

GOVERNMENT COLLEGE BAHADURGARH

LESSON PLAN FOR SESSION 2023-24

Subject Name: Linear Algebra

Subject code: 12BSM 362

Class : B.Sc. (Non-Medical), Sem-VI

Teacher Name:-ANURADHA SABHARWAL

MONTH	TOPIC
January	Vector spaces, subspaces, Sum and Direct sum of subspaces,
February	Linear span, Linearly Independent and dependent subsets of a vector space. Finitely generated vector space, Existence theorem for basis of a finitely generated vector space, Finite dimensional vector spaces, Invariance of the number of elements of bases sets, Dimensions, Quotient space and its dimension. Homomorphism and isomorphism of vector spaces, Linear transformations and linear forms on vector spaces, Vector space of all the linear transformations Dual Spaces, Bidual spaces, annihilator of subspaces of finite dimensional vector spaces, Null Space, Range space of a linear transformation, Rank and Nullity Theorem,
March	Algebra of Linear Transformation, Minimal Polynomial of a linear transformation, Singular and non-singular linear transformations, Matrix of a linear Transformation, Change of basis, Eigen values and Eigen vectors of linear transformations.
April	Inner product spaces, Cauchy-Schwarz inequality, Orthogonal vectors, Orthogonal complements, Orthogonal sets and Basis, Bessel's inequality for finite dimensional vector spaces, Gram- Schmidt, Orthogonalization process, Adjoint of a linear transformation and its properties, Unitary linear transformations.

GOVERNMENT COLLEGE BAHADURGARH

LESSON PLAN FOR SESSION 2023-24

Subject Name: Linear Algebra

Subject code: 12BAM 362

Class : B.A. (Maths), Sem-VI

Teacher Name:-ANURADHA SABHARWAL

MONTH	TOPIC
January	Vector spaces, subspaces, Sum and Direct sum of subspaces,
February	Linear span, Linearly Independent and dependent subsets of a vector space. Finitely generated vector space, Existence theorem for basis of a finitely generated vector space, Finite dimensional vector spaces, Invariance of the number of elements of bases sets, Dimensions, Quotient space and its dimension. Homomorphism and isomorphism of vector spaces, Linear transformations and linear forms on vector spaces, Vector space of all the linear transformations Dual Spaces, Bidual spaces, annihilator of subspaces of finite dimensional vector spaces, Null Space, Range space of a linear transformation, Rank and Nullity Theorem,
March	Algebra of Linear Transformation, Minimal Polynomial of a linear transformation, Singular and non-singular linear transformations, Matrix of a linear Transformation, Change of basis, Eigen values and Eigen vectors of linear transformations.
April	Inner product spaces, Cauchy-Schwarz inequality, Orthogonal vectors, Orthogonal complements, Orthogonal sets and Basis, Bessel's inequality for finite dimensional vector spaces, Gram-Schmidt, Orthogonalization process, Adjoint of a linear transformation and its properties, Unitary linear transformations.

GOVERNMENT COLLEGE BAHADURGARH

LESSON PLAN FOR SESSION 2023-24

Subject Name with code and semester:-MATH (Ordinary Differential Equations), BM 122 ,B.A. SEMESTER-2nd

Teacher Name:-Mr. Rakesh Singh

MONTH	TOPIC
January	Geometrical meaning of a differential equation. Exact differential equations, integrating factors. First order higher degree equations solvable for x,y,p Lagrange's equations.
February	Clairaut's equations. Equation reducible to Clairaut's form. Singular solutions. Orthogonal trajectories: in Cartesian coordinates and polar coordinates. Self orthogonal family of curves.. Linear differential equations with constant coefficients. Homogeneous linear ordinary differential equations. Equations reducible to homogeneous. Test.
March	Linear differential equations of second order: Reduction to normal form. Transformation of the equation by changing the dependent variable/ the independent variable. Solution by operators of non-homogeneous linear differential equations. Reduction of order of a differential equation. Method of variations of parameters. Method of undetermined coefficients. Test.
April	Ordinary simultaneous differential equations. Solution of simultaneous differential equations involving operators x (d/dx) or t (d/dt) etc. Simultaneous equation of the form $dx/P = dy/Q = dz/R$. Total differential equations. Condition for $Pdx + Qdy + Rdz = 0$ to be exact. General method of solving $Pdx + Qdy + Rdz = 0$ by taking one variable constant. Method of auxiliary equations



GOVERNMENT COLLEGE BAHADURGARH

LESSON PLAN FOR SESSION 2023-24

Subject Name with code and semester:-MATH (Special Functions and Integral Transforms) , 12BSM 242 ,B.A. SEMESTER- 4th

Teacher Name:-Mr. Rakesh Singh

MONTH	TOPIC
January	Series solution of differential equations – Power series method, Definitions of Beta and Gamma functions, Bessel equation and its solution.
February	<p>Bessel functions and their properties-Convergence, recurrence, Relations and generating functions, Orthogonality of Bessel functions.</p> <p>Legendre and Hermite differentials equations and their solutions: Legendre and Hermite functions and their properties -Recurrence Relations and generating functions. Orthogonality of Legendre and Hermite polynomials. Rodrigues' Formula for Legendre & Hermite Polynomials, Laplace Integral Representation of Legendre polynomial.</p> <p>Test.</p>
March	<p>Laplace Transforms – Existence theorem for Laplace transforms, Linearity of the Laplace transforms, Shifting theorems, Laplace transforms of derivatives and integrals, Differentiation and integration of Laplace transforms, Convolution theorem, Inverse Laplace transforms, convolution theorem, Inverse Laplace transforms of derivatives and integrals, solution of ordinary differential equations using Laplace transform.</p> <p>Test.</p>



April	Fourier transforms: Linearity property, Shifting, Modulation, Convolution Theorem, Fourier Transform of Derivatives, Relations between Fourier transform and Laplace transform, Parseval's identity for Fourier transforms, solution of differential Equations using Fourier Transforms.
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GOVT. COLLEGE, BAHADURGARH
LESSON PLAN FOR SESSION 2023-24

SUBJECT & CLASS : CLASSICAL MECHANICS, M.SC 4TH SEM

TEACHER'NAME: Ms. Pinky

MONTH	TOPIC
JANUARY	Moments and products of inertia, Angular momentum of a rigid body, Principal axes and principal moment of inertia of a rigid body, Kinetic energy of a rigid body rotating about a fixed point, Momental ellipsoid and equimomental systems, Coplanar mass distributions, General motion of a rigid body.
February	Free & constrained systems, Constraints and their classification, Holonomic and nonholonomic systems, Degree of freedom and generalised coordinates, Virtual displacement and virtual work, Statement of principle of virtual work (PVW), Possible velocity and possible acceleration, Ideal constraints, General equation of dynamics for ideal constraints, Lagrange equations of the first kind. D' Alembert principle, Independent coordinates and generalized forces, Lagrange equations of the second kind, Generalized velocities and accelerations. Uniqueness of solution, Variation of total energy for conservative fields. Lagrange variable and Lagrangian function $L(t, Q_i, \dot{q}_i)$, Lagrange equations for potential forces, Generalized momenta p_i
MARCH	Hamiltonian variable and Hamiltonian function, Donkin theorem, Ignorable coordinates, Hamilton canonical equations, Routh variables and Routh function R, Routh equations, Poisson Brackets and their simple properties, Poisson identity, Jacobi – Poisson theorem. Hamilton action and Hamilton principle, Poincare – Carton integral invariant, Whittaker equations, Jacobi equations, Lagrangian action and the principle of least action
APRIL	Canonical transformation, Necessary and sufficient condition for a canonical transformation, Univalent Canonical transformation, Free canonical transformation, Hamilton-Jacobi equation, Jacobi theorem, Method of separation of variables in HJ equation, Lagrange brackets, Necessary and sufficient conditions of canonical character of a transformation in terms of Lagrange brackets, Jacobian matrix of a canonical transformation, Conditions of canonicity of a transformation in terms of Poisson brackets, Invariance of Poisson Brackets under canonical transformation.





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GOVERNMENT COLLEGE BAHADURGARH

LESSON PLAN FOR SESSION 2023-24

Subject Name with code and semester:-MATH (Ordinary Differential Equations), BM 122 ,B.A ,B.sc. SEMESTER-2nd

Teacher Name:-Mr. Rakesh Singh

MONTH	TOPIC
January	Geometrical meaning of a differential equation. Exact differential equations, integrating factors. First order higher degree equations solvable for x,y,p Lagrange's equations.
February	Clairaut's equations. Equation reducible to Clairaut's form. Singular solutions. Orthogonal trajectories: in Cartesian coordinates and polar coordinates. Self orthogonal family of curves.. Linear differential equations with constant coefficients. Homogeneous linear ordinary differential equations. Equations reducible to homogeneous. Test.
March	Linear differential equations of second order: Reduction to normal form. Transformation of the equation by changing the dependent variable/ the independent variable. Solution by operators of non-homogeneous linear differential equations. Reduction of order of a differential equation. Method of variations of parameters. Method of undetermined coefficients. Test.
April	Ordinary simultaneous differential equations. Solution of simultaneous differential equations involving operators x (d/dx) or t (d/dt) etc. Simultaneous equation of the form $dx/P = dy/Q = dz/R$. Total differential equations. Condition for $Pdx + Qdy + Rdz = 0$ to be exact. General method of solving $Pdx + Qdy + Rdz = 0$ by taking one variable constant. Method of auxiliary equations



GOVERNMENT COLLEGE BAHADURGARH

LESSON PLAN FOR SESSION 2023-24

Subject Name with code and semester:-MATH (Special Functions and Integral Transforms) , 12BSM 242 ,B.A./ B.sc SEMESTER- 4th

Teacher Name:-Mr. Rakesh Singh

MONTH	TOPIC
January	Series solution of differential equations – Power series method, Definitions of Beta and Gamma functions, Bessel equation and its solution.
February	<p>Bessel functions and their properties-Convergence, recurrence, Relations and generating functions, Orthogonality of Bessel functions.</p> <p>Legendre and Hermite differentials equations and their solutions: Legendre and Hermite functions and their properties -Recurrence Relations and generating functions. Orthogonality of Legendre and Hermite polynomials. Rodrigues' Formula for Legendre & Hermite Polynomials, Laplace Integral Representation of Legendre polynomial.</p> <p>Test.</p>
March	<p>Laplace Transforms – Existence theorem for Laplace transforms, Linearity of the Laplace transforms, Shifting theorems, Laplace transforms of derivatives and integrals, Differentiation and integration of Laplace transforms, Convolution theorem, Inverse Laplace transforms, convolution theorem, Inverse Laplace transforms of derivatives and integrals, solution of ordinary differential equations using Laplace transform.</p> <p>Test.</p>



April	Fourier transforms: Linearity property, Shifting, Modulation, Convolution Theorem, Fourier Transform of Derivatives, Relations between Fourier transform and Laplace transform, Parseval's identity for Fourier transforms, solution of differential Equations using Fourier Transforms.
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GOVT. COLLEGE, BAHADURGARH
LESSON PLAN FOR SESSION 2023-24

SUBJECT & CLASS : PARTIAL DIFFERENTIAL EQUATION M.SC 2ND SEM

TEACHER'S NAME: SONIA

MONTH	TOPIC
JANUARY	Method of separation of variables to solve Boundary Value Problems (B.V.P.) associated with one dimensional heat equation. Steady state temperature in a rectangular plate, Circular disc, Semi-infinite plate. The heat equation in semi-infinite and infinite regions. Solution of three dimensional Laplace equations, Heat Equations, Wave Equations in cartesian, cylindrical and spherical coordinates. Method of separation of variables to solve B.V.P. associated with motion of a vibrating string. Solution of wave equation for semi-infinite and infinite strings
February	Partial differential equations: Examples of PDE classification. Transport equation – Initial value problem. Non-homogeneous equations. Laplace equation – Fundamental solution, Mean value formula, Properties of harmonic functions, Green function
MARCH	Heat Equation – Fundamental solution, Mean value formula, Properties of solutions, Energy methods. Wave Equation – Solution by spherical means, Non-homogeneous equations, Energy Methods
APRIL	Non-linear first order PDE – Complete integrals, Envelopes, Characteristics, Hamilton Jacobi equations (Calculus of variations, Hamilton ODE, Legendre transform, Hopf-Lax formula, Weak solutions, Uniqueness)., Revision, Test.



GOVERNMENT COLLEGE BAHADURGARH

LESSON PLAN FOR SESSION 2023-24

Subject Name: Theory of Field Extensions

Subject code: 16MAT22C1

Class : M.Sc. (Maths), Sem-II

Teacher Name:-ANURADHA SABHARWAL

MONTH	TOPIC
January	Extension of fields: Elementary properties, Simple Extensions, Algebraic and transcendental Extensions. Factorization of polynomials, Splitting fields, Algebraically closed fields, Separable extensions, Perfect fields.
February	Galois theory: Automorphism of fields, Monomorphisms and their linear independence, Fixed fields, Normal extensions, Normal closure of an extension, The fundamental theorem of Galois theory, Norms and traces.
March	Normal basis, Galois fields, Cyclotomic extensions, Cyclotomic polynomials, Cyclotomic extensions of rational number field, Cyclic extension, Wedderburn theorem.
April	Ruler and compasses construction, Solutions by radicals, Extension by radicals, Generic polynomial, Algebraically independent sets, Insolvability of the general polynomial of degree $n \geq 5$ by radicals.



GOVERNMENT COLLEGE BAHADURGARH

LESSON PLAN FOR SESSION 2023-24

Subject Name: Graph Theory

Subject code: 17MAT24DA2

Class : M.Sc. (Maths), Sem-IV

Teacher Name:-ANURADHA SABHARWAL

MONTH	TOPIC
January	Definition and types of graphs, Walks, Paths and Circuits, Connected and Disconnected graphs, Applications of graphs, operations on Graphs, Graph Representation, Isomorphism of Graphs
February	Eulerian and Hamiltonian paths, Shortest Path in a Weighted Graph, The Travelling Salesperson Problem, Planar Graphs, Detection of Planarity and Kuratowski Theorem, Graph Colouring.
March	Directed Graphs, Trees, Tree Terminology, Rooted Labeled Trees, Prefix Code, Binary Search Tree, Tree Traversal.
April	Spanning Trees and Cut Sets, Minimum Spanning Trees, Kruskal Algorithm, Prim Algorithm, Decision Trees, Sorting Methods.



GOVERNMENT COLLEGE BAHADURGARH

LESSON PLAN FOR SESSION 2023-24

Subject Name: Algebraic Number Theory

Subject code: 17MAT24DB1

Class : M.Sc. (Maths), Sem-IV

Teacher Name:-ANURADHA SABHARWAL

MONTH	TOPIC
January	Algebraic Number and Integers : Gaussian integers and its properties, Primes and fundamental theorem in the ring of Gaussian integers, Integers and fundamental theorem in $\mathbb{Q}(\sqrt{3})$ where $3 \equiv 1 \pmod{4}$, Algebraic fields, Primitive polynomials, The general quadratic field $\mathbb{Q}(\sqrt{m})$, Units of $\mathbb{Q}(\sqrt{2})$, Fields in which fundamental theorem is false, Real and complex Euclidean fields, Fermat theorem in the ring of Gaussian integers, Primes of $\mathbb{Q}(\sqrt{2})$ and $\mathbb{Q}(\sqrt{5})$.
February	Countability of set of algebraic numbers, Liouville theorem and generalizations, Transcendental numbers, Algebraic number fields, Liouville theorem of primitive elements, Ring of algebraic integers, Theorem of primitive elements.
March	Norm and trace of an algebraic number, Non degeneracy of bilinear pairing, Existence of an integral basis, Discriminant of an algebraic number field, Ideals in the ring of algebraic integers, Explicit construction of integral basis, Sign of the discriminant, Cyclotomic fields, Calculation for quadratic and cubic cases.
April	Integral closure, Noetherian ring, Characterizing Dedekind domains, Fractional ideals and unique factorization, G.C.D. and L.C.M. of ideals, Chinese remainder theorem, Dedekind theorem, Ramified and unramified extensions, Different of an algebraic number field, Factorization in the ring of algebraic integers.





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**GOVERNMENT COLLEGE
BAHADURGARH LESSON
PLAN FOR SESSION 2023-
24**

Subject Name: Real and Complex Analysis

subject code: 12BSM 361

**Class: B.Sc.(Non-
Medical) Sem-VI**

Teacher Name: -Dr

Anoop Kumar

MONTH	TOPI
	C
JANUARY	Jacobians, Beta and Gamma functions, Double and Triple integrals.
FEBRUARY	Double and Triple integrals, Dirichlet's integrals, change of order of integration in double integrals. Fourier's series: Fourier expansion of piecewise monotonic functions, Properties of Fourier Coefficients, Dirichlet's conditions, Parseval's identity for Fourier series, Fourier series for even and odd functions, Half range series, Change of Intervals



GOVERNMENT COLLEGE
BAHADURGARH LESSON
PLAN FOR SESSION 2023-
24

Subject Name: Real and Complex Analysis

MARCH	Extended Complex Plane, Stereographic projection of complex numbers, continuity and differentiability of complex functions, Analytic functions, Cauchy- Riemann equations. Harmonic functions.
APRIL	Mappings by elementary functions: Translation, rotation, Magnification and Inversion. Conformal Mappings, Mobius transformations. Fixed points, Cross ratio, Inverse Points and critical mappings.



BAHADURGARH LESSON PLAN FOR

SESSION 2023-24

Subject Name: Real and Complex Analysis

Subject code: 12BAM 361

Class: B.A. (Maths), Sem-VI

Teacher Name: -Dr Anoop

Kumar

MONTH	TOPI C
JANUARY	Jacobians, Beta and Gamma functions, Double and Triple integrals.
FEBRUARY	Double and Triple integrals, Dirichlet's integrals, change of order of integration in double integrals. Fourier's series: Fourier expansion of piecewise monotonic functions, Properties of Fourier Coefficients, Dirichlet's conditions, Parseval's identity for Fourier series, Fourier series for even and odd functions, Half range series, Change of Intervals
MARCH	Extended Complex Plane, Stereographic projection of complex numbers, continuity and differentiability of complex functions, Analytic functions, Cauchy- Riemann equations. Harmonic functions.
APRIL	Mappings by elementary functions: Translation, rotation, Magnification and Inversion. Conformal Mappings, Mobius transformations. Fixed points, Cross ratio, Inverse Points and critical mappings.

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BAHADURGARH LESSON PLAN FOR

SESSION 2023-24

Subject Name: Real and Complex Analysis



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GOVT. COLLEGE, BAHADURGARH
LESSON PLAN FOR SESSION 2023-24

SUBJECT & CLASS : INNER PRODUCT SPACE AND MEASURE THEORY M.SC 4TH SEM

TEACHER'NAME: MUKESH SINGH

MONTH	TOPIC
JANUARY	Hilbert Spaces: Inner product spaces, Hilbert spaces, Schwarz inequality, Hilbert space as normed linear space, Convex sets in Hilbert spaces, Projection theorem, Orthonormal sets, Separability, Total Orthonormal sets, Bessel inequality, Parseval identity.
February	Conjugate of a Hilbert space, Riesz representation theorem in Hilbert spaces, Adjoint of an operator on a Hilbert space, Reflexivity of Hilbert space, Self-adjoint operators, Positive operators, Product of Positive Operators.
MARCH	Projection operators, Product of Projections, Sum and Difference of Projections, Normal and unitary operators, Projections on Hilbert space, Spectral theorem on finite dimensional space. Convex functions, Jensen inequalities, Measure space, Generalized Fatou lemma, Measure and outer measure, Extension of a measure
APRIL	Signed measure, Hahn decomposition theorem, Jordan decomposition theorem, Mutually signed measure, Radon – Nikodyn theorem, Lebesgue decomposition, Lebesgue - Stieltjes integral, Product measures, Fubini theorem, Baire sets, Baire measure, Continuous functions with compact support., Revision, Test.



GOVERNMENT COLLEGE BAHADURGARH

LESSON PLAN FOR SESSION 2023-24

Subject Name with code and semester:-MATH (DYNAMICS) ,
12BSM 353,B.Sc. SEMESTER- 6

Teacher Name:-Pinky

MONTH	TOPIC
January	Velocity and acceleration along radial, transverse.
February	Velocity and acceleration along tangential and normal directions. Relative velocity and acceleration. Simple harmonic motion. Elastic strings. Mass, Momentum and Force. Newton's laws of motion. Work, Power and Energy. Definitions of Conservative forces and Impulsive forces.
March	Motion on smooth and rough plane curves. Projectile motion of a particle in a plane. Vector angular velocity.
April	General motion of a rigid body. Central Orbits, Kepler laws of motion. Motion of a particle in three dimensions. Acceleration in terms of different co-ordinate systems.



GOVERNMENT COLLEGE BAHADURGARH

LESSON PLAN FOR SESSION 2023-24

Subject Name with code and semester:-MATH (DYNAMICS) ,
12BSM 353, B.A. SEMESTER- 6

Teacher Name:-Pinky

MONTH	TOPIC
January	Velocity and acceleration along radial, transverse.
February	Velocity and acceleration along tangential and normal directions. Relative velocity and acceleration. Simple harmonic motion. Elastic strings. Mass, Momentum and Force. Newton's laws of motion. Work, Power and Energy. Definitions of Conservative forces and Impulsive forces.
March	Motion on smooth and rough plane curves. Projectile motion of a particle in a plane. Vector angular velocity.
April	General motion of a rigid body. Central Orbits, Kepler laws of motion. Motion of a particle in three dimensions. Acceleration in terms of different co-ordinate systems.



GOVERNMENT COLLEGE BAHADURGARH

LESSON PLAN FOR SESSION 2023-24

Subject Name with code and semester:-MATH (NUMBER THEORY AND TRIGONOMETRY) , 12BSM 12 , SEMESTER- 2

Teacher Name:-Pinky

MONTH	TOPIC
January	Divisibility, G.C.D.(greatest common divisors), L.C.M.(least common multiple)
February	Primes, Fundamental Theorem of Arithmetic. Linear Congruences, Fermat's theorem. Wilson's theorem and its converse. Linear Diophantine equations in two variables Section – II : Complete residue system and reduced residue system modulo m . Euler's ϕ function Euler's generalization of Fermat's theorem. Chinese Remainder Theorem. Quadratic residues. Legendre symbols. Lemma of Gauss; Gauss reciprocity law. Greatest integer function $[x]$. The number of (n) . Moebius μ divisors and the sum of divisors of a natural number n (The functions $d(n)$ and function and Moebius inversion formula.
March	De Moivre's Theorem and its Applications. Expansion of trigonometrical functions. Direct circular and hyperbolic functions and their properties.
April	Inverse circular and hyperbolic functions and their properties. Logarithm of a complex quantity. Gregory's series. Summation of Trigonometry series.



GOVT. COLLEGE, BAHADURGARH
LESSON PLAN FOR SESSION 2023-24

SUBJECT & CLASS : MEASURE AND INTEGRATION THEORY M.SC 2ND SEM

TEACHER'NAME: MUKESH SINGH

MONTH	TOPIC
JANUARY	Set functions, Intuitive idea of measure, Elementary properties of measure, Measurable sets and their fundamental properties. Lebesgue measure of a set of real numbers, Algebra of measurable sets, Borel set, Equivalent formulation of measurable set in terms of open, sets, Nonmeasurable sets and G_δ Closed,
February	Measurable functions and their equivalent formulations. Properties of measurable functions. Approximation of a measurable function by a sequence of simple functions, Measurable functions as nearly continuous functions, Egoroff theorem, Lusin theorem, Convergence in measure and F. Riesz theorem. Almost uniform convergence.
MARCH	Shortcomings of Riemann Integral, Lebesgue Integral of a bounded function over a set of finite measure and its properties. Lebesgue integral as a generalization of Riemann integral, Bounded convergence theorem, Lebesgue theorem regarding points of discontinuities of Riemann integrable functions, Integral of non-negative functions, Fatou Lemma, Monotone convergence theorem, General Lebesgue Integral, Lebesgue convergence theorem.
APRIL	Vitali covering lemma, Differentiation of monotonic functions, Function of bounded variation and its representation as difference of monotonic functions, Differentiation of indefinite integral, Fundamental theorem of calculus, Absolutely continuous functions and their properties., Revision, Test.



GOVERNMENT COLLEGE BAHADURGARH

LESSON PLAN FOR SESSION 2023-2024

**Subject Name with code and semester:- Mathematics
(Programming in C and Numerical Methods) with Code:-Ma 02
(B.sc second year, 4th sem.)**

Teacher Name:-Sonia

MONTH	TOPIC
January	General introduction of Computer,Algorithm,Flowcharts,Introduction to C variables,Data types,Programs
February	Operators and Expressions,Test,Decision of control structures,Loops,exercise,examples,Function,The C pre-processor,Macros, Arrays,Strings,structures and Unions
March	Assignment,Files in C,Solution of Algebraic and transcendental equations,Bisection method,Test,regula Falsi Method,Secant method,newton Raphson method,Exercise and examples
April	Simultaneous linear algebraic equations,Gauss Elimination Method,Gauss-jordan Method,LU decomposition method,square rppt method,Indirect methods,exercise,examples,test,Revision

GOVERNMENT COLLEGE BAHADURGARH
LESSON PLAN FOR SESSION 2023-2024

Subject Name: Business Mathematics II

Subject Code:2.02

Class: B.Com(pass), SEMESTER- 2

Teacher Name:-Sonia

MONTH	TOPIC
January	Matrices and Determinants: Definition of a Matrix ; Types of Matrices, Algebra of Matrices; Calculation of values of Determinants up to third order; adjoint of a Matrix
February	elementary row and column operations; Finding inverse matrix through adjoint and elementary row or column operations; Solution of a system of Linear equations having unique Solution and involving not more than three variables. Differentiation (only algebraic problem) ; Application of differentiation
March	Compound Interest and Annuities: Certain different types of interest rate; Concept of present value and amount of a sum; Types of annuities; Present value and amount of an annuity, including the case of continuous compounding
April	Ratio, Proportion and Percentage; Profit and Loss

GOVERNMENT COLLEGE BAHADURGARH

LESSON PLAN FOR SESSION 2023-2024

Subject Name with code and semester:- Mathematics (Vector Calculus)with code BM-123 (Bsc first year ,2nd sem.)

Teacher Name:- Sonia

MONTH	TOPIC
January	Review,Scalar and Vector product of three vectors,product of four vectors,Reciprocal Vectors,Vector differentiation
February	Scalar valued point Functions,derivative along a curve,directional derivatives, gradient, Geometrical interpretation of gradient,character of gradient,divergence and curl vector point function,examples, Gradient , Divergence and curl of sums and product and their related vector identities, Laplacian Operator,Orthogonal curvelinear co-ordinates.
March y	Conditions for orthogonality,fundamental triad of mutually orthogonal unit vectors,gradient,divergence,curl and Laplacian operators in terms of orthogonal curve linear co-ordinates,Speherical co-ordinates test, Assignment
April	Vector integration,Line integral,Surface integral,Volume integral,Theorem of Gauss, Green, Stokes and problems. Revision

GOVT. COLLEGE, BAHADURGARH
LESSON PLAN FOR SESSION 2023-24

SUBJECT & CLASS : OPERATIONS RESEARCH TECHNIQUE , M.SC 2nd SEM

TEACHER'NAME: Mr. Rakesh Singh

MONTH	TOPIC
JANUARY	Operations Research: Origin, Definition and scope. Linear Programming: Formulation and solution of linear programming problems by graphical and simplex methods, Big - M and two-phase methods, Degeneracy, Duality in linear programming
February	Transportation Problems: Basic feasible solutions, Optimum solution by stepping stone and modified distribution methods, Unbalanced and degenerate problems, Transshipment problem. Assignment problems: Hungarian method, Unbalanced problem, Case of maximization, Travelling salesman and crew assignment problems.
MARCH	Concepts of stochastic processes, Poisson process, Birth-death process, Queuing models: Basic components of a queuing system, Steady-state solution of Markovian queuing models with single and multiple servers (M/M/1. M/M/C, M/M/1/k, M/MC/k)
APRIL	Inventory control models: Economic order quantity(EOQ) model with uniform demand, EOQ when shortages are allowed, EOQ with uniform replenishment, Inventory control with price breaks. Game Theory : Two person zero sum game, Game with saddle points, The rule of dominance; Algebraic, Graphical and linear programming methods for solving mixed strategy games.

