cumulative frequency distribution,
October	01.10.2025– 04.10.2025	Diagrammatic and graphical presentation of data, Construction of bar, Pie diagrams, Histograms, Frequency polygon, Frequency curve and Ogives.
	06.10.2025– 11.10.2025	Measures of central tendency: Arithmetic mean, Median, Mode, Geometric mean and Harmonic mean for ungrouped and grouped data.
	13.10.2025– 18.10.2025	Measures of dispersion: Concept of dispersion, Mean deviation and its coefficient, Range, Variance and its coefficient, Standard deviation.
	19.10.2025– 26.10.2025	Diwali Vacations
	27.10.2025– 31.10.2025	Correlation: Concept and types of correlation, Methods of finding correlation: Scatter diagram
November	01.11.2025-08.11.2025	Karl Pearson's coefficients of correlation, Rank correlation. Linear regression: Principle of least square, Fitting of straight line
	10.11.2025- 15.11.2025	Two lines of regression, Regression coefficients.

	17.11.2025-24.11.2025	Solution of differential equations of first order and degree one with variable separable.
	25.11.24-onwards	---------- University Examination ----------