Govt. College Balsamand (Hisar)

Lesson Plan 2023-24 (Odd Sem)

Name of Asst. Prof.- Meenakshi

Dept. Mathematics

Class- B.A 1st sem

Subject- Algebra

Week	Topic
1st week 24-29July	Symmetric, Skew symmetric, Hermitian and skew Hermitian matrices
2nd week 31July-5 Aug.	Rank of matrices. Inverse of a matrix
3rd week 7-12 Aug.	Row rank and column rank of a matrix. Eigenvalues, Eigenvectors and the characteristic equation of a matrix
4th week 14-19 Aug.	Minimal polynomial of a matrix.
5th week 21-26 Aug.	Cayley Hamilton Theorem and its use in finding the inverse of a matrix
6th week 28 Aug-2 Sept.	Applications of matrices to a system of linear (both homogeneous and non-homogeneous) equations.
7th week 4-9 Sept.	Theorems on consistency of a system of linear equations.
8th week 11-16 Sept.	Unitary and Orthogonal Matrices, Bilinear and Quadrative forms.
9th week 18-23 Sept.	Canonical Form of a Bilinear form. Matrix notation of Bilinear and Quadratic Form.
10th week 25 -30 Sept.	Relations between roots and coefficients of general polynomial equation in one variable.
11th week 2-7 oct.	Solutions of polynomial equations having conditions on roots.
12th week 9-14 oct.	Common roots and multiple roots
13th week 16-21 oct.	Transformation of equations.
14th week 23-28 oct.	Nature of the roots of an equation
15th week 30 Oct.-4 Nov.	Solutions of cubic equations (Cardan's Method).
16th week 6-10 Nov.	Solution of Biquadratic equations (Descarte's Method, Ferrari's Method).
17th week 13-16 Nov.	Descarte's rule of signs for Polynomial.
18th, 19th week 17-24 Nov.	Revision

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Govt. College Balsamand (Hisar)

Lesson Plan 2023-24 (Odd Sem)

Name of Asst. Prof.- Meenakshi   Dept. Mathematics

Class- B.A 1st sem   Subject- Calculus

Week	Topic
1st week 24-29July	Epsilon-delta definition of continuity of a function. Basic properties of limits,
2nd week 31July-5 Aug.	Continuous functions and classification of discontinuities
3rd week 7-12 Aug.	Successive diferentiation. Lebnitz Theorem.
4th week 14-19 Aug.	Maclaurin and Taylor series expansions.
5th week 21-26 Aug.	Asymptotes in Cartesian coordinates, intersection of curve and its asymptotes.
6th week 28 Aug-2 Sept.	Asymptotes in polar coordinates. Curvature, radius of curvature for Cartesian curve
7th week 4-9 Sept.	parametric curves, polar curves. Test for concavity and convexity. Singular points
8th week 11-16 Sept.	Points of inflexion. Multiple points. Cusps, nodes & conjugate points. Species of cusps.
9th week 18-23 Sept.	Tracing of curves in Cartesian, parametric and polar co-ordinates.
10th week 25 -30 Sept.	Reduction formulae, Derivation of reduction formulae by connecting with other integral
11th week 2-7 oct.	Rectification, length of curves in Cartesian,
12th week 9-14 oct.	parametric and polar curves.
13th week 16-21 oct.	Quadrature and Sectorial Area. Area bounded by closed curves.
14th week 23-28 oct.	Area enclosed by Curves In polar form.
15th week 30 Oct.-4 Nov.	Volumes and Area of solids of revolution.
16th week 6-10 Nov.	Volume bounded between two solids
17th week 13-16 Nov.	Revision
18th, 19th week 17-24 Nov.	Revision

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Name of Asst. Prof.- Meenakshi

Dept. Mathematics

Class- B.A 1ˢᵗ sem

Subject- Mathematical Lab-I

Week	Topic
1ˢᵗ week 24-29July	Data types, Operators and expressions, Input / outputs functions. Decision control structure: Decision statements, Logical and conditional statements, Implementation of Loops, Switch Statement & Case control structures.
2ⁿᵈ week 31July-5 Aug.	Program to Calculate Simple Interest
3ʳᵈ week 7-12 Aug.	Program to Calculate Compound Interest
4ᵗʰ week 14-19 Aug.	Program to Calculate Arithmetic mean of three numbers
5ᵗʰ week 21-26 Aug.	Program to calculate area of triangle by Heron's Formula, Program to calculate area and perimeter of a circle
6ᵗʰ week 28 Aug-2 Sept.	Program to check whether the number is odd or even
7ᵗʰ week 4-9 Sept.	Program to calculate greatest of three numbers
8ᵗʰ week 11-16 Sept.	Program to reverse the digits of a positive number
9ᵗʰ week 18-23 Sept.	Program to check whether a number is prime or not, Program to convert decimal to binary
10ᵗʰ week 25 -30 Sept.	Program to generate first n prime numbers, Program to checka year Leap or not.
11ᵗʰ week 2-7 oct.	Program to find the sum of first n natural numbers, Program to find sum of first n terms of an AP
12ᵗʰ week 9-14 oct.	Program to find sum of first n terms ofa GP.
13ᵗʰ week 16-21 oct.	Program to generate a pyramid
14ᵗʰ week 23-28 oct.	Program to find simple interest using switch statement
15ᵗʰ week 30 Oct.-4 Nov.	Program to prepare electricity Bill
16ᵗʰ week 6-10 Nov.	Program to calculate Gross Salary of an Employee
17ᵗʰ week 13-16 Nov.	Program to find the roots of a quadratic equation
18ᵗʰ, 19ᵗʰ week 17-24 Nov.	Revision

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Govt. College Balsamand (Hisar)

Lesson Plan 2023-24 (Odd Sem)

Name of Asst. Prof.- Meenakshi

Dept. Mathematics

Class- B.A 3rd sem

Subject- Advanced Calculus

Week	Topic
1st week 24-29July	Continuity, Sequential Continuity, properties of continuous functions,
2nd week 31July-5 Aug.	Uniform continuity, chain rule of differentiability
3rd week 7-12 Aug.	Mean value theorems; Rolle's Theorem
4th week 14-19 Aug.	Lagrange's mean value theorem and their geometrical interpretations.
5th week 21-26 Aug.	Taylor's Theorm with various forms of Remainders, Indeterminate forms.
6th week 28 Aug-2 Sept.	Limit and continuity of real valued functions of two variables.
7th week 4-9 Sept.	Partial differentiation. Total Differentials;
8th week 11-16 Sept.	Composite functions & implicit functions. Change of variables.
9th week 18-23 Sept.	Homogenous Functions & Euler's theorem on homogeneous functions.
10th week 25 -30 Sept.	Differentiability of real valued functions of two variables
11th week 2-7 oct.	Schwarz and Young's theorems.
12th week 9-14 oct.	Implicit function theorem
13th week 16-21 oct.	Maxima, Minima and saddle points of two variables.
14th week 23-28 oct.	Jacobians
15th week 30 Oct.-4 Nov.	Beta and Gama functions
16th week 6-10 Nov.	Double and Triple integrals
17th week 13-16 Nov.	Revision
18th, 19th week 17-24 Nov.	Revision

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Govt. College Balsamand (Hisar)

Lesson Plan 2023-24 (Odd Sem)

Name of Asst. Prof- Meenakshi

Dept. Mathematics

Class- B.A 3rd sem

Subject- Numerical Analysis

Week	Topic
1st week 24-29July	Finite Difference operators and their relations, difference table, finding the missing terms and effect of error in a difference tabular values
2nd week 31July-5 Aug.	Interpolation with equal intervals
3rd week 7-12 Aug.	derivations of Newton's forward and Newton's backward interpolation formulae and their applications
4th week 14-19 Aug.	Interpolation with unequal intervals: derivations of Newton's divided difference
5th week 21-26 Aug.	Lagrange's Interpolation formulae and their applications.
6th week 28 Aug-2 Sept.	Central Difference interpolation formulae: derivations of Gauss's forward and Gauss's backward interpolation formulae
7th week 4-9 Sept.	Numerical Differentiation: Relation between difference operator and derivative operator
8th week 11-16 Sept.	Derivative of a function using interpolation formulae
9th week 18-23 Sept.	Numerical Integration: Newton-Cote's Quadrature formula, Trapezoidal rule
10th week 25 -30 Sept.	Simpson's one- third rule and Simpson's three-eighth rule.
11th week 2-7 oct.	Solution of Algebraic and Transcendental equations: Bisection method, Regula-Falsi method,
12th week 9-14 oct.	Secant method, Newton-Raphson's method, Newton's iterative method for finding pth root of a number.
13th week 16-21 oct.	Simultaneous linear algebraic equations: Gauss-elimination method, Gauss-Jordan method,
14th week 23-28 oct.	Triangularization method (LU decomposition method). Iterative method, Jacobi's method, Gauss-Seidal's method.
15th week 30 Oct.-4 Nov.	Eigen Value Problems: Power method. Jacobi's method
16th week 6-10 Nov.	Numerical solution of ordinary differential equations: Single step methods
17th week 13-16 Nov.	Picard's method. Taylor's series method, Euler's method,
18th, 19th week 17-24 Nov.	Modified Euler's method, Runge-Kutta Methods

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Govt. College Balsamand (Hisar)

Lesson Plan 2023-24 (Odd Sem)

Name of Asst. Prof.- Meenakshi

Dept. Mathematics

Class- B.A 3rd sem

Subject- Mathematical Lab-III

Week	Topic
1st week 24-29July	To interpolate the data using Newton's forward interpolation formula
2nd week 31July-5 Aug.	To interpolate the data using Newton's backward interpolation formula
3rd week 7-12 Aug.	To interpolate the data using Gauss's forward interpolation formula
4th week 14-19 Aug.	To interpolate the data using Gauss's backward interpolation formula
5th week 21-26 Aug.	To interpolate the data using Lagrange's interpolation formula
6th week 28 Aug-2 Sept.	To find the roots of algebraic and transcendental equations using Bisection method
7th week 4-9 Sept.	To find the roots of algebraic and transcendental equations using Regula-Falsi method
8th week 11-16 Sept.	To find the roots of algebraic and transcendental equations using Secant method.
9th week 18-23 Sept.	To find the roots of algebraic and transcendental equations using Newton-Raphson's method.
10th week 25 -30 Sept.	Revision
11th week 2-7 oct.	Revision
12th week 9-14 oct.	Revision
13th week 16-21 oct.	Revision
14th week 23-28 oct.	Revision
15th week 30 Oct.-4 Nov.	Revision
16th week 6-10 Nov.	Revision
17th week 13-16 Nov.	Revision
18th, 19th week 17-24 Nov.	Revision

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