

GOVT. SHIVALIK COLLEGE NAYA NANGAL
Department of Mathematics

TEACHING PLAN (SESSION 2023-2024)

NAME OF TEACHER:- Hemant Kumari

CLASS:- B.Sc I SEM(I)

SUBJECT:- MATHEMATICS

PAPER :- CALCULUS

Sr. No.	DATES (WEEKLY)	Topic which will be covered
1.	01Aug to 05 Aug	Section A: Properties of Real Numbers : order Property of real numbers Test of above topic
2.	07Aug to 12 Aug	Bounds, l.u.b and g.l.b . order completeness property of real numbers.
3.	14Aug to 19 Aug	Archimedian property of real numbers. Limits : definition of the limit of a function. Power Point Presentation given to the students
4.	21 Aug to 26 Aug	Basic properties of limits, Infinite limits, indeterminate forms.
5.	28 Aug to 02 sep	Continuity : Continuous functions, types of discontinuities. Test of continuous function
6.	04 Sep to 09 Sep	Sign of a function in a neighborhood of a point of continuity, intermediate value theorem.. Power Point Presentation given to the students
7.	11 Sep to 16 Sep	Maximum and Minimum value theorem. Class Test
8.	18 Sep to 23 Sep	Section B : Mean Value Theorems : Rolle's theorem ,Lagrange's mean value theorem . Assignment given to the students (Rolle's &Lagrange's theorem)
9.	25 Sep to 30 Sep	Cauchy's mean value theorem , their geometric interpretation and applications. Test of above theorem
10.	02 Oct to 07 Oct	Taylor's theorem and their applications. Power Point Presentation
11.	09 Oct to 14 Oct	Maclaurin's theorem with various form of remainders atheir applications. Test of above topics
12.	16 Oct to 21 Oct	Hyperbolic, inverse hyperbolic functions of a real variable and their derivatives. Revise the topic
13.	23 Oct to 28 Oct	Successive differentiation Leibnitz's theorem. Test of above topics
14.	30 Oct to 04 Nov	Continuity of composite functions , continuity of $ f(x) $. Test of above topics
15.	06 Nov to 11 Nov	M S T
16.	13 Nov to 18 Nov	Revise the whole syllabus and test of above topics

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TEACHING PLAN (SESSION 2023-2024)

NAME OF TEACHER:- Hemant Kumari CLASS: B.Sc II SEM (III)

SUBJECT:- MATHEMATICS PAPER :- LINEAR PROGRAMMING & MECHANICS

Sr.No.	DATES (WEEKLY)	Topic which will be covered
1.	01Aug to 05 Aug	Linear Programming: Formation of LPP, Graphical Method. Theory of the Simplex Method, Standard form of LPP. CLASS TEST OF ABOVE TOPIC
2.	07Aug to 12 Aug	Feasible solution to basic feasible solution, Improving BFS, Optimality Condition, Unbounded solution.
3.	14Aug to 19 Aug	Alternative optimal solution, Correspondence between BFS and extreme points.
4.	21 Aug to 26 Aug	Simplex Method, Simplex Algorithm, Simplex Tableau.Simplex Method.Case of Degeneracy. CLASS TEST OF ABOVE TOPIC
5.	28 Aug to 02 sep	Big M Method, Infeasible solution, Alternate solution, Solution of LPP for unrestricted variable. Power Point Presentation given to the students
6.	04 Sep to 09 Sep	Transportation Problem: Formation of TP, Concepts of solution, feasible Solution
7.	11 Sep to 16 Sep	Finding Initial Basic Feasible Solution by North West Corner Method, Matrix Minima Method.
8.	18 Sep to 23 Sep	Vogel's Approximation Method.
9.	25 Sep to 30 Sep	Optimal Solution by MODI method Unbalanced and maximization type of TP. Power Point Presentation given to the students
10.	02 Oct to 07 Oct	Assignment Problem: Maximization, Minimization, Unbalances, With restriction Assignment problems, Algorithm, Hungarian methods. Test of Above topic
11.	09 Oct to 14 Oct	Statics: Basic notation, Newton Laws of motion, system of two forces, parallelogram law of forces.
12.	16 Oct to 21 Oct	resultant of two collinear forces, resolution of forces, moment of a force, couple.
15.	06 Nov to 11 Nov	Lami's theorem. Lemda -u theorem, theorems of moments, resultant of a force and a couple. Equilibrium conditions for coplanar non coplanar non.
16.	13 Nov to Nov	MST and Revision of whole syllabus

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TEACHING PLAN (SESSION 2023-24)

NAME OF TEACHER:- Hemant Kumari

CLASS: B.Sc III SEM (V)

SUBJECT:- MATHEMATICS

PAPER :- MATHEMATICAL METHODS & DISCRETE I

SR. No.	DATES (WEEKLY)	Topic which will be covered
1.	07 to 12 Aug	Existence of Laplace transform. Functions of exponential order and of class A. . Test of Above topic
2.	14 to 19 Aug	First and second shifting theorems of Laplace transform.
3.	21 to 26 Aug	Change of scale property- Laplace transform of derivatives. . Test of Above topic
4.	28 to 02 sep	Initial value problems, Laplace transform of integrals, Multiplication by 1. Division by Laplace transform of periodic functions and error function.
5.	04 to 09 Sep	Beta function and Gamma functions. Power Point Presentation given to the students
6.	11 to 16 Sep	Definition of Inverse Laplace transform, Linearity property, First and second shifting theorems of inverse Laplace transform, Change of scale property.
7.	18 to 23 Sep	Division by p. Convolution theorem. . Test of Above topic
8.	25 to 30 Sep	Heaviside's expansion formula (with proofs and applications) Power Point Presentation given to the students
9.	02 to 07 Oct	Applications of Laplace transforms: Applications of Laplace transforms to the solution of ordinary differential equations with constant coefficients and variable coefficients.
10.	09 to 14 Oct	Simultaneous ordinary differential equations.
11.	16 to 21 Oct	Second order Partial differential equations (Heat Equation, Wave Equation and the Laplace equation). . Test of Above topic
12.	23 to 28 Oct	Graphs and Planar Graphs-Basic Terminology Multi graphs. Power Point Presentation given to the students
15.	30 Oct to 04 Nov	Weighted Graphs. Paths and Circuits Shortest paths. Eulerian Paths and Circuits. Power Point Presentation given to the students
16.	06 to 11 Nov	Travelling Salesman Problem. Planar Graphs Trees. . Test of Above topic
17.	13 to..... Nov	M S T (Revision of whole syllabus)

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TEACHING PLAN (SESSION 2023-2024)

NAME OF TEACHER:- Hemant Kumari CLASS: B.Sc I SEM (II)

SUBJECT:- MATHEMATICS PAPER :- C0-Ordinate Geometry

SR. No.	DATES (WEEKLY)	Topic which will be covered
1.	1-6 February	SECTION A :- Transformation of axes in two dimensions: Shifting of Origin.
2.	8-13 February	Rotation of axes, invariants. Test of Above topic
3.	15-20 February	Pair of Straight Lines: Joint equation of pair of straight lines and angle between them.
4.	22-27 February	Condition of parallelism and perpendicularity, Joint equation of the angle bisectors. Test of Above topic
5.	01-06 March	Joint equation of lines joining origin to the intersection of a line and a curve. Power Point Presentation given to the students
6.	08-13 March	Circle : General equation of circle, Circle through intersection of two lines, tangents, normals, chord of contact, pole and polar. Test of Above topic
7.	15-20 March	Pair of tangents from a point, equation of chord in terms of mid-point.
8.	22-27 March	Angle of intersection and orthogonality, power of a point w.r.t. circle, radical axis, co-axial family of circles, limiting points. Test of Above topic
9.	29-03 April	Conic : General equations of a conic, tangents, normals, chord of contact, pole and polar, pair of tangents from a point, equation of chord in terms of mid-point, diameter. Power Point Presentation given to the students
10.	29-03 April	Conjugate diameters of ellipse and hyperbola.
11.	12-17 April	Special properties of parabola, ellipse and hyperbola. Test of Above topic
12.	19-24 April	Conjugate hyperbola, asymptotes of hyperbola, rectangular hyperbola. Test of Above topic
13.	26-04 May	Identification of conic in general second degree equation. Test of Above topic
14.	05 May.....	M S T Revise the whole syllabus

Teaching Plan (Session2020-21)

Class :- B.Sc./B.A. (Sem- IV) Name of Teacher:- Hemant Kumari

Subject :- Mathematics. Name of Paper:- Numerical Methods & Dynamics

Sr. No.	Date(Weekly)	Subject related syllabus
1.	1-6 February	SECTION –A Bisection Method, Regula-falsi method, Secant method, Fixed – point iteration. Test of Above topic
2.	8-13 February	Newton-Raphson method and convergence of Secant, Newton-Raphson method and fixed-point iteration. Power Point Presentation given to the students
3.	15-20 February	Pivoting strategies, Partial Pivoting, Gauss-Elimination, Gauss Jordan and Triangularisation method. Jacobi Method , Gauss Seidel Method.
4.	22-27 February	. SECTION-B Interpolation: Finite differences. Test of Above topic
5.	01-06 March	Divided differences, Newton Gregory Forward and Backward formula. Power Point Presentation given to the students
6.	08-13 March	Lagrange’s formula, Newton’s formulae, Central Differences, Stirling, Bessel’s and Everett’s formulae, Error in linear and quadratic interpolation. Test of Above topic
7.	15-20 March	Motion of a particle with constant acceleration, acceleration of falling bodies, motion under gravity. Power Point Presentation given to the students.
8.	22-27 March	Motion of a body projected vertically upward, motion of a two particles connected by a string, motion along a smooth inclined plane. Power Point Presentation given to the students
9.	29-03 April	Constrained motion along a smooth inclined plane. Variable acceleration, Simple harmonic motion, elastic string, simple pendulum. Test of Above topic
10.	29-03 April	Revision
11.	12-17 April....May....	M.S.T.

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TEACHING PLAN (SESSION 2023-2024)

NAME OF TEACHER:- Hemant Kumari CLASS: B.Sc III SEM (VI)

SUBJECT:- MATHEMATICS PAPER :- Mathematical Method-2 and Discrete 2

SR. No.	DATES (WEEKLY)	Topic which will be covered
1.	1-6 February	Section- A Fourier transforms : Dirichlet's conditions, Fourier integral formula. (without proof) Test of Above topic
2.	8-13 February	Fourier transform , Inverse Theorem for Fourier transformation.
3.	15-20 February	Fourier sine and cosine transforms and their inversion formulae. Power Point Presentation given to the students
4.	22-27 February	Linearity property of Fourier transforms
5.	01-06 March	Change of scale property, Shifting theorem, Modulation theorem. Test of Above topic
6.	08-13 March	Convolution theorem of Fourier transforms, Parseval's identity, Finite Fourier sine transform. Test of Above topic
7.	15-20 March	Inversion formula for sine transform, Finite Fourier cosine Transform. Inversion formula for cosine transform. Power Point Presentation given to the students
8.	22-27 March	Section- B Applications of Laplace and Fourier Transforms. Test of Above topic.
9.	29-03 April	Applications of Laplace transforms to the solution of ordinary differential equations with constant coefficients. Power Point Presentation given to the students
10.	29-03 April	Variable coefficients, Simultaneous ordinary differential equations.
11.	12-17 April	Second order Partial differential equations. Test of Above topic
12.	19-24 April	SECTION-B(DISCRETE-2) Brief review of Groups and Rings. Test of Above topic
13.	26-04 May	Boolean Algebras - Lattices and Algebraic Structures. Propositional Calculus. Switching Circuits. Test of Above topic
14.	05 May.....	Duality. Distributive and Complemented Lattices. Boolean Lattices and Boolean Algebras. M S T Revise the whole syllabus

