Lesson Plan for B.A. Pass Course Third Semester
July to Nov 2024
Subject: Mathematics
Paper: Differential Equations
Name of the Assistant Professor: Dr. Sonu Rani

July Week 4	Introduction to differential equations, exact differential equation and its solution, integrating factors
Aug. Week 1	Reduction to exact differential equations, first order differential equations
Aug. Week 2	Lagrange's equations, Clairaut's equations,
Aug. Week 3	Equation reducable to clairaut's form, singular solution
Aug. Week4	Orthogonal trajectories, self orthogonal family of curves
Sept Week 1	Linear differential equation with constant coefficients, method of variation of parameters
Sept Week 2	Homogeneous linear differential equations
Sept Week 3	Introduction to partial differential equations, order and degree, formation of partial differential equation
Sept Week 4	Classification of partial differential equation as linear or non-linear, complete solution
October Week 1	Singular solution and general solution of a partial differential equation
October Week 2	Solution of Lagrange's linear equation, Charpit method
October Week 3	Revision
October Week 4	Vacations
November Week 1	Jacobi's method to solve a partial differential equation, linear partial differential equation of second and higher order
November Week 2	Linear and non-linear equations with constant coefficients
November Week 3	Method of separation of variables
November Week 4	Examinations

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Lesson Plan for B.A. Pass Course First Semester
July to Nov 2024
Subject: Mathematics
Paper: Calcuus
Name of the Assistant Professor: Dr. Sonu Rani

July Week 4	Delta epsilon definition of limit and continuity, basic properties of limits
Aug.Week 1	Differentiability of functions, indeterminate forms
Aug.Week 2	Successive differentiation, Lebnitz theorem
Aug. Week 3	Taylors and Mclaurin series expansion
Aug. Week4	Horizontal vertical and oblique asymptotes for algebraic curves
Sept Week 1	Asymptotes for polar curves
Sept Week 2	Radius of curvature,
Sept Week 3	Centre and circle of curvature
Sept Week 4	Multiple points and their classification
October Week 1	Test for concavity and convexity
October Week 2	Points of inflexion, curve tracing
October Week 3	Reduction formulae
October Week 4	Vacations
November Week 1	Numericals related to rectification
November Week 2	Intrinsic equation of a curve
November Week 3	Area bounded by two closed curves, volumes and surfaces of solids of revolution
November Week 4	Examinations

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Lesson Plan for B.A. Pass Course Fifth Semester
July to Nov 2024
Subject: Mathematics
Paper: Linear Algebra
Name of the Assistant Professor: Dr. Sonu Rani

July Week 4	Vector space and subspace; their definitions with examples, linear some and direct sum of subspaces with related theorems
Aug.Week 1	Linearly dependent and linearly independent sets with examples, definition of basis and related results, Existence theorem
Aug.Week 2	Invariance of number of elements in a basis, kyon send space and its dimension
Aug. Week 3	Vector space homorphism and isomorphism, definition and examples of linear transformation,
Aug. Week4	Vector space of all linear transformations, null space and range space of a linear transformation and related theorems
Sept Week 1	Rank nullity theorem of linear transformations and its application, dual space and its bases
Sept Week 2	Algebra of linear transformations, Matrix associated with the linear transformation, change in matrix with respect to change in basis
Sept Week 3	Minimal polynomial of a linear transformation, singular and non singular linear transformations, revision of the chapter
Sept Week 4	Eigenvalues and eigenvectors of a linear transformation, related theorems and examples, midterm test
October Week 1	Introduction of inner product spaces, definition of norm, related theorems and examples
October Week 2	Cauchy Schwartz inequality, orthogonal and Orthonormal vectors
October Week 3	Orthogonal compliment of a vector subspace, examples to practice.
October Week 4	Vacations
November Week 1	Revision of orthogonality condition, orthogonal sets and bases
November Week 2	Bessel's inequality, Gram Schmidt orthogonalisation method
November Week 3	Revision
November Week 4	Examinations

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