Lesson Plan

Teacher - Dr. Kuntal Devi…….

Class …B.Sc 3rd(Hons.)…….. Sec. ……..

Subject …Real analysis……..Session 2023-24 odd sem.……

Week(July.)	Topics
1 (24-29)	UNIT-1: Riemann integral, Integrabililty of continuous and monotonic functions.
2(31)	The Fundamental theorem of integral calculus.

Week(Aug.)	Topics
1(1-5)	Mean value theorems of integral calculus.
2(7-12)	UNIT-2: Improper integrals and their convergence.
3(14-19)	Comparison tests, Abel's and Dirichlet's tests.
4(21-26)	Frullani's integral, Integral as a function of a parameter.
5(28-31)	Continuity, Differentiability of an integral of a function of a parameter.

Week(Sep.)	Topics
1(1-2)	Integrability of an integral of a function of a parameter.
2(4-9)	Revision ; test and assignment of UNIT-1 and UNIT-2
3(11-16)	UNIT-3: Definition and examples of metric spaces.
4(18-23)	Neighborhoods, limit points, interior points.
5(25-30)	Open and closed sets, closure and interior, boundary points.

Week(Oct.)	Topics
1(3-7)	Subspace of a metric space, equivalent metrics, Cauchy sequences.
2(9-14)	Completeness, Cantor's intersection theorem.
3(16-21)	Baire's category theorem, contraction Principle
4(23-28)	UNIT-4: Continuous functions, uniform continuity.
5(30-31)	Compactness for metric spaces, sequential compactness.

Week(Nov.)	Topics
1(1-4)	Bolzano-Weierstrass property, total boundedness.
2(6-8)	Finite intersection property, continuity in relation with compactness, connectedness**.**
	Diwali vacations (9-16)
3(17-18)	Components, continuity in relation with connectedness.
4(20-25)	Revision ; test and assignment of UNIT-3 and UNIT-4

Lesson Plan

Teacher - Dr. Kuntal Devi……

Class …B.Sc 3rd(Hons.)…….. Sec. ……..

Subject …Integral Equations……..Session …2023-24odd sem……

Week(July.)	Topics
1 (24-29)	UNIT-1: Linear integral equations, Some basic identities.
2(31)	Initial-value problems reduced to Volterra integral equations.

Week(Aug.)	Topics
1(1-5)	Method of successive approximation to solve Volterra integral equations of second kind, Iterated kernels and Neumann series for Volterra.
2(7-12)	Laplace transform method for a differenceλequation. Resolvent kernel as a series in kernel, Solution of a Volterra integral equation of the first kind.
3(14-19)	UNIT-2: Boundary value problems reduced to Fredholm integral equations.
4(21-26)	Method of successive approximations to solve Fredholm equation of second kind.
5(28-31)	Iterated kernels and Neumann series for Fredholm equations, Resolvent kernel as a sum of series.

Week(Sep.)	Topics
1(1-2)	Fredholm resolvent kernel as a ratio of two series. Fredholm equations with degenerate kernel.
2(4-9)	Approximation of a kernel by a degenerate kernel, Fredholm Alternative.
3(11-16)	Revision ; test and assignment of UNIT-1 and UNIT-2
4(18-23)	UNIT-3: Green's function. Use of method of variation of parameters to construction the Green's function for a nonhomogeneous linear second degree BVP.
5(25-30)	Basic four properties of the Green's function, Alternate procedure for construction of the Green's function by using its basic four properties.

Week(Oct.)	Topics
1(3-7)	Method of series representation of the Green's function in terms of the solutions of the associated homogeneous BVP.
2(9-14)	Reduction of a BVP to a Fredholm integral equation with kernel as Green's function.
3(16-21)	Revision; test and assignment if UNIT-3
4(23-28)	UNIT-4: Homogeneous Fredholm equations with symmetric kernels.
5(30-31)	Solution of Fredholm equations of the second kind with symmetric kernel, Method of Fredholm Resolvent Kernel.

Week(Nov.)	Topics
1(1-4)	Method of Fredholm Resolvent Kernel.
2(6-8)	Method of Iterated Kernels.(Diwali break 9-16)
	Diwali Vacations(9-16)
3(17-18)	Fredholm Equations of the First Kind with Symmetric Kernels.
4(20-25)	Revision ; test and assignment of UNIT-3 and UNIT-4

Lesson Plan

Teacher …Dr. Kuntal Devi…….

Class …B.Sc 1st(hons.)…….. Sec. ……..

Subject … Descriptive Statistics ……Session - 2023-24(odd sem) ……

Week(July.)	Topics
1 (24-29)	Introduction of Statistics, Basic knowledge of various types of data.
2(31)	Collection, classification of data.

Week(Aug.)	Topics
1(1-5)	Tabulation of various data. Presentation of data: histograms.
2(7-12)	Presentation of data: frequency polygon, frequency curve and ogives. Stem- and-Leaf and Box plots
3(14-19)	Measures of Central Tendency and Location: Mean, median, mode.
4(21-26)	Geometric mean, harmonic mean, partition values. Measures of Dispersion: Absolute and relative measures of range.
5(28-31)	Quartile deviation, mean deviation, standard deviation (σ), coefficient of variation.

Week(Sep.)	Topics
1(1-2)	Test and assignment of unit-1& unit-2
2(4-9)	Moments: Moments about mean and about any point and derivation of their relationships.
3(11-16)	Moments: effect of change of origin and scale on moments.
4(18-23)	Sheppard's correction for moments (without derivation), Charlier's checks.
5(25-30)	Concepts of Skewness and Kurtosis.

Week(Oct.)	Topics
1(3-7)	Revision and test of unit -3
2(9-14)	Theory of Attributes: Symbolic notation, dichotomy of data.
3(16-21)	Theory of Attributes: class frequencies, order of class frequencies, consistency of data.
4(23-28)	Theory of Attributes: independence and association of attributes, Yule's coefficient of association and coefficient of colligation.
5(30-31)	Correlation for Bivariate Data: Concept.

Week(Nov.)	Topics
1(1-4)	Correlation for Bivariate Data: Types of correlation, Scatter diagram.
2(6-8)	Revision of the topic.
	Diwali Vacations(9-16)
3(17-18)	Karl Pearson Coefficient (r) of correlation and rank correlation coefficient
4(20-25)	Test and assignment of unit -4

Lesson Plan

Teacher …Dr. Sunita …….

Class …B.SC 2nd (Hons.)…….. Sec. ……..

Subject …Advanced calculus……..Session …2023-24(odd sem)……

Week(July.)	Topics
1 (24-29)	UNIT -1: Continuity, Sequential Continuity, properties of continuous functions.
2(31)	Uniform continuity .

Week(Aug.)	Topics
1(1-5)	Chain rule of differentiability, mean value theorem, rolle's theorem
2(7-12)	Lagrange's mean value theorem and their geometrical interpretations.
3(14-19)	Taylor's theorem with various forms of remainders
4(21-26)	UNIT -2: Limit and continuity of real valued functions of two variables.
5(28-31)	Partial differentiation, Total Differentials; Composite functions .

Week(Sep.)	Topics
1(1-2)	Total Differentials; implicit functions. Change of variables.
2(4-9)	Homogenous functions & Euler's theorem on homogeneous functions. Taylor's theorem for functions of two variables.
3(11-16)	Revision ; test and assignment of unit-1 & UNIT-2
4(18-23)	UNIT-3: Differentiability of real valued functions of two variables.
5(25-30)	Schwarz and Young's theorem. Implicit function theorem.

Week(Oct.)	Topics
1(3-7)	Maxima, Minima of two variables. Lagrange's method of multipliers
2(9-14)	Saddle points of two variables. Lagrange's method of multipliers
3(16-21)	Revision and problem discussion of UNIT-3
4(23-28)	UNIT-4: Curves: Tangents, Principal normals.
5(30-31)	Binormals, Serret-Frenet formulae.

Week(Nov.)	Topics
1(1-4)	Locus of the centre of curvature, Spherical curvature, Locus of centre of Spherical curvature.
2(6-11)	Involutes, evolutes, Bertrand Curves. (Diwali break 9-16)
3(13-18)	Surfaces: Tangent planes, one parameter family of surfaces, Envelopes.
4(20-25)	Revision ; test and assignment of unit-3 & UNIT-4

Lesson Plan

Teacher …Dr. Sunita…….

Class …B.Sc(Hons.) …….. Sec. ……..

Subject ……M.A.M……..Session 2023-24(odd sem) ……

Week(July.)	Topics
1(24-29)	UNIT-1: Solution of 3D Laplace, wave and heat equations in spherical polar co-ordinates.
2(31)	Exercise question solve.

Week(Aug.)	Topics
1(1-5)	Cylindrical polar co-ordinates by the method of separation of variables.
2(7-12)	Fourier series solution of the wave equation.
3(14-19)	Transformation of boundary value problems.
4(21-26)	UNIT-2: Fourier series solution of the heat equation.
5(28-31)	Steady-state temperature in plates.

Week(Sep.)	Topics
1(1-2)	The heat and wave equations in unbounded domains.
2(4-9)	Fourier transform solution of boundary value problems.
3(11-16)	The heat equation in an infinite cylinder and in a solid sphere.
4(18-23)	Revision ; test and assignment of UNIT-1 and UNIT-2.
5(25-30)	UNIT-3: Hankel transform of elementary functions.

Week(Oct.)	Topics
1(3-7)	Operational properties of the Hankel transform.
2(9-14)	Applications of Hankel transforms to PDE.
3(16-21)	Definition and basic properties of finite Fourier sine and cosine transforms.
4(23-28)	Finite Fourier sine and cosine transforms applications to the solutions of BVP's and IVP's.
5(30-31)	UNIT-4: Moments and products of inertia.

Week(Nov.)	Topics
1(1-4)	Angular momentum of a rigid body. Principal axes and principal moment of inertia of a rigid body.
2(6-11)	kinetic energy of a rigid body rotating about a fixed point.
3(13-18)	Momental ellipsoid and equimomental systems, coplanar mass distributions, general motion of a rigid body
4(20-25)	Revision ; test and assignment of UNIT-3 and UNIT-4

Lesson Plan

Teacher …Dr. Sunita …….

Class …B.Sc 3rd(Hons.)…….. Sec. ……..

Subject …Numerical Analysis……..Session …2023-24……

Week(July.)	Topics
1 (24-29)	UNIT-1: Finite Differences operators and their relations.
2(31)	Finding the missing terms and effect of error in a difference tabular values, Interpolation with equal intervals: Newton's forward .

Week(Aug.)	Topics
1(1-5)	Newton's backward interpolation formulae.
2(7-12)	Interpolation with unequal intervals: Newton's divided difference.
3(14-19)	Lagrange's Interpolation formulae, Hermite Formula.
4(21-26)	UNIT-2:Gauss forward and Gauss's backward interpolation formulae.
5(28-31)	Sterling, Bessel Formula.

Week(Sep.)	Topics
1(1-2)	Probability distribution of random variables, Binomial distribution.
2(4-9)	Poisson's distribution, Normal distribution: Mean, Variance and Fitting.
3(11-16)	Revision;test and assignment of UNIT-1& UNIT-2
4(18-23)	UNIT-3: Numerical Differentiation: Derivative of a function using interpolation formulae as studied in Sections –I & II.
5(25-30)	Eigen Value Problems: Power method, Jacobi's method.

Week(Oct.)	Topics
1(3-7)	Given's method, House- Holder's method.
2(9-14)	QR method, Lanczos method
3(16-21)	UNIT-4: Numerical Integration: Newton-Cote's Quadrature formula, Trapezoidal rule.
4(23-28)	Simpson's one- third and three-eighth rule, Chebychev formula.
5(30-31)	Gauss Quadrature formula. Numerical solution of ordinary differential equations.

Week(Nov.)	Topics
1(1-4)	Single step methods- Picard's method.
2(6-11)	Taylor's series method, Euler's method, Runge-Kutta Methods. Multiple step methods.
3(13-18)	Predictor-corrector method, Modified Euler's method, Milne-Simpson's method.
4(20-25)	Revision and test of UNIT -3 and UNIT-4

Lesson Plan

Teacher …Dr. Sunita…….

Class …B.Sc 3rd…….. Sec. (A+B)……..

Subject- Statics and Dynamics…….Session …2023-24 odd sem……

Week(July.)	Topics
1 (24-29)	UNIT-1: Friction.
2(31)	Centre of Gravity: Introduction.

Week(Aug.)	Topics
1(1-5)	Center of gravity continue.
2(7-12)	Virtual work.
3(14-19)	Forces in three dimensions.
4(21-26)	Poinsots central axis.
5(28-31)	Wrenches.

Week(Sep.)	Topics
1(1-2)	Null lines and planes.
2(4-9)	Revision ; test and assignment of UNIT-1 and UNIT-2.
3(11-16)	UNIT-3: Definitions of Conservative forces and Impulsive forces.
4(18-23)	Motion on smooth and rough plane curves.
5(25-30)	Projectile motion of a particle in a plane.

Week(Oct.)	Topics
1(3-7)	Vector angular velocity.
2(9-14)	Revision of previous chapter.
3(16-21)	UNIT-4: General motion of a rigid body.(Half topic covered)
4(23-28)	General motion of a rigid body.(completed)
5(30-31)	Central orbits.(half topic covered)

Week(Nov.)	Topics
1(1-4)	Central orbits completed.
2(6-8)	Kepler laws of motion.
(9-16)	DIWALI HOLIDAYS
3(17-18)	Revision of kepler law of motion.
4(20-25)	Motion of a particle in three dimensions.
5(27-30)	Revision ; test and assignment of UNIT-3 and UNIT-4.

Lesson Plan

Teacher- Dr. Kusum…….

Class …B.Sc 3rd…….. Sec. …SEC……..

Subject …Integral calculus……..Session 2023-24(odd sem)……

Week(July.)	Topics
1 (24-29)	UNIT-1: Integration by partial fraction
2(31)	Integration of rational functions.

Week(Aug.)	Topics
1(1-5)	Integration of irrational functions.
2(7-12)	Properties of definite integrals.
3(14-19)	Revision of UNIT-1
4(21-26)	UNIT-2: Reduction formulae for integrals of rational functions.
5(28-31)	Reduction formulae for integrals of trigonometric functions.

Week(Sep.)	Topics
1(1-2)	Reduction formulae for integrals of exponential functions.
2(4-9)	Reduction formulae for integrals of logarithmic functions and of their compositions.
3(11-16)	Revision; test and assignment of UNIT-1 and UNIT-2
4(18-23)	UNIT-3: Areas of curves in the plane.
5(25-30)	Lengths of curves in the plane.

Week(Oct.)	Topics
1(3-7)	Volume and surfaces of solid of revolution.
2(9-14)	Exercise practice and revision of the topic.
3(16-21)	Test of UNIT-3
4(23-28)	UNIt-4: Double integration : Introduction.
5(30-31)	Example and exercise practice of Double integration.

Week(Nov.)	Topics
1(1-4)	Triple integration : Introduction.
2(6-11)	Example and exercise practice of triple integration.(diwali break from 9-16 nov.)
3(13-18)	Revision of full chapter.
4(20-25)	Assignment of UNIT-4.

Lesson Plan

Teacher …Dr. Kusum…….

Class …B.Sc 3rd …….. Sec. …(C+D)……..

Subject …Linear Algebra…….Session …2023-24……

Week(July.)	Topics
1 (24-29)	UNIT-1: Vector spaces, subspaces, Sum and Direct sum of subspaces, Linear span.
2(31)	Linearly Independent and dependent subsets of a vector space.

Week(Aug.)	Topics
1(1-5)	Finitely generated vector space, Existence theorem for basis of a finitely generated vactor space.
2(7-12)	Finite dimensional vector spaces, Invariance of the number of elements of bases sets, Dimensions, Quotient space and its dimension.
3(14-19)	UNIT-2: Homomorphism and isomorphism of vector spaces.
4(21-26)	Linear transformations and linear forms on vactor spaces, Vactor space of all the linear transformations Dual Spaces.
5(28-31)	Null Space, Range space of a linear transformation.

Week(Sep.)	Topics
1(1-2)	Rank and Nullity Theorem.
2(4-9)	Revision ; test and assignment of unit -1 & unit-2
3(11-16)	UNIT-3: Algebra of Liner Transformation.
4(18-23)	Minimal Polynomial of a linear transformation.
5(25-30)	Singular and non-singular linear transformations.

Week(Oct.)	Topics
1(3-7)	Matrix of a linear Transformation, Change of basis,
2(9-14)	UNIT-4: Eigen values and Eigen vectors of linear transformations.
3(16-21)	Inner product spaces.
4(23-28)	Cauchy-Schwarz inequality, Orthogonal vectors.
5(30-31)	Orthogonal complements, Orthogonal sets and Basis.

Week(Nov.)	Topics
1(1-4)	Bessel's inequality for finite dimensional vector spaces.
2(6-11)	Gram-Schmidt. (Diwali break from 9-16 nov.)
3(13-18)	Orthogonalization process.
4(20-25)	Revision; test and assignment of UNIT-3 and UNIT-4

Lesson Plan

Teacher …Dr. Punita Rani…….

Class …B.Sc 2nd (hons.)…….. Sec. ……..

Subject …… Differential Geometry … .Session ……2023-24(odd sem)……

Week(July.)	Topics
1 (24-29)	UNIT-1: One Parameter family of Surfaces : Envelope, Characteristics , edge of regression ,
2(31)	Developable surfaces. Developables Associated with a Curve .

Week(Aug.)	Topics
1(1-5)	Osculating developable, Polar developable.
2(7-12)	Rectifying developable.
3(14-19)	UNIT-2: Two- parameter Family of Surfaces: Envelope.
4(21-26)	Characteristics points, Curvilinear coordinates, First order magnitudes.
5(28-31)	Directions on a surface, The normal, Second order magnitudes, Derivatives of n.

Week(Sep.)	Topics
1(1-2)	Assignment and test Unit -1 & Unit-2
2(4-9)	UNIT-3: Curves on a Surface: Principal directions and curvatures.
3(11-16)	First and second curvatures, Euler's theorems.
4(18-23)	Dupin's indicatrix, The surfaces z = f(x,y), Surface of revolution.
5(25-30)	Conjugate systems.Asymptotic lines, Curvature and torsion.

Week(Oct.)	Topics
1(3-7)	Isometric parameters, Null lines, or minimal curves
2(9-14)	Revision of unit-3 and test of unit -3
3(16-21)	Unit-4: Geodesics and Geodesic Parallels: Geodesics: Geodesic property.
4(23-28)	Equation of Geodesics, Surface of revolution.
5(30-31)	Torsion of Geodesic. Curves in Relation to Geodesics; Bonnet theorem.

Week(Nov.)	Topics
1(1-4)	Joachimsthal's theorems, Vector curvature, Geodesic curvature, κg , Other formulae for κg .
2(6-11)	Bonnet's formula. (Diwali break from 9-16 nov.)
3(13-18)	Assignment and test of Unit -4
4(20-25)	Revision of last year question papers.

Lesson Plan

Teacher ……Dr. Punita Rani…….

Class …B.Sc Ist year …… Sec. ……C……..

Subject ……Algebra……..Session ….2023-24 (odd sem.)……

Week(July.)	Topics
1 (24-29)	UNIT-1 Symmetric, Skew-symmetric, Hermitian and skew Hermitian matrices. Elementary Operations on matrices.
2(31)	Inverse of a matrix. Linear dependence and independence of rows and columns of matrices.

Week(Aug.)	Topics
1(1-5)	Row rank and column rank of a matrix. Eigenvalues, eigenvectors and the characteristic equation of a matrix.
2(7-12)	Minimal polynomial of a matrix.
3(14-19)	Cayley Hamilton theorem and its use in finding the inverse of a matrix.
4(21-26)	UNIT-2 Applications of matrices to a system of linear equations.
5(28-31)	Theorems on consistency of a system of linear equations.

Week(Sep.)	Topics
1(1-2)	Unitary and Orthogonal Matrices.
2(4-9)	Bilinear and Quadratic forms.
3(11-16)	Revision, Assignment &Test UNIT-1 & Unit -2
4(18-23)	UNIT-3Relations between the roots and coefficients of general polynomial equation in one variable.
5(25-30)	Solutions of polynomial equations having conditions on roots.

Week(Oct.)	Topics
1(3-7)	Common roots and multiple roots.
2(9-14)	Transformation of equations.
3(16-21)	Revision of UNIT 3
4(23-28)	UNIT-4 Nature of the roots of an equation Descarte's rule of signs.
5(30-31)	Solutions of cubic equations (Cardon's method).

Week(Nov.)	Topics
1(1-4)	Biquadratic equations and their solutions.
2(6-11)	Biquadratic equations and their solutions.(Diwali break (9-16) nov.)
3(13-18)	Revision of UNIT-4
4(20-25)	Assignment &Test UNIT-3 & Unit -4

LESSON PLAN

Teacher …Dr. Punita Rani……

Class …B.Sc Ist year……. Sec …C…

Subject …Calculus……. Session……2023-24 (odd sem).

Week(July)	Topics
1(24-29)	UNIT-1: Successive differentiation: Introduction
2(31)	Successive differentiation: exercise and example .

Week(Aug)	Topics
1(1-5)	Leibnitz theorem. Maclaurin and Taylor series expansions
2(7-12)	Curvature, radius of curvature for Cartesian curves, parametric curves polar curves
3(14-19)	Newton's method. Radius of curvature for pedal curves. Tangential polar equations. Centre of curvature.
4(21-26)	Circle of curvature. Chord of curvature, evolutes.
5(28-31)	UNIT-2 Asymptotes in Cartesian coordinates, intersection of curve and its asymptotes.

Week (Sept)	Topics
1(1-2)	Asymptotes in polar coordinates..
2(4-9)	Tests for concavity and convexity. Points of inflexion.
3(11-16)	Multiple points. Cusps, nodes & conjugate points. Type of cusp
4(18-23)	Assignment & Test of UNIT-1 & UNIT-2
5(25-30)	UNIT-3 Reduction formulae. Rectification, intrinsic equations of curve

Week(Oct)	Topics
1(3-7)	Applications of single integration.
2(9-14)	Quardrature (area)Sectorial area. Area bounded by closed curves.
3(16-21)	Volumes and surfaces of solids of revolution.
4(23-28)	Theorems of Pappu's and Guilden.
5(30-31)	UNIT-4 Multiple Integrals: Double integrals in Cartesian and polar coordinates.

Week(Nov)	Topics
1(1-4)	Area and volume by Double integrals.
2(6-11)	Triple integrals Cartesian, cylindrical and spherical coordinates.((Diwali break from 9-16 nov.)
3(13-18)	Volume of solids by Triple integrals
4(20-25)	Assignment & test of UNIT-3& UNIT-4

Lesson Plan

Teacher …SAVITA SHARMA…….

Class …B.A 3rd …….. Sec. ……..

Subject …Linear Algebra…….Session …2023-24……

Week(July.)	Topics
1 (24-29)	UNIT-1: Vector spaces, subspaces, Sum and Direct sum of subspaces, Linear span.
2(31)	Linearly Independent and dependent subsets of a vector space.

Week(Aug.)	Topics
1(1-5)	Finitely generated vector space, Existence theorem for basis of a finitely generated vactor space.
2(7-12)	Finite dimensional vector spaces, Invariance of the number of elements of bases sets, Dimensions, Quotient space and its dimension.
3(14-19)	UNIT-2: Homomorphism and isomorphism of vector spaces.
4(21-26)	Linear transformations and linear forms on vactor spaces, Vactor space of all the linear transformations Dual Spaces.
5(28-31)	Null Space, Range space of a linear transformation.

Week(Sep.)	Topics
1(1-2)	Rank and Nullity Theorem.
2(4-9)	Revision ; test and assignment of unit -1 & unit-2
3(11-16)	UNIT-3: Algebra of Liner Transformation.
4(18-23)	Minimal Polynomial of a linear transformation.
5(25-30)	Singular and non-singular linear transformations.

Week(Oct.)	Topics
1(3-7)	Matrix of a linear Transformation, Change of basis,
2(9-14)	UNIT-4: Eigen values and Eigen vectors of linear transformations.
3(16-21)	Inner product spaces.
4(23-28)	Cauchy-Schwarz inequality, Orthogonal vectors.
5(30-31)	Orthogonal complements, Orthogonal sets and Basis.

Week(Nov.)	Topics
1(1-4)	Bessel's inequality for finite dimensional vector spaces.
2(6-11)	Gram-Schmidt**. (Diwali break from 9-16 nov.)**
3(13-18)	Orthogonalization process.
4(20-25)	Revision; test and assignment of UNIT-3 and UNIT-4

Lesson Plan

Teacher : Savita Sharma…….

Class : Bsc 2nd …….. Sec.:A+B (1-3)……..

Subject: Programing in C & Numerical method……Session: 2023-24

Week(July.)	Topics
1 (24-29)	**Unit-1**: Programmer's model of a computer, Algorithms, Flow charts, Data types, Operators and expressions
2(31)	Input / outputs functions

Week(Aug.)	Topics
1(1-5)	Decisions control structure: Decision statements, Logical and conditional statements, Implementation of Loops
2(7-12)	Switch Statement & Case control structures. Functions, Preprocessors and Arrays.
3(14-19)	**Unit-2**: Strings: Character Data Type, Standard String handling Functions, Arithmetic Operations on Characters.
4(21-26)	Structures: Definition, using Structures, use of Structures in Arrays and Arrays in Structures
5(28-31)	Pointers: Pointers Data type, Pointers and Arrays

Week(Sep.)	Topics
1(1-2)	Pointers and Functions. **Test of unit 1**
2(4-9)	**Unit-3:** Solution of Algebraic and Transcendental equations: Bisection method
3(11-16)	Regula-Falsi method.
4(18-23)	Secant method
5(25-30)	Newton-Raphson's method.

Week(Oct.)	Topics
1(3-7)	Newton's iterative method for finding pth root of a number, Order of convergence of above methods
2(9-14)	Revision and problem discussion
3(16-21)	**Unit-4:** Simultaneous linear algebraic equations: Gauss-elimination method
4(23-28)	Triangularization method (LU decomposition method).
5(30-31)	**Test and Assignment**

Week(Nov.)	Topics
1(1-4)	Crout's method, Cholesky Decomposition method
2(6-8)	Iterative method, Jacobi's method(**Dipawali break 9-16)**
3(17-18)	Gauss-Seidal's method, Relaxation method
4(20-25)	Revision and problem discussion

Lesson Plan

Teacher: Savita Sharma …….

Class : Bsc(H) 2nd …….. Sem: 3rd . ……..

Subject : Probability Distribution……..Session:2023-24 ……

Week(July.)	Topics
1 (24-29)	**Unit-1:** Generating Functions: Moment generating function
2(31)	Cumulant generating function

Week(Aug.)	Topics
1(1-5)	Cumulant generating function along with their properties and uses.
2(7-12)	Tchebychev's inequality, Convergence in probability,
3(14-19)	Weak and strong laws of large numbers
4(21-26)	**Unit-2:** Bernoulli
5(28-31)	Binomial Distribution: moments and its recurrence relation

Week(Sep.)	Topics
1(1-2)	Characteristic function and cumulants of binomial distribution
2(4-9)	Probability generating function and its recurrence relation
3(11-16)	Poisson distributions with their properties.
4(18-23)	Geometric distributions with their properties.
5(25-30)	Hyper-geometric distributions with their properties.

Week(Oct.)	Topics
1(3-7)	**Unit-3:** Uniform distributions with their properties.
2(9-14)	Gamma distributions with their properties.
3(16-21)	Beta (first and second kinds) distributions with their properties.
4(23-28)	Exponential distributions with their properties.
5(30-31)	**Test and Assignment**

Week(Nov.)	Topics
1(1-4)	**Unit-4:** Normal distribution with its properties
2(6-11)	Normal distribution: moments and its recurrence relation, Characteristic function and cumulants, Probability generating function
	Diwali Break(9-16)
3(13-18)	Central Limit Theorem and its applications.
4(20-25)	Revision and Problem discussion

Lesson Plan

Teacher …Dr. Vikas…….

Class …B.Sc. 3rd …….. Sec. …A+B……..

Subject …Linear Algebra…….Session …2023-24……

Week(July.)	Topics
1 (24-29)	UNIT-1: Vector spaces, subspaces, Sum and Direct sum of subspaces, Linear span.
2(31)	Linearly Independent and dependent subsets of a vector space.

Week(Aug.)	Topics
1(1-5)	Finitely generated vector space, Existence theorem for basis of a finitely generated vactor space.
2(7-12)	Finite dimensional vector spaces, Invariance of the number of elements of bases sets, Dimensions, Quotient space and its dimension.
3(14-19)	UNIT-2: Homomorphism and isomorphism of vector spaces.
4(21-26)	Linear transformations and linear forms on vactor spaces, Vactor space of all the linear transformations Dual Spaces.
5(28-31)	Null Space, Range space of a linear transformation.

Week(Sep.)	Topics
1(1-2)	Rank and Nullity Theorem.
2(4-9)	Revision ; test and assignment of unit -1 & unit-2
3(11-16)	UNIT-3: Algebra of Liner Transformation.
4(18-23)	Minimal Polynomial of a linear transformation.
5(25-30)	Singular and non-singular linear transformations.

Week(Oct.)	Topics
1(3-7)	Matrix of a linear Transformation, Change of basis,
2(9-14)	UNIT-4: Eigen values and Eigen vectors of linear transformations.
3(16-21)	Inner product spaces.
4(23-28)	Cauchy-Schwarz inequality, Orthogonal vectors.
5(30-31)	Orthogonal complements, Orthogonal sets and Basis.

Week(Nov.)	Topics
1(1-4)	Bessel's inequality for finite dimensional vector spaces.
2(6-11)	Gram-Schmidt**. (Diwali break from 9-16 nov.)**
3(13-18)	Orthogonalization process.
4(20-25)	Revision; test and assignment of UNIT-3 and UNIT-4

Lesson Plan

Teacher: Dr. Vikas …….

Class: Bsc(H) 1st …….. Sem: 1st ……..

Subject: Solid Geometry……..Session: 2023-24……

Week (July.)	Topics
1 (24-29)	**Unit-1:** General equation of second degree. Tracing of conics.
2(31)	General equation of second degree. Tracing of conics.

Week(Aug.)	Topics
1(1-5)	Tangent at any point to the conic, , director circle of conic
2(7-12)	Confocal conics. Polar equation of a conic, tangent and normal to the conic.
3(14-19)	Tangent and normal to the conic.
4(21-26)	**Unit-2:** Sphere: Plane section of a sphere. .
5(28-31)	Sphere through a given circle. Intersection of two spheres, radical plane of two spheres.

Week(Sep.)	Topics
1(1-2)	Co-oxal system of spheres
2(4-9)	Cones: Right circular cone, enveloping cone and reciprocal cone.
3(11-16)	Cylinder: Right circular cylinder and enveloping cylinder.
4(18-23)	Revision and problem discussion
5(25-30)	**Unit-3:** Central Conicoids: Equation of tangent plane..

Week(Oct.)	Topics
1(3-7)	Director sphere, Normal to the conicoids.
2(9-14)	Polar plane of a point, Enveloping cone of a coincoid.
3(16-21)	Enveloping cylinder of a coincoid.
4(23-28)	**Test and Assignment**
5(30-31)	**Unit-4:** Paraboloids: Circular section

Week(Nov.)	Topics
1(1-4)	Plane sections of conicoids, Generating line
2(6-9)	Confocal conicoid(**Diwali break 9-16**)
3(17-18)	Reduction of second degree equations.
4(20-25)	Revision and problem discussion

Lesson Plan

Teacher: Dr.Vikas …….

Class: B.com (H) …….. Sem: 3rd ……..

Subjec: Bussiness Mathematics …..Session: 2023-24 ……

Week(July.)	Topics
1 (24-29)	**Unit-1:** Matrix: Types, Basic operations, multiplication
2(31)	Symmetric and Skew-symmetric matrices

Week(Aug.)	Topics
1(1-5)	Determinants and its elementary operations
2(7-12)	Solution of linear equations
3(14-19)	Adjoint and Inverse of a matrix
4(21-26)	Leontief input – output model
5(28-31)	**Unit-2:** Simple and Compound interest

Week(Sep.)	Topics
1(1-2)	Problems on effective rate of interest
2(4-9)	Problems on effective rate of depreciation and population
3(11-16)	Annuities, types, sinking found, amount of an annuity and its solution
4(18-23)	Time value of money: concept, techniques; Multi- Period compounding
5(25-30)	**Test and Assignment**

Week(Oct.)	Topics
1(3-7)	**Unit-3**: Differentiation of simple and quotient function
2(9-14)	Derivative of function of function, logarithmic and exponential function
3(16-21)	Indefinite integral, integration by substitution
4(23-28)	Integration by parts
5(30-31)	**Unit-4:** Linear programming- meaning, importance and limitation,model

Week(Nov.)	Topics
1(1-4)	Solution of linear programming by Graphical method
2(6-8)	Simplex method of solving LLP
3(13-18)	Set theory
4(20-25)	Revision and problem discussion

Lesson Plan

Teacher …Dr. Neeti…….

Class …B.A 2nd year……..

Subject …Numerical methods with programming in C……

Session ……2023-24……

Week(July.)	Topics
1 (24-29)	UNIT -1: Programmer's model of a computer.
2(31)	Algorithms, Flow charts.Data types, Operators and expressions, Input / outputs functions.

Week(Aug.)	Topics
1(1-5)	Data types, Operators and expressions.
2(7-12)	Input / outputs functions.
3(14-19)	UNIT -2: Decisions control structure: Decision statements.
4(21-26)	Logical and conditional statements.
5(28-31)	Implementation of Loops, Switch Statement & Case control structures.

Week(Sep.)	Topics
1(1-2)	Functions, Preprocessors and Arrays.
2(4-9)	UNIT -3: Strings: Character Data Type, Standard String handling Functions, Arithmetic Operations on Characters.
3(11-16)	Structures: Definition, using Structures, use of Structures in Arrays and Arrays in Structures
4(18-23)	Pointers: Pointers Data type, Pointers and Arrays, Pointers and Functions.
5(25-30)	Solution of Algebraic and Transcendental equations: Bisection method, Regula-Falsi method, Secant method, Newton-Raphson's method.

Week(Oct.)	Topics
1(3-7)	Newton's iterative method for finding pth root of a number, Order of convergence of above methods
2(9-14)	UNIT -4: Simultaneous linear algebraic equations: Gauss-elimination method, Gauss-Jordan method.
3(16-21)	Triangularization method (LU decomposition method).
4(23-28)	Crout's method, Cholesky Decomposition method. Iterative method, Jacobi's method, Gauss-Seidal's method, Relaxation method.
5(30-31)	Iterative method.

Week(Nov.)	Topics
1(1-4)	Jacobi's method, Gauss-Seidal's method.
2(6-8)	Relaxation method.
(9-16)	DIWALI HOLIDAYS
3(17-18)	REVISION
4(20-25)	ASSIGNMENT
5(27-30)	TEST

Lesson Plan

Teacher …Dr. Neeti…….

Class …B.A 2nd year ……..

Subject …Differential equations……

Week(July.)	Topics
1 (24-29)	UNIT -1: Geometrical meaning of a differential equation.
2(31)	Exact differential equations, integrating factors.

Week(Aug.)	Topics
1(1-5)	First order higher degree equations solvable for x,y,p Lagrange's equations.
2(7-12)	Clairaut's equations.
3(14-19)	Equation reducible to Clairaut's form. Singular solutions.
4(21-26)	UNIT -2: Orthogonal trajectories: in Cartesian coordinates and polar coordinates.
5(28-31)	Self orthogonal family of curves.

Week(Sep.)	Topics
1(1-2)	Linear differential equations with constant coefficients.
2(4-9)	Homogeneous linear ordinary differential equations.
3(11-16)	Equations reducible to homogeneous
4(18-23)	UNIT -3: Partial differential equations: Formation, order and degree.
5(25-30)	Linear and Non-Linear Partial differential equations of the first order.

Week(Oct.)	Topics
1(3-7)	Complete solution, singular solution, General solution.
2(9-14)	Solution of Lagrange's linear equations.
3(16-21)	Charpit's general method of solution.
4(23-28)	UNIT -4: Jacobi's method.
5(30-31)	Linear partial differential equations of second and higher orders.

Week(Nov.)	Topics
1(1-4)	Linear homogenous and non-homogenous equations with constant co-efficients.
2(6-8)	Non Linear homogenous and non-homogenous equations with constant co-efficients.
(9-16)	DIWALI HOLIDAYS
3(17-18)	Method of separation of variables.
4(20-25)	REVISION
5(27-30)	TEST

Lesson Plan

Teacher …Dr. Neeti…….

Class …B.sc hons 3rd year……..

Subject …Operation research……..Session ……2023-24……

Week(July.)	Topics
1 (24-29)	UNIT -1: Definition, scope, methodology and applications of OR. Types of OR models.
2(31)	Concept of optimization, Linear Programming: Introduction, Formulation of a Linear Programming Problem (LPP).

Week(Aug.)	Topics
1(1-5)	Requirements for an LPP, Advantages and limitations of LP. Graphical solution: Multiple, unbounded and infeasible solutions.
2(7-12)	UNIT -2 :Principle of simplex method: standard form.
3(14-19)	Basic feasible solution. Computational Aspect of Simplex Method.
4(21-26)	Cases of unique feasible solution, no feasible solution, multiple solution and unbounded solution and degeneracy.
5(28-31)	Two Phase and Big- M methods.

Week(Sep.)	Topics
1(1-2)	UNIT -3: Duality in LPP, primal-dual relationship.
2(4-9)	Transportation Problem: Methods for finding basic feasible solution of a transportation problem.
3(11-16)	Modified distribution method for finding the optimum solution.
4(18-23)	Unbalanced and degenerate transportation problems.
5(25-30)	Transshipment problem.

Week(Oct.)	Topics
1(3-7)	Maximization in a transportation problem.
2(9-14)	UNIT -4: Assignment Problem: Solution by Hungarian method.
3(16-21)	Unbalanced assignment problem, maximization in an assignment problem.
4(23-28)	Crew assignment and Travelling salesman problem.
5(30-31)	Game Theory: Two person zero sum game, Game with saddle points, the rule of dominance.

Week(Nov.)	Topics
1(1-4)	Algebraic methods for solving mixed strategy games.
2(6-8)	Graphical and linear programming methods for solving mixed strategy games.
(9-16)	DIWALI HOLIDAYS
3(17-18)	ASSIGNMENT
4(20-25)	REVISION
5(27-30)	TEST

Lesson Plan

Teacher …Dr. Neeti…….

Class …B.sc hons…II……..

Subject …Data base management system and oracle…Session ……2023-24……

Week(July.)	Topics
1 (24-29)	UNIT – 1:Terminologies of database.
2(31)	Drawbacks of conventional file systems.

Week(Aug.)	Topics
1(1-5)	Data administrator (Role and functions).
2(7-12)	Characteristics of databases, Data redundancy.
3(14-19)	Data integrity, Data independence.
4(21-26)	DBMS and its functions.
5(28-31)	Advantages and disadvantages of database.

Week(Sep.)	Topics
1(1-2)	UNIT -2 :Three levels of the architecture.
2(4-9)	External level, Conceptual level and Internal level.
3(11-16)	Mappings and Schemas.
4(18-23)	Client/Server architecture.
5(25-30)	Distributed processing.

Week(Oct.)	Topics
1(3-7)	UNIT -3: Data model, Relational data model, Hierarchical data model.
2(9-14)	Network data model. Relational model.
3(16-21)	Basic structure, Terminology. Normalization.
4(23-28)	First Normal Form, Second Normal Form, Third Normal Form, BCNF, Relational algebra and Relational Calculus.
5(30-31)	UNIT -4 : PL/SQL Blocks, Data types, PL/SQL functions, Cursors, Error handling inPL/SQL, Package functions, Package procedures.

Week(Nov.)	Topics
1(1-4)	DatabaseTriggers Vs. Declarative Integrity Constraints,.
2(6-8)	Creatinga Trigger, BEFORE vs AFTER Trigger Combinations, Dropping a Trigger.
(9-16)	DIWALI HOLIDAYS
3(17-18)	ASSIGNMENT
4(20-25)	REVISION
5(27-30)	TEST

Lesson Plan

Teacher …Dr. Neeti…….

Class ……B.Sc. 1st …….. Sec. ……A+B……..

Subject ……Algebra……..Session ……2023-24 Odd Sem.……

Week(July.)	Topics
1 (24-29)	UNIT -1 :Review of Matrices (Algebra of matrices,Rank and Inverse of matrix).
2(31)	Linear dependence and independence of rows and columns of matrices.

Week(Aug.)	Topics
1(1-5)	Row rank and column rank of a matrix.
2(7-12)	Eigenvalues, eigenvectors and the characteristic equation of a matrix.
3(14-19)	Minimal polynomial of a matrix.
4(21-26)	Cayley Hamilton theorem and its use in finding the inverse of a matrix.
5(28-31)	UNIT -2 : Applications of matrices to a system of linear (both homogeneous and non– homogeneous) equations.

Week(Sep.)	Topics
1(1-2)	Theorems on consistency of a system of linear equations.
2(4-9)	Unitary and Orthogonal Matrices.
3(11-16)	Bilinear and Quadratic forms.
4(18-23)	UNIT -3 : Relations between the roots and coefficients of general polynomial equation in one variable. Solutions of polynomial equations having conditions on roots. Common roots and multiple roots. Transformation of equations.
5(25-30)	Solutions of polynomial equations having conditions on roots.

Week(Oct.)	Topics
1(3-7)	Common roots and multiple roots.
2(9-14)	Transformation of equations.
3(16-21)	UNIT – 4: Nature of the roots of an equation Descarte's rule of signs.
4(23-28)	Solutions of cubic equations(Cardon's method)
5(30-31)	Biquadratic equations and their solutions.

Week(Nov.)	Topics
1(1-4)	ASSIGNMENT
2(6-8)	REVISION
(9-16)	DIWALI HOLIDAYS
3(17-18)	REVISION
4(20-25)	TEST 1
5(27-30)	TEST 2

Lesson Plan

Teacher ……Dr. Kulvir…….

Class ……B.Sc. Honours 3rd …….. Sec. ……..

Subject ……Group & Ring……..Session ……odd……

Week(July.)	Topics
1 (24-29)	Definition of a group with example and simple properties of groups,
2(31)	Subgroups and Subgroup criteria, Generation of groups,

Week(Aug.)	Topics
1(1-5)	cyclic groups, Cosets, Left and right cosets Cosets, Left and right cosets
2(7-12)	Index of a sub-group Coset decomposition
3(14-19)	Largrage's theorem and its consequences, Normal subgroups, Quotient groups,
4(21-26)	Homoomorphisms, isomophisms,
5(28-31)	automorphisms and inner automorphisms of a group. Automorphisms of cyclic groups

Week(Sep.)	Topics
1(1-2)	Permutations groups. Even and odd permutations. Alternating groups,
2(4-9)	Cayley's theorem, Center of a group and derived group of a group.
3(11-16)	Introduction to rings, subrings
4(18-23)	integral domains and fields,
5(25-30)	Characteristics of a ring. Ring homomorphisms, Test & Assignment

Week(Oct.)	Topics
1(3-7)	ideals (principle, prime and Maximal) and Quotient rings,
2(9-14)	Field of quotients of an integral domain.
3(16-21)	Euclidean rings, Polynomial rings,
4(23-28)	Polynomials over the rational field, The Eisenstein's criterion
5(30-31)	Polynomial rings over commutative rings,Test

Week(Nov.)	Topics
1(1-4)	Unique factorization domain,
2(6-8)	R unique factorization domain implies so is R[X1 , X2,……Xn], Test and Assignment
(9-16)	DIWALI HOLIDAYS
3(17-18)	revision
4(20-25)	revision
5(27-30)	revision

LESSON PLAN

Teacher …Dr. Kulvir……

Class …B.Sc Ist honours(4-6)……. Sec ……..

Subject …Calculus……. Session……2023-24 (odd sem).

Week(July)	Topics
1(24-29)	UNIT-1: Successive differentiation: Introduction
2(31)	Successive differentiation: exercise and example .

Week(Aug)	Topics
1(1-5)	Leibnitz theorem. Maclaurin and Taylor series expansions
2(7-12)	Curvature, radius of curvature for Cartesian curves, parametric curves polar curves
3(14-19)	Newton's method. Radius of curvature for pedal curves. Tangential polar equations. Centre of curvature.
4(21-26)	Circle of curvature. Chord of curvature, evolutes.
5(28-31)	UNIT-2 Asymptotes in Cartesian coordinates, intersection of curve and its asymptotes.

Week (Sept)	Topics
1(1-2)	Asymptotes in polar coordinates..
2(4-9)	Tests for concavity and convexity. Points of inflexion.
3(11-16)	Multiple points. Cusps, nodes & conjugate points. Type of cusp
4(18-23)	Assignment & Test of UNIT-1 & UNIT-2
5(25-30)	UNIT-3 Reduction formulae. Rectification, intrinsic equations of curve

Week(Oct)	Topics
1(3-7)	Applications of single integration.
2(9-14)	Quardrature (area)Sectorial area. Area bounded by closed curves.
3(16-21)	Volumes and surfaces of solids of revolution.
4(23-28)	Theorems of Pappu's and Guilden.
5(30-31)	UNIT-4 Multiple Integrals: Double integrals in Cartesian and polar coordinates.

Week(Nov)	Topics
1(1-4)	Area and volume by Double integrals.
2(6-11)	Triple integrals Cartesian, cylindrical and spherical coordinates.((Diwali break from 9-16 nov.)
3(13-18)	Volume of solids by Triple integrals
4(20-25)	Assignment & test of UNIT-3& UNIT-4

LESSON PLAN

Teacher …Shalini ……

Class …B.Sc Ist honours(1-3)……. Sec ……..

Subject …Calculus……. Session……2023-24 (odd sem).

Week(July)	Topics
1(24-29)	UNIT-1: Successive differentiation: Introduction
2(31)	Successive differentiation: exercise and example .

Week(Aug)	Topics
1(1-5)	Leibnitz theorem. Maclaurin and Taylor series expansions
2(7-12)	Curvature, radius of curvature for Cartesian curves, parametric curves polar curves
3(14-19)	Newton's method. Radius of curvature for pedal curves. Tangential polar equations. Centre of curvature.
4(21-26)	Circle of curvature. Chord of curvature, evolutes.
5(28-31)	UNIT-2 Asymptotes in Cartesian coordinates, intersection of curve and its asymptotes.

Week (Sept)	Topics
1(1-2)	Asymptotes in polar coordinates..
2(4-9)	Tests for concavity and convexity. Points of inflexion.
3(11-16)	Multiple points. Cusps, nodes & conjugate points. Type of cusp
4(18-23)	Assignment & Test of UNIT-1 & UNIT-2
5(25-30)	UNIT-3 Reduction formulae. Rectification, intrinsic equations of curve

Week(Oct)	Topics
1(3-7)	Applications of single integration.
2(9-14)	Quardrature (area)Sectorial area. Area bounded by closed curves.
3(16-21)	Volumes and surfaces of solids of revolution.
4(23-28)	Theorems of Pappu's and Guilden.
5(30-31)	UNIT-4 Multiple Integrals: Double integrals in Cartesian and polar coordinates.

Week(Nov)	Topics
1(1-4)	Area and volume by Double integrals.
2(6-11)	Triple integrals Cartesian, cylindrical and spherical coordinates.((Diwali break from 9-16 nov.)
3(13-18)	Volume of solids by Triple integrals
4(20-25)	Assignment & test of UNIT-3& UNIT-4

Lesson Plan

Teacher …Shalini Singhal…….

Class …B.Sc 2nd (Hons.) …….. Sem . …4th……..

Subject …P.D.E……..Session 2023-24……

Week(July.)	Topics
1 (24-29)	UNIT-1: Partial differential equations: Formation, order and degree, Linear and Non-Linear.
2(31)	Complete solution, singular solution.

Week(Aug.)	Topics
1(1-5)	General solution, Solution of Lagrange's linear equations.
2(7-12)	Charpit's general method of solution. Compatible systems of first order equations, Jacobi's method.
3(14-19)	UNIT-2: Linear partial differential equations of second and higher orders, Linear and non-linear homogenious.
4(21-26)	Non-homogenious equations with constant co-efficients.
5(28-31)	Partial differential eqution with variable co-efficients reducible to equations with constant coefficients.

Week(Sep.)	Topics
1(1-2)	Their complimentary functions and particular Integrals, Equations reducible to linear equations with constant co-efficients
2(4-9)	Revision ; test and assignment of UNI-1 & UNIT-2.
3(11-16)	UNIT-3: Classification of linear partial differential equations of second order,
4(18-23)	Hyperbolic linear partial differential equations.
5(25-30)	parabolic linear partial differential equations.

Week(Oct.)	Topics
1(3-7)	elliptic linear partial differential equations.
2(9-14)	Reduction of second order linear partial differential equations to Canonical (Normal) forms and their solutions.
3(16-21)	Solution of linear hyperbolic equations, Monge's method for partial differential equations of second order.
4(23-28)	UNIT-4: Cauchy's problem for second order partial differential equations.
5(30-31)	Characteristic equations and characteristic curves of second order partial differential equation.

Week(Nov.)	Topics
1(1-4)	Method of separation of variables: Solution of Laplace's equation.
2(6-8)	Wave equation (one and two dimensions
(9-16)	DIWALI HOLIDAYS
3(17-18)	Diffusion (Heat) equation (one and two dimension) in Cartesian Co- ordinate system.
4(20-25)	Revision ; test and assignment of UNIT-2 & UNIT-4
5(27-30)	Revision of previous years question paper.

LESSON PLAN

Teacher: Deepshikha

Class: Bsc-I (honours) 1st Sem

Subject : Computer Fundamental and Ms Office **Session:** 2023-24

Week (July)	Topics
1 (24-29)	**UNIT-1:** Introduction of computer, Model of a digital computer, functioning of digital computer
2(31)	Historical evolution of computer

Week(Aug.)	Topics
1(1-5)	Human being vs computer, Classification of computer, input and output devices, Storages devices, Memory and mass storage devices
2(7-12)	Characteristics of memory systems, types of memory, RAM, ROM, Virtual memory, Cache memory
3(14-19)	Types of Software, Application software and system software and its functions, Time sharing, multiprocessing, Application of computer
4(21-26)	**UNIT-2:** Introduction to Windows, Types of window, Window as an operating system.
5(28-31)	Window explorer, using clipboard, using paint brush, control panel, installing a printer

Week(Sep.)	Topics
1(1-2)	Ms Power Point: Introduction, power point slide creation, slide show
2(4-9)	Adding graphics, Formatting customizing and printing, Class test
3(11-16)	**UNIT-3:** Introduction to Ms word, standard toolbar
4(18-23)	Word wrap, Text formatting, Indent, Tab
5(25-30)	Formatting paragraphs, Applying effects to text, Applying animation to text

Week(Oct.)	Topics
1(3-7)	**UNIT -4:** Introduction to Ms-excel, Working with Toolbars, formatting
2(9-14)	Formulas, Graph and chart
3(16-21)	Data management
4(23-28)	Macros and other additional functions
5(30-31)	Revision

Week(Nov.)	Topics
1(1-4)	ASSIGNMENT
2(6-8)	REVISION
3(9-16)	DIWALI HOLIDAYS
4(17-18)	REVISION
5(20-25)	TEST 1

Lesson Plan

Teacher …Deepshikha…….

Class …BSc. NM- 2nd year ……..

Subject …Differential equations……

Week(July.)	Topics
1 (24-29)	UNIT -1: Geometrical meaning of a differential equation.
2(31)	Exact differential equations, integrating factors.

Week(Aug.)	Topics
1(1-5)	First order higher degree equations solvable for x,y,p Lagrange's equations.
2(7-12)	Clairaut's equations.
3(14-19)	Equation reducible to Clairaut's form. Singular solutions.
4(21-26)	UNIT -2: Orthogonal trajectories: in Cartesian coordinates and polar coordinates.
5(28-31)	Self orthogonal family of curves.

Week(Sep.)	Topics
1(1-2)	Linear differential equations with constant coefficients.
2(4-9)	Homogeneous linear ordinary differential equations.
3(11-16)	Equations reducible to homogeneous
4(18-23)	UNIT -3: Partial differential equations: Formation, order and degree.
5(25-30)	Linear and Non-Linear Partial differential equations of the first order.

Week(Oct.)	Topics
1(3-7)	Complete solution, singular solution, General solution.
2(9-14)	Solution of Lagrange's linear equations.
3(16-21)	Charpit's general method of solution.
4(23-28)	UNIT -4: Jacobi's method.
5(30-31)	Linear partial differential equations of second and higher orders.

Week(Nov.)	Topics
1(1-4)	Linear homogenous and non-homogenous equations with constant co-efficients.
2(6-8)	Non Linear homogenous and non-homogenous equations with constant co-efficients.
(9-16)	DIWALI HOLIDAYS
3(17-18)	Method of separation of variables.
4(20-25)	REVISION
5(27-30)	TEST

Lesson Plan

Teacher …Deepshikha…….

Class …BA. 1st year ……..

Subject …Calculus……

Week(July.)	Topics
1 (24-29)	**UNIT -1:** Successive Differentiation, Leibnitz Theorem
2(31)	Taylor's and Maclaurin's series expansions

Week(Aug.)	Topics
1(1-5)	Curvature, radius of curvature for cartesian curve, parametric curve
2(7-12)	Polar curve, Newton's method, radius of curve for pedal curves
3(14-19)	Tangential polar equation, centre of curvature, circle of curvature, chord of curvature, evolutes
4(21-26)	**UNIT -2:** Asymptotes in Cartesian and Polar coordinates
5(28-31)	Asymptotes in Polar coordinates

Week(Sep.)	Topics
1(1-2)	Intersection of curve and its asymptotes, test for concavity and convexity
2(4-9)	Point of inflexion, multiple points, cusp
3(11-16)	Types of cusp, nodes and conjugate points, Class test
4(18-23)	**UNIT -3:**Reduction Formulae
5(25-30)	Rectification, intrinsic equations of curve

Week(Oct.)	Topics
1(3-7)	Application of single integration:Quadrature, sectorial area, area bounded by closed curve
2(9-14)	Volume and surfaces of solid of revolution
3(16-21)	Theorems of Pappu's and Guilden
4(23-28)	**UNIT -4:** Multiple integral, Double integrals in Cartesian and polar coordinates
5(30-31)	Area by double integration

Week(Nov.)	Topics
1(1-4)	Triple integrals Cartesian, cylindrical and spherical coordinates
2(6-8)	Volumes of the solid by triple integrals
(9-16)	DIWALI HOLIDAYS
3(17-18)	REVISION
4(20-25)	REVISION
5(27-30)	TEST

Lesson Plan

Teacher …Dr. Sonia…….

Class …B.Sc Honours 2nd year……..

Subject …Statics……

Session ……2023-24……

Week(July.)	Topics
1 (24-29)	UNIT -1: Composition of forces.
2(31)	Resolution of forces
Week(Aug.)	Topics
1(1-5)	Parallel forces
2(7-12)	Moments and Couples
3(14-19)	UNIT -2: Analytical conditions of Equilibrium of coplanar forces.
4(21-26)	Friction.
5(28-31)	Centre of Gravity.
Week(Sep.)	
1(1-2)	Test
2(4-9)	UNIT -3: Virtual work.
3(11-16)	Forces in three dimensions
4(18-23)	Forces in three dimensions
5(25-30)	Poinsots central axis.
Week(Nov.)	
1(1-4)	UNIT -4: Wrenches.
2(6-8)	Null lines and planes.
(9-16)	DIWALI HOLIDAYS
3(17-18)	REVISION
4(20-25)	ASSIGNMENT
Week(Oct.)	Topics
1(3-7)	Stable and unstable equilibrium
2(9-14)	Stable and unstable equilibrium
3(16-21)	Assignment of unit -1 and unit-2
4(23-28)	Assignment of unit -3 and unit-4
5(30-31)	Revision

Lesson Plan

Teacher …Dr. Sonia…….

Class …B.Sc 2nd year……..

Subject …Numerical methods with programming in C……Session ……2023-24……

Week(July.)	Topics
1 (24-29)	UNIT -1: Programmer's model of a computer.
2(31)	Algorithms, Flow charts.Data types, Operators and expressions, Input / outputs functions.

Week(Aug.)	Topics
1(1-5)	Data types, Operators and expressions.
2(7-12)	Input / outputs functions.
3(14-19)	UNIT -2: Decisions control structure: Decision statements.
4(21-26)	Logical and conditional statements.
5(28-31)	Implementation of Loops, Switch Statement & Case control structures.

Week(Sep.)	Topics
1(1-2)	Functions, Preprocessors and Arrays.
2(4-9)	UNIT -3: Strings: Character Data Type, Standard String handling Functions, Arithmetic Operations on Characters.
3(11-16)	Structures: Definition, using Structures, use of Structures in Arrays and Arrays in Structures
4(18-23)	Pointers: Pointers Data type, Pointers and Arrays, Pointers and Functions.
5(25-30)	Solution of Algebraic and Transcendental equations: Bisection method, Regula-Falsi method, Secant method, Newton-Raphson's method.

Week(Oct.)	Topics
1(3-7)	Newton's iterative method for finding pth root of a number, Order of convergence of above methods
2(9-14)	UNIT -4: Simultaneous linear algebraic equations: Gauss-elimination method, Gauss-Jordan method.
3(16-21)	Triangularization method (LU decomposition method).
4(23-28)	Crout's method, Cholesky Decomposition method. Iterative method, Jacobi's method, Gauss-Seidal's method, Relaxation method.
5(30-31)	Iterative method.

Week(Nov.)	Topics
1(1-4)	Jacobi's method, Gauss-Seidal's method.
2(6-8)	Relaxation method.
(9-16)	DIWALI HOLIDAYS
3(17-18)	REVISION
4(20-25)	ASSIGNMENT
5(27-30)	TEST

Lesson Plan

Teacher …Nagesh Kumar Singh…….

Class …B.Sc 3rd…B.A.3rd …….. Sec. (C+D)……..

Subject- Statics and Dynamics……Session …2023-24 odd sem……

Week(July.)	Topics
1 (24-29)	UNIT-1: Friction.
2(31)	Centre of Gravity: Introduction.

Week(Aug.)	Topics
1(1-5)	Center of gravity continue.
2(7-12)	Virtual work.
3(14-19)	Forces in three dimensions.
4(21-26)	Poinsots central axis.
5(28-31)	Wrenches.

Week(Sep.)	Topics
1(1-2)	Null lines and planes.
2(4-9)	Revision ; test and assignment of UNIT-1 and UNIT-2.
3(11-16)	UNIT-3: Definitions of Conservative forces and Impulsive forces.
4(18-23)	Motion on smooth and rough plane curves.
5(25-30)	Projectile motion of a particle in a plane.

Week(Oct.)	Topics
1(3-7)	Vector angular velocity.
2(9-14)	Revision of previous chapter.
3(16-21)	UNIT-4: General motion of a rigid body.(Half topic covered)
4(23-28)	General motion of a rigid body.(completed)
5(30-31)	Central orbits.(half topic covered)

Week(Nov.)	Topics
1(1-4)	Central orbits completed.
2(6-8)	Kepler laws of motion.
(9-16)	DIWALI HOLIDAYS
3(17-18)	Revision of kepler law of motion.
4(20-25)	Motion of a particle in three dimensions.
5(27-30)	Revision ; test and assignment of UNIT-3 and UNIT-4.

Lesson Plan

Teacher …Shekhar ……..

Class …B.Sc1st year 1stsem …….. Subject ……Mathematics-I ……

Week(July.)	Topics
1 (24-29)	UNIT -1:Reading and Writing Mathematics: Illustration of mathematical proofs via examples.
2(31)	Illustration of Conjunctionof statementvia examples.

Week(Aug.)	Topics
1(1-5)	Illustration ofDisjunction of statement via examples.
2(7-12)	Illustration of Negation of Statementsvia examples.
3(14-19)	Illustration of Conditional Statements via examples.
4(21-26)	UNIT -2:Functions and Relations: Sets, De Morgan's Laws, Relations.
5(28-31)	Cartesian Products, Functions and Graphical Representation.

Week(Sep.)	Topics
1(1-2)	Injective and Surjective functions, Composition.
2(4-9)	Inverse of Functions, Level Sets.
3(11-16)	Equivalence Relations and Equivalence Classes.
4(18-23)	UNIT -3: Radial Numbers: Natural Numbers, Algebraic Properties,
5(25-30)	Mathematical Induction.

Week(Oct.)	Topics
1(3-7)	Real Numbers with examples
2(9-14)	Order Properties and Completeness Property of Intervals.
3(16-21)	Order Properties and Completeness Property of Infinity, Infinite Sets and Cardinality
4(23-28)	UNIT -4: Ionic Sequences: Sequences, Convergence,
5(30-31)	Limit Theorems, Divergence, Cauchy Sequences.

Week(Nov.)	Topics
1(1-4)	Infinite Series: Convergence and Divergence of Series, Geometric Series, Tests for Convergence.
2(6-8)	Limits: Limits of Functions, Boundedness,
(9-16)	DIWALI HOLIDAYS
3(17-18)	Squeeze Theorem, Limits at Infinity.
4(20-25)	REVISION
5(27-30)	TEST

Lesson Plan

Teacher …Dr. Shekhar…….

Class …BSc. NM- 2nd year ……Sec. C…..

Subject …Differential equations……

Week(July.)	Topics
1 (24-29)	UNIT -1: Geometrical meaning of a differential equation.
2(31)	Exact differential equations, integrating factors.

Week(Aug.)	Topics
1(1-5)	First order higher degree equations solvable for x,y,p Lagrange's equations.
2(7-12)	Clairaut's equations.
3(14-19)	Equation reducible to Clairaut's form. Singular solutions.
4(21-26)	UNIT -2: Orthogonal trajectories: in Cartesian coordinates and polar coordinates.
5(28-31)	Self orthogonal family of curves.

Week(Sep.)	Topics
1(1-2)	Linear differential equations with constant coefficients.
2(4-9)	Homogeneous linear ordinary differential equations.
3(11-16)	Equations reducible to homogeneous
4(18-23)	UNIT -3: Partial differential equations: Formation, order and degree.
5(25-30)	Linear and Non-Linear Partial differential equations of the first order.

Week(Oct.)	Topics
1(3-7)	Complete solution, singular solution, General solution.
2(9-14)	Solution of Lagrange's linear equations.
3(16-21)	Charpit's general method of solution.
4(23-28)	UNIT -4: Jacobi's method.
5(30-31)	Linear partial differential equations of second and higher orders.

Week(Nov.)	Topics
1(1-4)	Linear homogenous and non-homogenous equations with constant co-efficients.
2(6-8)	Non Linear homogenous and non-homogenous equations with constant co-efficients.
(9-16)	DIWALI HOLIDAYS
3(17-18)	Method of separation of variables.
4(20-25)	REVISION
5(27-30)	TEST

Lesson Plan

Teacher …Dr. Shekhar…….

Class …BSc.. 1st year ……Sec. A+B..

Subject …Calculus……

Week(July.)	Topics
1 (24-29)	**UNIT -1:** Successive Differentiation, Leibnitz Theorem
2(31)	Taylor's and Maclaurin's series expansions

Week(Aug.)	Topics
1(1-5)	Curvature, radius of curvature for cartesian curve, parametric curve
2(7-12)	Polar curve, Newton's method, radius of curve for pedal curves
3(14-19)	Tangential polar equation, centre of curvature, circle of curvature, chord of curvature, evolutes
4(21-26)	**UNIT -2:** Asymptotes in Cartesian and Polar coordinates
5(28-31)	Asymptotes in Polar coordinates

Week(Sep.)	Topics
1(1-2)	Intersection of curve and its asymptotes, test for concavity and convexity
2(4-9)	Point of inflexion, multiple points, cusp
3(11-16)	Types of cusp, nodes and conjugate points, Class test
4(18-23)	**UNIT -3:**Reduction Formulae
5(25-30)	Rectification, intrinsic equations of curve

Week(Oct.)	Topics
1(3-7)	Application of single integration:Quadrature, sectorial area, area bounded by closed curve
2(9-14)	Volume and surfaces of solid of revolution
3(16-21)	Theorems of Pappu's and Guilden
4(23-28)	**UNIT -4:** Multiple integral, Double integrals in Cartesian and polar coordinates
5(30-31)	Area by double integration

Week(Nov.)	Topics
1(1-4)	Triple integrals Cartesian, cylindrical and spherical coordinates
2(6-8)	Volumes of the solid by triple integrals
(9-16)	DIWALI HOLIDAYS
3(17-18)	REVISION
4(20-25)	REVISION
5(27-30)	TEST

Lesson Plan

Teacher …Dr. Ajay…….

Class ……B.Sc. 1st …Honours…/B.A.1st ….. ……..

Subject ……Algebra……..Session ……2023-24 Odd Sem.……

Week(July.)	Topics
1 (24-29)	UNIT -1 :Review of Matrices (Algebra of matrices,Rank and Inverse of matrix).
2(31)	Linear dependence and independence of rows and columns of matrices.

Week(Aug.)	Topics
1(1-5)	Row rank and column rank of a matrix.
2(7-12)	Eigenvalues, eigenvectors and the characteristic equation of a matrix.
3(14-19)	Minimal polynomial of a matrix.
4(21-26)	Cayley Hamilton theorem and its use in finding the inverse of a matrix.
5(28-31)	UNIT -2 : Applications of matrices to a system of linear (both homogeneous and non– homogeneous) equations.

Week(Sep.)	Topics
1(1-2)	Theorems on consistency of a system of linear equations.
2(4-9)	Unitary and Orthogonal Matrices.
3(11-16)	Bilinear and Quadratic forms.
4(18-23)	UNIT -3 : Relations between the roots and coefficients of general polynomial equation in one variable. Solutions of polynomial equations having conditions on roots. Common roots and multiple roots. Transformation of equations.
5(25-30)	Solutions of polynomial equations having conditions on roots.

Week(Oct.)	Topics
1(3-7)	Common roots and multiple roots.
2(9-14)	Transformation of equations.
3(16-21)	UNIT – 4: Nature of the roots of an equation Descarte's rule of signs.
4(23-28)	Solutions of cubic equations(Cardon's method)
5(30-31)	Biquadratic equations and their solutions.

Week(Nov.)	Topics
1(1-4)	ASSIGNMENT
2(6-8)	REVISION
(9-16)	DIWALI HOLIDAYS
3(17-18)	REVISION
4(20-25)	TEST 1
5(27-30)	TEST 2

Lesson Plan

Teacher - Sohan…….

Class …B.Sc 3rd(Hons.)…….. ……..

Subject …Real analysis……..Session 2023-24 odd sem.……

Week(July.)	Topics
1 (24-29)	UNIT-1: Riemann integral, Integrabililty of continuous and monotonic functions.
2(31)	The Fundamental theorem of integral calculus.

Week(Aug.)	Topics
1(1-5)	Mean value theorems of integral calculus.
2(7-12)	UNIT-2: Improper integrals and their convergence.
3(14-19)	Comparison tests, Abel's and Dirichlet's tests.
4(21-26)	Frullani's integral, Integral as a function of a parameter.
5(28-31)	Continuity, Differentiability of an integral of a function of a parameter.

Week(Sep.)	Topics
1(1-2)	Integrability of an integral of a function of a parameter.
2(4-9)	Revision ; test and assignment of UNIT-1 and UNIT-2
3(11-16)	UNIT-3: Definition and examples of metric spaces.
4(18-23)	Neighborhoods, limit points, interior points.
5(25-30)	Open and closed sets, closure and interior, boundary points.

Week(Oct.)	Topics
1(3-7)	Subspace of a metric space, equivalent metrics, Cauchy sequences.
2(9-14)	Completeness, Cantor's intersection theorem.
3(16-21)	Baire's category theorem, contraction Principle
4(23-28)	UNIT-4: Continuous functions, uniform continuity.
5(30-31)	Compactness for metric spaces, sequential compactness.

Week(Nov.)	Topics
1(1-4)	Bolzano-Weierstrass property, total boundedness.
2(6-8)	Finite intersection property, continuity in relation with compactness, connectedness**.**
	Diwali vacations (9-16)
3(17-18)	Components, continuity in relation with connectedness.
4(20-25)	Revision ; test and assignment of UNIT-3 and UNIT-4

Lesson Plan

Teacher ……Sohan…….

Class ……B.Sc. Honours 1st …….. ……..

Subject ……Discrete Mathematics……..Session ……odd 2023-24…

Week(July.)	Topics
1 (24-29)	Sets, principle of inclusion and exclusion, relations
2(31)	equivalence relations and partition

Week(Aug.)	Topics
1(1-5)	denumerable sets,
2(7-12)	partial order relations, Mathematical Induction,
3(14-19)	Pigeon Hole Principle and its applications.
4(21-26)	Propositions, logical operations,
5(28-31)	logical equivalence

Week(Sep.)	Topics
1(1-2)	conditional propositions,
2(4-9)	Tautologies and contradictions.
3(11-16)	Quantifier, Predicates and Validity.
4(18-23)	Permutations and combinations,
5(25-30)	

Week(Oct.)	Topics
1(3-7)	probability
2(9-14)	basic theory of Group and rings.
3(16-21)	Discrete numeric functions,
4(23-28)	Generating functions
5(30-31)	recurrence relations with constant coefficients. Homogeneous solution

Week(Nov.)	Topics
1(1-4)	particular relations, total rotation
2(6-8)	Solution of recurrence relation by the method Generating function. , Test And Assignment
(9-16)	DIWALI HOLIDAYS
3(17-18)	Revision
4(20-25)	Revision
5(27-30)	Revision