Lesson Plan

Subject: Mathematics
Paper: Algebra and Number Theory (according to NEP)   Class:B.A-I (Second semester)
Session: 2024-2025
Teacher's Name: Dr. Supriya Chopra

Sr. No.	Months	Topics to be covered
1	February	Matrices, Rank of Matrices, Eigen Values, Eigen vectors, Cayley Hamilton theorem
2	March	Relation between the roots and coefficients of general polynomial, Transformation of equations, Descarte's rule of signs
3	April	Solutions of cubic, Biquadratic equations, Divisibility, GCD, LCM, Prime numbers, Fundamental theorem
4	May	Linear congruence, Linear Diophantine equations in two variables, Fermat's, Euler's and Chinese remainder theorem.
5	June	Revision

Signature

Lesson Plan

Subject: Mathematics   Class:B.A-II (Fourth semester)
Paper: Analytical Geometry & Vector Calculus (according to NEP)
Session: 2024-2025
Teacher's Name: Dr. Supriya Chopra

Sr. No.	Months	Topics to be covered
1	February	Scalar and Vector product of three vectors, four vectors, reciprocal vectors, vector differentiation and derivative along a curve, directional derivatives; Gradient of a scalar point function, divergence and curl of vector point functions, their geometrical meanings and vector identities. Vector integration: line integral, surface integral and volume integral. Theorem of Gauss, Green, Stoke and problems based on these.
2	March	General equation of second degree: Classification of conic sections; centre, asymptotes, axes, eccentricity, foci and directrices of conics. Tangent at any point to a conic, chord of contact, pole of line to a conic, director circle of a conic. Polar equation of a conic, tangent and normal to a conic, confocal conics.
3	April	Sphere: General form, Plane section of a sphere. Sphere through a given circle. Intersection of two spheres, tangent plane and line, polar plane and line, orthogonal spheres, radical plane of two spheres and co-axal system of spheres. Cone: Equation of a cone, right circular cone, quadric cone, enveloping cone. Tangent plane and condition of tangency.
4	May	Cylinder: Right circular cylinder and enveloping cylinder. Central Conicoids: Equation of tangent plane. Director sphere. Normal to the conicoids. Polar plane of a point. Enveloping cone of a conicoid, Enveloping cylinder of a conicoid, confocal conicoid, reduction of second degree equations.
5	June	Revision

Signature

Lesson Plan

Subject:Mathematics
Paper: BM -361 : Real & Complex Analysis   Class: B.A-III(Sixth Semester)
Session: 2024-2025
Teacher's Name: Dr. Supriya Chopra

Sr. No.	Months	Topics to be covered
1	January	Jacobians, Beta and Gama functions, Double and Triple integrals, Dirichlets integrals, change of order of integration in double integrals
2	February	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	Extended Complex Plane, Stereographic projection of complex numbers, continuity and differentiability of complex functions, Analytic functions, Cauchy-Riemann equations. Harmonic functions.
4	April	Mappings by elementary functions: Translation, rotation, Magnification and Inversion. Conformal Mappings, Mobius transformations. Fixed pints, Cross ratio, Inverse Points and critical mappings.

Signature

Lesson Plan

Subject: Mathematics
Paper: BM -362 : Linear Algebra   Class: B.A-III(Sixth Semester)
Session: 2024-2025
Teacher's Name: Dr. Supriya Chopra

Sr. No.	Months	Topics to be covered
1	January	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	Homomorphism and isomorphism of vector spaces, Linear transformations and linear forms on vector 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	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	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

Signature

Lesson Plan

Subject: Mathematics
Paper: BM -363 : Dynamics   Class: B.A-III(Sixth Semester)
Session: 2024-2025
Teacher's Name: Dr. Supriya Chopra

Sr. No.	Months	Topics to be covered
1	January	Velocity and acceleration along radial, transverse, tangential and normal directions. Relative velocity and acceleration. Simple harmonic motion. Elastic strings
2	February	Mass, Momentum and Force. Newton's laws of motion. Work, Power and Energy. Definitions of Conservative forces and Impulsive forces.
3	March	Motion on smooth and rough plane curves. Projectile motion of a particle in a plane. Vector angular velocity
4	April	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.

Signature

Lesson Plan

Subject: Business Mathematics
Paper: Business Mathematics (according to NEP)   Class:B.Com-I (Second semester)
Session: 2024-2025
Teacher's Name: Dr. Supriya Chopra

Sr. No.	Months	Topics to be covered
1	February	Linear programming, formulation of linear programming problems and their solution by graphical and simplex methods, Application of linear programming in solving problems related to business and commerce.
2	March	Binomial theorems, Permutations and Combinations, Differentiation
3	April	Derivative of simple functions and other functions excluding trigonometric functions having application in business studies.maxima and minima of Revenue, Cost ,Demand ,Production, Profit function and other function related to business and commerce
4	May	Integration default and indefinite simple functions including trigonometric functions basic rules of integration application of integration in commercial and business problems
5	June	Revision

Signature