

Session - 2023-24

Lesson Plan

Govt. College, Nagina.

Class - B.Sc (NIM) Ist Year IInd Sem

Sub.: - Mathematics (Number theory and Trigonometry)

Name of Teacher - Manish Agni

Jan, 2024

I week: - Divisibility, G.C.D., L.C.M.

II week: - Primes, fundamental theorem of arithmetic.

III week: - Linear Congruences, Fermat's theorem, Wilson's theorem and its converse.

IV week: - Diophantine equations in two variables.

Feb, 2024

I week: - Complete Residue System and Reduced residue system modulo m , Euler ϕ function.

II week: - Euler's generalization of Fermat's theorem, Chinese Remainder theorem, Quadratic residues, Legendre symbol.

III week: - Lemma of Gauss, Greatest integer function [x].

IV week: - The no. of divisors and the sum of divisors of a natural number n , Moebius function and Moebius Inversion formula.

Revision

March, 2024

I week: - De-Moivre's theorem and its applications.

II week: - expansion of trigonometrical functions.

III week: - Direct circular and hyperbolic functions and their properties.

IV week: - Revision

April, 2024

Ist week: - Inverse circular and hyperbolic functions and their properties.

II week: - Logarithm of a complex quantity.

III week: - Gregory's series, summation of trigonometric series.

IV week: - Revision

Manish Ashi

Manish Ashi
Ext. Lecturer in
Mathematics

Session 2023-24

Lesson Plan

Govt. College, Nagina.

Class - B.Sc (N.M.) 1st Year IInd Sem

Sub. - Mathematics (Ordinary diff. equations)

Name of Teacher - Marish Aghri

Jan, 2024

I week: - Geometrical meaning of a diff. equation, exact differential equations.

II week: - Integrating factors, first order higher degree equations solvable for x, y, t .

III week: - Lagrange's equations, Clairaut's equations.

IV week: - Equations reducible to Clairaut's form, singular solutions.

Feb, 2024

I week: - Orthogonal trajectories in Cartesian coordinates and polar coordinates.

II week: - Self orthogonal family of curves, linear diff equations with constant coefficients.

III week: - Homogeneous linear ordinary diff equations.

IV week: - Equations reducible to homogeneous, revision

March, 2024

I week: - Linear diff equations of second order reduction to normal form. Transformation of

the equation by changing dependent var
II week:— solution by operators of non-homogeneous linear diff. equations.

III weeks:— Reduction of order of a diff. equation, Method of variation of parameters, Method of undetermined coefficients.

IV weeks:— Revision

April, 2024

I week:— Ordinary simultaneous diff. equations, sol. of simultaneous diff. equation involving operators $x(d/dx)$ or $t(d/dt)$ etc

II week:— Simultaneous eq. of form $dx/p = dy/q = dz/r$, total diff. equation, Condition for $Pdx + Qdy + Rdz = 0$ to be exact.

III weeks:— General method of solving $Pdx + Qdy + Rdz = 0$ by taking one variable constant, Method of auxiliary equation.

IV week:— Revision

Manish Aggarwal

Manish Aggarwal

(Ext. Lecturer in Mathematics)

Session-2023-24

Lesson Plan

Govt. College, Nagina.

Class - B.Sc. (N.M.U) Ist Year IInd Sem.

Subj: - Mathematics (Vector Calculus)

Name of Teacher - Manish Agli

Jan, 2024

I Week: - Scalar and vector product of three vectors, product of four vectors.

II week: - Reciprocal vectors, Vector differentiation, scalar valued point functions.

III week: - Vector valued point functions.

IV week: - Derivative along a curve, directional derivatives.

Feb, 2024

I Week: - Gradient of a scalar point function, geo. interpretation of grad. ϕ , character of gradient as a point function.

II week: - Divergence and curl of vector point function, characters of Div. \vec{F} and curl \vec{F} as point functions.

III week: - Examples, Gradient, divergence and curl of sums and product.

IV week: - their vector related identities, Laplacian operator, Revision.

March, 2024

- I Week: - Orthogonal curvilinear coordinates,
Conditions for orthogonality fundamental
triple of mutually orthogonal unit vectors.
- II Week: - Gradient, Divergence and curl & Laplacian operators in terms of orthogonal curvilinear coordinates.
- III Week: - Cylindrical coordinates and Spherical coordinates.
- IV Week: - Revision

April, 2024

- I Week: - Vector Integration; Line integral.
- II Week: - Surface integral, Volume integral.
- III Week: - Theorems of Gauss, Green and Stokes and problems based on these theorems.
- IV Week: - Revision

Manish Aghu

Manish Aghu

(Ext. Lecturer in Mathematics)