Tau Devi Lal Govt. Post Graduate College for Women, Murthal (Sonepat)

Lesson Plan

Name of the Faculty **Dr. Parveen Kumar**

Class and Section: **B.A-I**

Session **2025-26**

Subject: **MDC-I (Introductory Mathematics)**

Month	Topic
July	Sets and their representations, Empty set, Finite and infinite sets, Subsets, Equal sets, Power sets, Universal set, Union and intersection of sets, Difference of two sets, Complement of a set, Venn diagram, De-Morgan's laws and their applications.
Aug	An introduction to matrices and their types, Operations on matrices, Symmetric and skew-symmetric matrices, Minors, Co-factors. Determinant of a square matrix, Adjoint and inverse of a square matrix.
Sep	Arithmetic progression, Geometric progression, Harmonic progression, Arithmetic mean (A.M.), Geometric mean (G.M.), Harmonic mean (H.M.), Relation between A.M., G.M. and H.M. Straight lines: Slope of a line and angle between two lines,
Oct	Different forms of equation of a line: Parallel to co-ordinate axes; Point-slope form, Slope-intercept form, Two-point form, General form; Distance of a point from a straight line. Standard form of a circle and its properties.
Nov	Revision

Signature of the Faculty

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Lesson Plan

Name of the Faculty : **Dr. Parveen Kumar**

Class and Section: **B.A/B.Sc-II**

Session **2025-26**

Subject: **Analytical Geometry Vector Calculus**

Month	Topic
July	Gradient of a scalar point function and its geometrical interpretation. Divergence and curl of vector point function, characters of grad , Div. f and
Aug	Curl f as point function, examples. Gradient, divergence and curl of sums and product and their related vector identities. Laplacian operator. Vector integration; Line integral, Surface integral, Volume integral.
Sep	Theorems of Gauss, Green & Stokes and problems based on these theorems. General equation of second degree, equation of the conic referred to center as the origin. Length and equations of the axes, eccentricity of the conic.
Oct	Tangent at any point to the conic, chord of contact, pole of line to the conic, director circle of the conic. Sphere: Plane section of a sphere. Sphere through a given circle. Intersection of two spheres,
Nov	Radical plane of two spheres. Co-axal system of spheres. Revision

Signature of the Faculty

Tau Devi Lal Govt. Post Graduate College for Women, Murthal (Sonepat)

Lesson Plan

Name of the Faculty **Dr. Parveen Kumar**

Class and Section: **B.A/B.Sc-III**

Session **2025-26**

Subject: **Real Analysis**

Month	Topic
July	Riemann integral, Integrabililty of continuous and monotonic functions, The Fundamental theorem of integral calculus.
Aug	Mean value theorems of integral calculus . Improper integrals and their convergence, Comparison tests, Abel's and Dirichlet's tests, Frullani's integral, Integral as a function of a parameter.
Sep	Continuity, Differentiability and integrability of an integral of a function of a parameter. Definition and examples of metric spaces, neighbourhoods, limit points, interior points, open and closed sets, closure and interior, boundary points, subspace of a metric space, equivalent metrics,
Oct	Cauchy sequences, completeness, Cantor's intersection theorem, Baire's category theorem, contraction Principle. Continuous functions, uniform continuity, compactness for metric spaces, sequential compactness, Bolzano-Weierstrass property, total boundedness, finite intersection property,
Nov	Continuity in relation with compactness, connectedness , components, Continuity in relation with connectedness and Revision.

Signature of the Faculty