Lesson Plan Odd Sem 2022-2023

Course: B.A. /B.Sc. (Non-Med + Honours) Mathematics 1st Year
Subject: Solid Geometry
Subject Teacher:- Mr. Rajesh Kumar, Ms. Vijay Sharma

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	General equation of second degree.
(5th September -10th September)	Tracing of conics.
(12th September -17th September)	Tangent at any point to the conic, chord of contact,
(19th September – 24th September)	pole of line to the conic, director circle of conic.
(26th September – 1st October)	System of conics. Confocal conics. Polar equation of a conic, tangent and normal to the conic.
(3rd October – 8th October)	Sphere: Plane section of a sphere. Sphere through a given circle
(10th October -15th October)	Intersection of two spheres, radical plane of two spheres. Co-oxal system of spheres
(17th October -21st October)	Cones. Right circular cone, enveloping cone and reciprocal cone
(27th October -29th October)	Cylinder: Right circular cylinder and enveloping cylinder.
(31st October -5th November)	Central Conicoids: Equation of tangent plane.
(7th November -12th November)	Director sphere. Normal to the conicoids.
(14th November – 19th November)	Polar plane of a point.
(21st November – 26th November)	Enveloping cone of a coincoid. Enveloping cylinder of a coincoid.
(28th November – 3rd December)	Paraboloids: Circular section
(5th December -10th December)	Plane sections of conicoids
(12th December -17th December)	Generating lines.
(19th December -24th December)	Confocal conicoid.
(26th December – 31st December)	Reduction of second degree equations.

Course: B.Sc. (Honours) Mathematics 1st Year
Subject: Discrete Mathematics
Subject Teacher:- Ms. Vijay Sharma

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	Sets, principle of inclusion and exclusion
(5th September -10th September)	Relations, equivalence relations and partition, denumerable sets
(12th September -17th September)	Partial order relations, Mathematical Induction
(19th September – 24th September)	Pigeon Hole Principle and its applications
(26th September – 1st October)	Propositions, logical operations
(3rd October – 8th October)	Logical equivalence, conditional propositions
(10th October -15th October)	Tautologies and contradictions
(17th October -21st October)	Quantifier, Predicates and Validity
(27th October -29th October)	Revision ,Test And Discussion
(31st October -5th November)	Permutations and combinations
(7th November -12th November)	Probability
(14th November – 19th November)	Basic theory of Graphs and rings
(21st November – 26th November)	Discrete numeric functions, Generating functions
(28th November – 3rd December)	Recurrence relations with constant coefficients
(5th December -10th December)	Homogeneous solution, particular relations
(12th December -17th December)	Total rotation
(19th December -24th December)	Discussion and Test

(26th December – 31st December)	Solution of recurrence relation by the method Generating function.

Course: B.A. /B.Sc. (Non-Med + Honours) 1st Year
Subject: Calculus
Subject Teacher:- Ms. Ritu, Dr. Sangeeta, Dr. Ritikesh

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	Definition of the limit of a function.
(5th September -10th September)	Basic properties of limits,
(12th September -17th September)	Continuous functions and classification of discontinuities.
(19th September – 24th September)	Differentiability. Successive differentiation.
(26th September – 1st October)	Leibnitz theorem. Maclaurin and Taylor series expansions.
(3rd October – 8th October)	Asymptotes in Cartesian coordinates, intersection of curve and its asymptotes, asymptotes in polar coordinates.
(10th October -15th October)	Curvature, radius of curvature for Cartesian curves, parametric curves, polar curves.
(17th October -21st October)	Newton's method. Radius of curvature for pedal curves.
(27th October -29th October)	Tangential polar equations. Centre of curvature. Circle of curvature. Chord of curvature, evolutes.
(31st October -5th November)	Tests for concavity and convexity. Points of inflexion.
(7th November -12th November)	Multiple points. Cusps, nodes & conjugate points. Type of cusps.
(14th November – 19th November)	Tracing of curves in Cartesian, parametric and polar co-ordinates.
(21st November – 26th November)	Reduction formulae. Rectification, intrinsic equations of curve.
(28th November – 3rd December)	Quardrature (area)Sectorial area. Area bounded by closed curves.
(5th December -10th December)	Volumes and surfaces of solids of revolution.
(12th December -17th December)	Theorems of Pappu's and Guilden.
(19th December -24th December)	Definition of the limit of a function.

(26th December – 31st December)	Discussion and Test

Course: B.A. /B.Sc. (Non-Med + Honours) Mathematics 1st Year
Subject: Algebra
Subject Teacher:- Dr. Gulshan Kumari, Dr. Pradeep Kumar

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	Introduction of Symmetric, Skew-symmetric
(5th September -10th September)	Hermitian and skew Hermitian matrices. Elementary Operations on matrices. Rank of a matrices. Inverse of a matrix and group discussion.
(12th September -17th September)	Linear dependence and independence of rows and columns of matrices. Row rank and column rank of a matrix. Eigenvalues and basic Examples.
(19th September – 24th September)	Eigenvectors and the characteristic equation of a matrix. Minimal polynomial of a matrix.
(26th September – 1st October)	Cayley Hamilton theorem and its use in finding the inverse of a matrix. Assignment and test of unit I
(3rd October – 8th October)	Applications of matrices to a system of linear equations and examples.
(10th October -15th October)	Theorems on consistency of a system of linear equations.
(17th October -21st October)	Unitary and Orthogonal Matrices, Group discussion
(27th October -29th October)	Bilinear and Quadratic forms. assignment and test of unit II.
(31st October -5th November)	Limit points, open and closed sets, closure and interior
(7th November -12th November)	Relations between the roots and coefficients of general polynomial equation in one variable.
(14th November – 19th November)	Solutions of polynomial equations having conditions on roots.
(21st November – 26th November)	Common roots and multiple roots.
(28th November – 3rd December)	Transformation of equations. Assignments, group discussion and test of Unit III
(5th December -10th December)	Nature of the roots of an equation Descarte's rule of signs.
(12th December -17th December)	Nature of the roots of an equation Descarte's rule of signs.
	Solutions of cubic equations (Cardon's method).

(19th December -24th December)	Group discussion and assignment.
(26th December – 31st December)	Biquadratic equations and their solutions. Assignments, group discussion and test of Unit IV

Course: B.Sc. (Honours) Mathematics 1st Year
Subject : Descriptive Statistics
Subject Teacher:-Dr. Sangeeta

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	Introduction of Statistics, Basic knowledge of various types of data, Collection
(5th September -10th September)	classification and tabulation of data. Presentation of data: histograms, frequency polygon,
(12th September -17th September)	frequency curve and ogives. Stem- and- Leaf and Box plots.
(19th September – 24th September)	Measures of Central Tendency and Location: Mean, median, mode, geometric mean,
(26th September – 1st October)	harmonic mean, partition values. Measures of Dispersion: Absolute and relative measures of range,
(3rd October – 8th October)	quartile deviation, mean deviation, standard deviation (ı), coefficient of variation.
(10th October -15th October)	Moments, Skewness and Kurtosis: Moments about mean and about any point and derivation of their relationships
(17th October -21st October)	effect of change of origin and scale on moments
(27th October -29th October)	Sheppard's correction for moments (without derivation), Charlier's checks, Concepts of Skewness and Kurtosis. S
(31st October -5th November)	Charlier's checks, Concepts of Skewness and Kurtosis. S
(7th November -12th November)	Test and Revision
(14th November – 19th November)	order of class frequencies, consistency of data, independence and association of attributes
(21st November – 26th November)	order of class frequencies, consistency of data, independence and association of attributes
(28th November – 3rd December)	coefficient of association and coefficient of colligation.
(5th December -10th December)	Test and Revision
	Correlation for Bivariate Data: Concept and types of correlation

(12th December -17th December)	
(19th December -24th December)	Scatter diagram, Karl Pearson Coefficient (r) of correlation and rank correlation coefficient
(26th December – 31st December)	Test and revision

Course: B.Com. 1st Year
Subject :Business Mathematics
Subject Teacher:- Dr. Jitender Rawat

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	Definition of sets and its brief introduction with examples.
(5th September -10th September)	Elements, types, presentation and equality of Sets, Union, Intersection of sets, related examples and questions.
(12th September -17th September)	Complement and Difference of Sets, Venn Diagram, Cartesian Product of two Sets, Applications of Set Theory.
(19th September – 24th September)	Definition and basic properties of indices, Exponent.
(26th September – 1st October)	Solved and unsolved question of indices.
(3rd October – 8th October)	Introduction and some important deductions, examples and related questions.
(10th October -15th October)	Product, quotient, power and base change formula of logarithms, Two systems of logarithms.
(17th October -21st October)	Characteristic and mantissa, anti-logarithms, miscellaneous exercise.
(27th October -29th October)	Introduction to permutations and combinations, factorial notation, fundamental principal of counting.
(31st October -5th November)	Difference between permutations and combinations, permutations with different types of groups.
(7th November -12th November)	Some theorems on combinations, practical problems on combinations.
(14th November – 19th November)	Introduction of sequences and series, Arithmetic progression (A.P.).
(21st November – 26th November)	Arithmetic mean, Geometric Progression (G.P.), application of A.P. and G.P.
(28th November – 3rd December)	Introduction of data, collection, editing and classification of data.
(5th December -10th December)	Methods of classification, types of continuous series, Data interpretation.
	Tabulation, parts of a statistical table, types of tables, Bar graphs, line

(12th December -17th December)	graphs and based questions.
(19th December -24th December)	Pie charts, examples based on pie charts.
(26th December – 31st December)	Miscellaneous exercise.

Course: B.A. /B.Sc. (Non-Med + Honours) Mathematics 2nd Year
Subject: Advanced Calculus
Subject Teacher:- Ms. Vijay Sharma, Dr. Monika

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	Continuity, Sequential Continuity,
(5th September -10th September)	Properties of continuous functions, Uniform continuity, chain rule of differentiability.
(12th September -17th September)	Mean value theorems; Rolle's Theorem and Lagrange's mean value theorem and their geometrical interpretations.
(19th September – 24th September)	Taylor's Theorem with various forms of remainders
(26th September – 1st October)	Darboux intermediate value theorem for derivatives, Indeterminate forms.
(3rd October – 8th October)	Limit and continuity of real valued functions of two variables.
(10th October -15th October)	Partial differentiation.
(17th October -21st October)	Total Differentials; Composite functions & implicit functions.Change of variables.
(27th October -29th October)	Homogenous functions & Euler's theorem on homogeneous functions.
(31st October -5th November)	Taylor's theorem for functions of two variables.
(7th November -12th November)	Differentiability of real valued functions of two variables.
(14th November – 19th November)	Schwarz and Young's theorem.
(21st November – 26th November)	Implicit function theorem.
(28th November – 3rd December)	Maxima, Minima and saddle points of two variables. Lagrange's method of multipliers.
(5th December -10th December)	Curves: Tangents, Principal normals, Binormals, Serret-Frenet formulae.
	Locus of the centre of curvature, Spherical curvature

(12th December -17th December)	
(19th December -24th December)	Locus of centre of Spherical curvature, Involutes, evolutes, Bertrand Curves.
(26th December – 31st December)	Surfaces: Tangent planes, one parameter family of surfaces, Envelopes.

Course: B.A. /B.Sc. (Non-Med + Honours) Mathematics 2nd Year
Subject: Statics
Subject Teacher:- Mr. Rajesh Kumar, Dr. Ritikesh

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	Composition and resolution of forces
(5th September -10th September)	Composition and resolution of forces
(12th September -17th September)	Parallel forces
(19th September – 24th September)	Moments and Couples
(26th September – 1st October)	Moments and Couples
(3rd October – 8th October)	Analytical conditions of equilibrium of coplanar forces
(10th October -15th October)	Analytical conditions of equilibrium of coplanar forces
(17th October -21st October)	Friction.
(27th October -29th October)	Friction.
(31st October -5th November)	Centre of Gravity
(7th November -12th November)	Virtual work.
(14th November – 19th November)	Forces in three dimensions
(21st November – 26th November)	Poinsots central axis.
(28th November – 3rd December)	Wrenches
(5th December -10th December)	Null lines and planes

(12th December -17th December)	Stable and unstable equilibrium.
(19th December -24th December)	Stable and unstable equilibrium.
(26th December – 31st December)	Stable and unstable equilibrium.

Course: B.A. /B.Sc. (Non-Med + Honours) Mathematics 2nd Year
Subject: Partial Differential Equations
Subject Teacher:-Dr. Chhavi Mangla , Dr. Gulshan Kumari

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	Continuity, Sequential Continuity,
(5th September -10th September)	Properties of continuous functions, Uniform continuity, chain rule of differentiability.
(12th September -17th September)	Mean value theorems; Rolle's Theorem and Lagrange's mean value theorem and their geometrical interpretations.
(19th September – 24th September)	Taylor's Theorem with various forms of remainders
(26th September – 1st October)	Darboux intermediate value theorem for derivatives, Indeterminate forms.
(3rd October – 8th October)	Limit and continuity of real valued functions of two variables.
(10th October -15th October)	Partial differentiation.
(17th October -21st October)	Total Differentials; Composite functions & implicit functions.Change of variables.
(27th October -29th October)	Homogenous functions & Euler's theorem on homogeneous functions.
(31st October -5th November)	Taylor's theorem for functions of two variables.
(7th November -12th November)	Differentiability of real valued functions of two variables.
(14th November – 19th November)	Schwarz and Young's theorem.
(21st November – 26th November)	Implicit function theorem.
(28th November – 3rd December)	Maxima, Minima and saddle points of two variables. Lagrange's method of multipliers.
(5th December -10th December)	Curves: Tangents, Principal normals, Binormals, Serret-Frenet formulae.

(12th December -17th December)	Locus of the centre of curvature, Spherical curvature
(19th December -24th December)	Locus of centre of Spherical curvature, Involutes, evolutes, Bertrand Curves.
(26th December – 31st December)	Surfaces: Tangent planes, one parameter family of surfaces, Envelopes.

Course: B.Sc. (Honours) Mathematics 2nd Year
Subject: Differential Geometry
Subject Teacher:- Dr. Chhavi Mangla

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	One Parameter family of Surfaces : Envelope
(5th September -10th September)	One Parameter family of Surfaces : Characteristics , edge of regression
(12th September -17th September)	Developable surfaces.
(19th September – 24th September)	Developables Associated with a Curve : Osculating developable, Polar developable, Rectifying developable.
(26th September – 1st October)	Two- parameter Family of Surfaces: Envelope, Characteristics points,
(3rd October – 8th October)	Curvilinear coordinates, First order magnitudes,
(10th October -15th October)	Directions on a surface, The normal,
(17th October -21st October)	Second order magnitudes, Derivatives of n
(27th October -29th October)	Curves on a Surface: Principal directions and curvatures,
(31st October -5th November)	First and second curvatures, Euler's theorems,
(7th November -12th November)	Dupin's indicatrix, The surfaces z = f(x,y), Surface of revolution.
(14th November – 19th November)	Conjugate directions, Conjugate systems.Asymptotic lines,
(21st November – 26th November)	Curvature and torsion,Isometric parameters, Null lines, or minimal curves.
(28th November – 3rd December)	Geodesics and Geodesic Parallels: Geodesics: Geodesic property, Equation of Geodesics,
	Surface of revolution, Torsion of Geodesic

(5th December -10th December)	
(12th December -17th December)	Curves in Relation to Geodesics: Bonnet's theorem, Joachimsthal's theorems
(19th December -24th December)	Vector curvature, Geodesic curvature k_g
(26th December – 31st December)	Other formulae for k_g, Bonnet's formula

Course: B.Sc. (Honours) Mathematics 2nd Year
Subject: Probability Distribution
Subject Teacher:- Dr. Ritikesh

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	Generating Functions:
(5th September -10th September)	Moment generating function
(12th September -17th September)	cumulant generating function along with their properties and uses.
(19th September – 24th September)	Tchebychev's inequality, Convergence in probability
(26th September – 1st October)	Weak and strong laws of large numbers (Statements only).
(3rd October – 8th October)	Bernoulli, binomial distributions with their properties.
(10th October -15th October)	Poisson distributions with their properties.
(17th October -21st October)	Geometric distributions with their properties.
(27th October -29th October)	hyper-geometric distributions with their properties.
(31st October -5th November)	Uniform distributions with their properties.
(7th November -12th November)	gamma distributions with their properties.
(14th November – 19th November)	beta distributions with their properties.
(21st November – 26th November)	Exponential distributions with their properties.
	Normal distribution with its properties

(28th November – 3rd December)	
(5th December -10th December)	Normal distribution with its properties
(12th December -17th December)	Normal distribution with its properties
(19th December -24th December)	Central Limit Theorem (Statement only) and its applications.
(26th December – 31st December)	Central Limit Theorem (Statement only) and its applications.

Course: B.A. /B.Sc. (Non-Med + Honours) Mathematics 3rd Year
Subject: Groups and Rings
Subject Teacher:- Dr. Monika, Dr. Sangeeta

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	Definition of a group with example and simple properties of groups,
(5th September -10th September)	Subgroups and Subgroup criteria,
(12th September -17th September)	Generation of groups, cyclic groups,
(19th September – 24th September)	Cosets, Left and right cosets, Index of a sub-group Coset decomposition,
(26th September – 1st October)	Largrage's theorem and its consequences, Normal subgroups, Quotient groups,
(3rd October – 8th October)	Homomorphisms, isomophisms, automorphisms and inner automorphisms of a group.
(10th October -15th October)	Automorphisms of cyclic groups, Permutations groups.
(17th October -21st October)	Even and odd permutations. Alternating groups,
(27th October -29th October)	Cayley's theorem, Center of a group and derived group of a group.
(31st October -5th November)	Introduction to rings, subrings,
(7th November -12th November)	integral domains and fields, Characteristics of a ring.
(14th November – 19th November)	Ring homomorphisms, ideals (principle, prime and Maximal)

(21st November – 26th November)	Quotient rings, Field of quotients of an integral domain.
(28th November – 3rd December)	Euclidean rings, Polynomial rings, Polynomials over the rational field,
(5th December -10th December)	The Eisenstein's criterion, Polynomial rings over commutative rings,
(12th December -17th December)	Unique factorization domain, R unique factorization domain implies so is R[X1 , X2……Xn]
(19th December -24th December)	Revision
(26th December – 31st December)	Discussion and Test

Course: B.A. /B.Sc. (Non-Med + Honours) Mathematics 3rd Year
Subject: Numerical Analysis
Subject Teacher:- Dr. Gulshan Kumari , Dr. Pradeep Kumar

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	Finite Differences operators and their relations.
(5th September -10th September)	Finding the missing terms and effect of error in a difference tabular values, Interpolation with equal intervals.
(12th September -17th September)	Newton's forward and Newton's backward interpolation formulae. Interpolation with unequal intervals.
(19th September – 24th September)	Newton's divided difference, Lagrange's Interpolation formulae, Hermite Formula.
(26th September – 1st October)	Central Differences: Gauss forward and Gauss's backward interpolation formulae, Sterling, Bessel Formula.
(3rd October – 8th October)	Probability distribution of random variables, Binomial distribution.
(10th October -15th October)	Probability distribution of random variables, Binomial distribution.
(17th October -21st October)	Numerical Differentiation: Derivative of a function using interpolation formulae.
(27th October -29th October)	Eigen Value Problems: Power method, Jacobi's method.
(31st October -5th November)	Given's method, House Holder's method.
(7th November -12th November)	QR method, Lanczos method.
	Numerical Integration: Newton-Cote's Quadrature formula, Trapezoidal

(14th November – 19th November)	rule.
(21st November – 26th November)	Simpson's one- third and three-eighth rule, Chebychev formula, Gauss Quadrature formula.
(28th November – 3rd December)	Numerical solution of ordinary differential equations: Single step methodsPicard's method. Taylor's series method.
(5th December -10th December)	Euler's method, Runge-Kutta Methods.
(12th December -17th December)	Multiple step methods; Predictor-corrector method.
(19th December -24th December)	Modified Euler's method.
(26th December – 31st December)	Milne-Simpson's method.

Course: B.A. /B.Sc. (Non-Med + Honours) Mathematics 3rd Year
Subject: Real Analysis
Subject Teacher:-Ms. Ritu

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	Introduction of Riemann integral and integrability of continuous,
(5th September -10th September)	Monotonic functions, Integrabililty of continuous functions and group discussion.
(12th September -17th September)	Integrabililty of monotonic , The Fundamental theorem of integral calculus and basic Examples.
(19th September – 24th September)	Mean value theorems of integral calculus. Assignment and test of unit I
(26th September – 1st October)	Improper integrals and their convergence, Comparison tests.
(3rd October – 8th October)	Abel's and Dirichlet's tests, Frullani's integral
(10th October -15th October)	Integral as a function of a parameter, continuity
(17th October -21st October)	Differentiability and integrability of an integral of a function of a parameter. Group discussion, assignment and test of unit II.
(27th October -29th October)	Definition and examples of metric spaces, neighborhoods.
(31st October -5th November)	Limit points, open and closed sets, closure and interior

(7th November -12th November)	Equivalent metrics, Cauchy sequences,
(14th November – 19th November)	Completeness, Cantor's intersection theorem
(21st November – 26th November)	Baire's category theorem, contraction Principle. Assignments, group discussion and test of Unit III
(28th November – 3rd December)	Continuous functions, uniform continuity, compactness for metric spaces
(5th December -10th December)	Total boundedness, finite intersection property
(12th December -17th December)	continuity in relation with compactness
(19th December -24th December)	Connectedness, components. Group discussion and assignment.
(26th December – 31st December)	Continuity in relation with connectedness. Assignments, group discussion and test of Unit IV

Course: B.Sc. (Honours) Mathematics 3rd Year
Subject: Operation Research (1)
Subject Teacher:- Dr. Chhavi Mangla

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	Definition, scope, methodology and applications of OR. Types of OR models.
(5th September -10th September)	Concept of optimization, Linear Programming: Introduction, Formulation of a Linear Programming Problem (LPP),
(12th September -17th September)	Requirements for an LPP, Advantages and limitations of LP.
(19th September – 24th September)	Graphical solution: Multiple, unbounded and infeasible solutions.
(26th September – 1st October)	Principle of simplex method: standard form, basic solution, basic feasible solution.
(3rd October – 8th October)	Computational Aspect of Simplex Method: Cases of unique feasible solution,
(10th October -15th October)	Computational Aspect of Simplex Method: Cases of no feasible solution, multiple solution and unbounded solution and degeneracy.
(17th October -21st October)	Two Phase and Big M methods.
(27th October -29th October)	Duality in LPP, primal-dual relationship.

(31st October -5th November)	Transportation Problem: Methods for finding basic feasible solution of a transportation problem, Modified distribution method for finding the optimum solution,
(7th November -12th November)	Unbalanced and degenerate transportation problems, transhipment problem, maximization in a transportation problem.
(14th November – 19th November)	Assignment Problem: Solution by Hungarian method, Unbalanced assignment problem
(21st November – 26th November)	maximization in an assignment problem,
(28th November – 3rd December)	Crew assignment and Travelling salesman problem.
(5th December -10th December)	Game Theory: Two person zero sum game, Game with saddle points
(12th December -17th December)	the rule of dominance;
(19th December -24th December)	Algebraic, graphical methods for solving mixed strategy games.
(26th December – 31st December)	linear programming methods for solving mixed strategy games.

Course: B.Sc. (Honours) Mathematics 3rd Year
Subject: Integral Equations
Subject Teacher:- Ms. Vijay Sharma

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	Linear integral equations, Some basic identities, Initial-value problems reduced to Volterra integral equations
(5th September -10th September)	Method of successive approximation to solve Volterra integral equations of second kind, Iterated kernels and Neumann series for Volterra
(12th September -17th September)	Resolvent kernel as a series in O, Laplace transform method for a difference kernel
(19th September – 24th September)	Boundary value problems reduced to Fredholm integral equations,
(26th September – 1st October)	Iterated kernels and Neumann series for Fredholm equations, Resolvent kernel as a sum of series
(3rd October – 8th October)	Fredholm equations with degenerate kernel,
(10th October -15th October)	Approximation of a kernel by a degenerate kernel, Fredholm Alternative.

(17th October -21st October)	Fredholm resolvent kernel as a ratio of two series.
(27th October -29th October)	Volterra integral Solution of a equation of the first kind
(31st October -5th November)	Green's function. Use of method of variation of parameters to construction the Green's function for a nonhomogeneous linear second degree BVP
(7th November -12th November)	Basic four properties of the Green's function, Alternate procedure for construction of the Green's function by using its basic four properties..
(14th November – 19th November)	Method of series representation of the Green's function in terms of the solutions of the associated homogeneous BVP
(21st November – 26th November)	Reduction of a BVP to a Fredholm integral equation with kernel as Green's function.
(28th November – 3rd December)	Homogeneous Fredholm equations with symmetric kernels
(5th December -10th December)	Solution of Fredholm equations of the second kind with symmetric kernel
(12th December -17th December)	Method of Fredholm Resolvent Kernel, Method of Iterated Kernels,
(19th December -24th December)	Fredholm Equations of the First Kind with Symmetric Kernels.
(26th December – 31st December)	Method of successive approximations to solve Fredholm equation of second kind

Course: B.Sc. (Honours) Mathematics 3rd Year
Subject: Methods of Applied Mathematics
Subject Teacher:- Dr. Chhavi Mangla

WEEK	TOPICS TO BE COVERED
(27th August – 3rd September)	Solution of 3D Laplace, wave and heat equations in spherical polar co-ordinates by the method of separation of variables.
(5th September -10th September)	Solution of 3D Laplace, wave and heat equations in cylindrical polar co-ordinates by the method of separation of variables.
(12th September -17th September)	Fourier series solution of the wave equation, transformation of boundary value problems.
(19th September – 24th September)	Fourier series solution of the heat equation, steady-state temperature in plates
(26th September – 1st October)	The heat and wave equations in unbounded domains
(3rd October – 8th October)	Fourier transform solution of boundary value problems.
(10th October -15th October)	The heat equation in an infinite cylinder and in a solid sphere.

(17th October -21st October)	Hankel transform of elementary functions. Operational properties of the Hankel transform.
(27th October -29th October)	Applications of Hankel transforms to PDE.
(31st October -5th November)	Definition and basic properties of finite Fourier sine and cosine transforms
(7th November -12th November)	Applications of Fourier sine and cosine transforms to the solutions of BVP's and IVP's.
(14th November – 19th November)	Moments and products of inertia
(21st November – 26th November)	Angular momentum of a rigid body
(28th November – 3rd December)	Principal axes and principal moment of inertia of a rigid body
(5th December -10th December)	kinetic energy of a rigid body rotating about a fixed point
(12th December -17th December)	Momental ellipsoid and equimomental systems
(19th December -24th December)	Coplanar mass distributions,
(26th December – 31st December)	General motion of a rigid body.