

Lesson Plan of Session 2025-26 (July 2025-Odd Sem)

BA/B.Sc/ B.Sc (Hons) -Mathematics

Name of Assistant Professor:- Dr SHILPI
Class:- BA/BSc/B.Sc (Honours) Mathematics (1st Semester)
Subject:- 24MATM401DS01:: Functions and Algebra (Paper-I)

Month : JULY	
Week	Topic Covered
Week 5 (4 Days)	Unit I: Relations, Functions along with Domain and Range, Composition of Functions,
Month : AUGUST	
Week	Topic Covered
Week 1	Invertibility and Inverse of Functions, One-to-one Correspondence and the Cardinality of a Set.
Week 2	Unit-II: 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.
Week 3	Transformation of Equations. Nature of the Roots of an Equation Descarte's Rule of Signs. Solutions of Cubic Equations (Cardon's Method). Biquadratic Equations and their Solutions.
Week 4	Test and Assignments
Month : SEPTEMBER	
Week	Topic Covered
Week 1	Unit III: Matrix and its types. Symmetric, Skew-Symmetric, Hermitian and Skew Hermitian Matrices.
Week 2	Unitary and Orthogonal Matrices, Idempotent, Involuntary, Nilpotent Matrices.
Week 3	Rank of a Matrix & its applications. Rank of a Matrices, Row Rank and Column Rank of a Matrix, Elementary Operations on Matrices,
Week 4	Inverse of a Matrix , Normal Form, PAQ Form and Examples,
Month : OCTOBER	
Week	Topic Covered
Week 1	Linear Dependence and Independence of Rows and Columns of Matrices ,
Week 2	Applications of Matrices to a System of Linear (Both Homogeneous and Non-Homogeneous) Equations,
Week 3	Deepawali Break
Week 4	Theorems on Consistency of a System of Linear Equations with Examples
Week 5	Test and assignments
Month : NOVEMBER	
Week	Topic Covered
Week 1	Unit IV: Cayley Hamilton theorem. Eigenvalues, Eigenvectors and the Characteristic Equation of a Matrix. Minimal Polynomial of a Matrix.
Week 2	Cayley Hamilton Theorem and Its Use in Finding the Inverse of a Matrix.
Week 3	Diagonalization of Matrix.
Week 4	*Revision, Test and Assignments

Name of Assistant Professor:- Dr SUDESH KUMARI
 Class:- B.Sc (Honours) Mathematics (1st Semester)
 Subject:- 24MATS401DS02::Vector Calculus (Paper-II)

Month : JULY	
Week	Topic Covered
Week 5 (4 Days)	Unit I: Scalar and Vector Product of Three Vectors, Product of Four Vectors. Reciprocal Vectors. Partial Derivative, Vector Differentiation.
Month : AUGUST	
Week	Topic Covered
Week 1	Scalar Valued Point Functions, Vector Valued Point Functions,
Week 2	Derivative along a Curve, Directional Derivatives. Gradient of a Scalar Point Function,
Week 3	Geometrical Interpretation of Grad, Gradient as a Point Function. Tangent Planes and Normal Lines.
Week 4	Test and Assignments
Month : SEPTEMBER	
Week	Topic Covered
Week 1	Unit II: Divergence and Curl of Vector Point Function, Characters of $\text{Div}f$ and $\text{Curl}f$ as Point Function, Examples.
Week 2	Gradient, Divergence and Curl of Sums and Product and Their Related Vector Identities. Laplacian Operator.
Week 3	Double Integrals, Double Integrals in Polar Co-Ordinates, Change of Order, Change in Variable,
Week 4	Triple Integrals, Triple Integrals in Cylindrical Co-Ordinates and Spherical Co- Ordinates, Change of Order in Triple Integral,
Month : OCTOBER	
Week	Topic Covered
Week 1	Volume Integral with Examples
Week 2	Unit III: Line Integrals, Independent of the Path,
Week 3	Deepawali Break
Week 4	Green Theorem and Problem Based on Green Theorem.
Week 5	Test and Assignments
Month : NOVEMBER	
Week	Topic Covered
Week 1	Unit IV: Surface Integral,
Week 2	Stokes' Theorem and Problem Based on Stokes' Theorem,
Week 3	Gauss Theorem and Problems based on Gauss Theorem.
Week 4	*Revision, Test and Assignments

Name of Assistant Professor:- Dr SUDESH KUMARI
 Class:- Minor Course (1st Semester)
 Subject:- 24MAT401MI01:: Basic Mathematics
 (Theory Marks-70, Internal Marks-30)

Month : JULY	
Week	Topic Covered
Week 5 (4 Days)	Unit I: Calculus: (Problems and Theorems involving Trigonometrically Ratios are not to be done),
Month : AUGUST	
Week	Topic Covered
Week 1	Differentiation: Partial Derivatives up to Second Order; Homogeneity of Functions and Euler's Theorem;
Week 2	Total Differentials, Differentiation of Implicit Function with the Help of Total Differentials, Maxima and Minima;
Week 3	Cases of One Variable involving Second or Higher Order Derivatives; Cases of Two Variables involving not More than One Constraint.
Week 4	Test and Assignments
Month : SEPTEMBER	
Week	Topic Covered
Week 1	Unit II: Integration: Integration as Anti-Derivative Process; Standard Forms; Methods of Integration by Substitution, By Parts, and By Use of Partial Fractions;
Week 2	Definite Integration; Finding Areas in Simple Cases; Consumers and Producers Surplus;
Week 3	Nature of Commodities Learning Curve; Leontiff Input-Output Model.
Week 4	Test and Assignments
Month : OCTOBER	
Week	Topic Covered
Week 1	Unit III: Matrices: Definition of Matrix; Types of Matrices with Examples,
Week 2	Algebra of Matrices with Examples
Week 3	Deepawali Break
Week 4	Unit IV: Determinants with Examples, Properties of Determinants;
Week 5	Test and Assignments
Month : NOVEMBER	
Week	Topic Covered
Week 1	Calculation of Values of Determinants Up to Third Order;
Week 2	Adjoint of a Matrix, through Adjoint and Elementary Row or Column Operations;
Week 3	Solution of System of Linear Equations having Unique Solution and Involving not More than Three Variables.
Week 4	*Revision, Test and Assignments

Name of Assistant Professor:- Dr SUDESH KUMARI
Class:- Multidisciplinary Course(MDC) (1st Semester)
Subject:- 24MATX01MD01:: Introductory Mathematics
 (Theory Marks-50, Internal Marks-25)

Month : JULY	
Week	Topic Covered
Week 5 (4 Days)	Unit I: Numbers, H.C.F. and L.C.M. of Numbers, Decimal and Fractions,
Month : AUGUST	
Week	Topic Covered
Week 1	Simplification, Square Roots and Cube Roots,
Week 2	Surds and Indices, Problems on Numbers.
Week 3	Unit II: Average with Examples
Week 4	Percentage, Profit and Loss with Examples AND Test and Assignments
Month : SEPTEMBER	
Week	Topic Covered
Week 1	Ratio and Proportion with Examples
Week 2	Problem on Ages with Examples
Week 3	Partnership with Examples
Week 4	Test and Assignments
Month : OCTOBER	
Week	Topic Covered
Week 1	Unit III: Time and Work with Examples
Week 2	Time and Distance with Examples,
Week 3	Deepawali Break
Week 4	Problems on Trains,
Week 5	Test and Assignments
Month : NOVEMBER	
Week	Topic Covered
Week 1	Mixture Problem
Week 2	Problems based on Calendar.
Week 3	Problems based on Clock.
Week 4	*Revision, Test and Assignments

Name of Assistant Professor:- Dr Sudesh Kumari
 Class:- Skill Enhancement Course (1st Semester)
 Subject:- 23MAT501SE01:: Mathematical Programming in
 C and Numerical Methods
 (External Marks-35, Internal Marks-15,
 Practical Marks-Internal-05, External-20)

Month : JULY	
Week	Topic Covered
Week 5 (4 Days)	Unit I: Programmer's Model of a Computer, Algorithms, Flow Charts,
Month : AUGUST	
Week	Topic Covered
Week 1	Data Types, Operators and Expressions, Input /Output Functions.
Week 2	Decisions Control Structure: Decision Statements, Logical and Conditional Statements, Implementation of Loops,
Week 3	Switch Statement & Case Control Structures.
Week 4	Functions, Preprocessors and Arrays.
Month : SEPTEMBER	
Week	Topic Covered
Week 1	Unit II: Strings: Character Data Type, Standard String handling Functions, Arithmetic Operations on Characters. Structures: Definition, using Structures, use of Structures in Arrays and Arrays in Structures.
Week 2	Pointers: Pointers, Data Type, Pointers and Arrays, Pointers and Functions.
Week 3	Solution of Algebraic and Transcendental Equations: Bisection Method, Regula-Falsi Method, Secant Method,
Week 4	Test and Assignments
Month : OCTOBER	
Week	Topic Covered
Week 1	Newton-Raphson's Method. Newton's Iterative Method for Finding Pth Root of a Number,
Week 2	Order of Convergence of Above Methods.
Week 3	Deepawali Break
Week 4	Unit III: Simultaneous Linear Algebraic Equations: Gauss-Elimination Method, Gauss-Jordan Method,
Week 5	Test and Assignments
Month : NOVEMBER	
Week	Topic Covered
Week 1	Triangularization Method (LU decomposition method). Crout's Method, Cholesky Decomposition Method.
Week 2	Iterative Method, Jacobi's Method,
Week 3	Gauss-Seidal's Method, Relaxation Method.
Week 4	*Revision, Test and Assignments

Name of Assistant Professor:- Dr Sudesh Kumari
 Class:- BCA-I (1st Semester)
 Subject:- 23MAT501SE01:: Mathematics Foundation of
 Computer Science - I
 (External Marks-50, Internal Marks-25)

Month : JULY	
Week	Topic Covered
Week 5 (4 Days)	Unit I: Set, Set Operations, Properties of Set Operations, Subset, Venn Diagrams, Cartesian Products.
Month : AUGUST	
Week	Topic Covered
Week 1	Relations on a Set, Properties of Relations, Representing Relations using Matrices and Digraphs,
Week 2	Types of Relations, Equivalence Relation, Equivalence Relation and Partition on Set, Closures of Relations, Warshall's algorithm.
Week 3	Functions, Properties of Functions (Domain, Range), Composition of Functions, Surjective (onto), Injective (one-to-one) and Bijective Functions, Inverse of Functions.
Week 4	Some useful Functions for Computer Science: Exponential and Logarithmic Functions, Polynomial Functions, Ceiling and Floor Functions.
Month : SEPTEMBER	
Week	Topic Covered
Week 1	Unit II: Basics of Counting, Pigeonhole Principle, Permutation, Combination, Binomial Coefficients, Binomial Theorem.
Week 2	Recurrence Relations, Modelling Recurrence Relations with Examples, Like Fibonacci numbers, the Tower of Hanoi Problem.
Week 3	Solving Linear Recurrence Relation with Constant Coefficients using Characteristic Equation Roots Method.
Week 4	Test and Assignments
Month : OCTOBER	
Week	Topic Covered
Week 1	Unit III: Basic Terminologies of Graphs, Connected and Disconnected Graphs, Subgraph, Paths and Cycles, Complete Graphs, Digraphs, Weighted Graphs, Euler and Hamiltonian Graphs.
Week 2	Trees, Properties of Trees, Concept of Spanning Tree.
Week 3	Deepawali Break
Week 4	Planar Graphs. Definitions and Basic Results on the topics Mentioned.
Week 5	Test and Assignments
Month : NOVEMBER	
Week	Topic Covered
Week 1	Unit IV: Types of matrices, algebra of matrices-addition, subtraction, and multiplication of matrices, determinant of a matrix, symmetric and skew-symmetric matrices, orthogonal matrix, rank of a matrix, inverse of a matrix,
Week 2	applications of matrices to solve system of linear equations,
Week 3	Eigen values and Eigen vectors, Caley-Hamilton theorem.
Week 4	*Revision, Test and Assignments

Name of Assistant Professor:- Dr Jaiveer
 Class:- BA/BSc/B.Sc (Hons) Mathematics-II (3rd Semester)
 (Acc. to NEP-2020)
 Subject:- Ordinary Differential Equation

Month-July	
Week	Topic Covered
Week 3	Unit-I: Geometrical Meaning of a Differential Equation, Exact Differential Equations, Integrating Factors
Week 4	First Order Higher Degree Equations Solvable for x,y,p Lagrange's Equations, Clairaut's Equations, Equation Reducible to Clairaut's Form
Week 5 (4 Days)	Singular Solutions with Examples
Month- August	
Week	Topic Covered
Week 1	Unit-II: Orthogonal Trajectories: Cartesian Coordinates and Polar Coordinates, Self Orthogonal Family of Curves
Week 2	Linear Differential Equations with Constant Coefficients, Homogeneous Linear Ordinary Differential Equations,
Week 3	Equations Reducible to Homogeneous Linear Ordinary Differential Equations,
Week 4	Unit-III: Linear Differential Equations of Second Order: Reduction to Normal Form,
Month-September	
Week	Topic Covered
Week 1	Transformation of the Equation by Changing the Dependent Variable/the Independent Variable
Week 2	Solution by Operators of Non-Homogeneous Linear Differential Equations,
Week 3	Reduction of Order of a Differential Equation
Week 4	Method of Variations of Parameters. Method of Undetermined Coefficients
Month-October	
Week	Topic Covered
Week 1	Unit-IV: Ordinary Simultaneous Differential Equations
Week 2	Simultaneous Equation of the Form $dx/P = dy/Q = dz/R$.
Week 3	Deepawali Break
Week 3	Total Differential Equations
Week 4	Condition for $Pdx + Qdy + Rdz = 0$ to be Exact.
Week 5	Problems and Test
Month-November	
Week	Topic Covered
Week 1	General Method of Solving $Pdx + Qdy + Rdz = 0$ by Taking One Variable Constant.
Week 2	Method of Auxiliary Equations
Week 3	*Revision, Test and Assignments

Name of Assistant Professor:- Dr Jaiveer
Class:- B.Sc (Hons) Mathematics-II (3rd Semester)
(Acc. to NEP-2020)
Subject:- Advanced Calculus

Month : JULY	
Week	Topic Covered
Week 3	Unit I: Continuity, Sequential Continuity with Example
Week 4	Properties of Continuous Functions with Problems
Week 5 (4 Days)	Uniform Continuity with Examples
Month : AUGUST	
Week	Topic Covered
Week 1	Chain Rule of Differentiability, Mean Value Theorems
Week 2	Rolle's Theorem and Lagrange's Mean Value Theorem and Their Geometrical Interpretations
Week 3	Taylor's Theorem with Various Forms of Remainders, Darboux Intermediate Value Theorem for Derivatives,
Week 4	Reduction formulae. Rectification, Intrinsic Equations of Curve—Examples
Month : SEPTEMBER	
Week	Topic Covered
Week 1	Unit II: Limit and Continuity of Real Valued Functions of Two Variables. Partial Differentiation, Total Differentials
Week 2	Composite Functions & Implicit Functions. Change of Variables, Homogenous Functions & Euler's Theorem on Homogeneous Functions
Week 3	Taylor's Theorem for Functions of Two Variables—Examples
Week 4	Problems and Test
Month : OCTOBER	
Week	Topic Covered
Week 1	Unit III: Differentiability of Real Valued Functions of Two Variables. Schwarz and Young's Theorem
Week 2	Implicit Function Theorem. Maxima, Minima and Saddle Points of Two Variables, Lagrange's Method of Multipliers
Week 3	Deepawali Break
Week 4	Unit IV: Curves: Tangents, Principal Normals, Binormals,
Week 5	Serret-Frenet Formulae, Locus of Centre of Curvature
Month : NOVEMBER	
Week	Topic Covered
Week 1	Spherical Curvature, Locus of Centre of Spherical Curvature,
Week 2	Involutes, Evolutes, Bertrand Curves. Surfaces: Tangent Planes, One Parameter Family of Surfaces, Envelopes
Week 3	*Revision, Test and Assignments

Name of Assistant Professor:- Dr SHILPI
Class:- Minor Course (3rd Semester)
Subject:- 24MAT401MI01:: Operations Research
(Theory Marks-70, Internal Marks-30)

Month : JULY	
Week	Topic Covered
Week 3	Unit I: Linear Programming Problems (LPP): Introduction to Linear Programming Problems (LPP), Mathematical Formulation of the Linear Programming Problems with Illustrations.
Week 4	Graphical Method used for Solving Linear Programming Problem. Feasible Region of LPP, Unbounded Solution to the LPP in Graphical Method,
Week 5 (4 Days)	Canonical and Standard Form of LPP.
Month : AUGUST	
Week	Topic Covered
Week 1	Unit II: Simplex Method: Basic and Non Basic Variables,
Week 2	Theory of Simplex Method, Optimality and Unboundedness, Simplex Algorithm,
Week 3	Simplex Method in Tabular Format. Introduction to Artificial Variables, Two –Phase Simplex
Week 4	Method, Big-M Method, Degeneracy Problem in Simplex Method.
Week 4	Test and Assignments
Month : SEPTEMBER	
Week	Topic Covered
Week 1	Unit III: Transportation Problem: Introduction to Transportation Problem,
Week 2	Initial Basic Feasible Solution to Transportation Problem using North-West Corner,
Week 3	Optimal Solution to Transportation Problem using MODI Method,
Week 4	Test and Assignments
Month : OCTOBER	
Week	Topic Covered
Week 1	Least Cost Method and Vogel's Approximation Method.
Week 2	Unbalanced Transportation Problem,
Week 3	Deepawali Break
Week 4	Degeneracy in Transportation Problem.
Week 5	Test and Assignments
Month : NOVEMBER	
Week	Topic Covered
Week 1	Unit IV: Assignment Problem: Introduction to Assignment Problem,
Week 2	Mathematical Formulation of Assignment Problem,
Week 3	Solution to Assignment Problem using Hungarian Method.
Week 4	*Revision, Test and Assignments

Name of Assistant Professor:- Dr JAIVEER
 Class:- Multidisciplinary Course(MDC) (3rd Semester)
 Subject:- 24MATX01MD01:: Applicable Mathematics
 (Theory Marks-50, Internal Marks-25)

Month : JULY	
Week	Topic Covered
Week 3	Unit I: Theory of Sets: Meaning, Elements, Types, Presentation and Equality of Sets,
Week 4	Union, Intersection, Complement and Difference of Sets,
Week 5 (4 Days)	Venn Diagram, Cartesian Product of Two Sets,
Month : AUGUST	
Week	Topic Covered
Week 1	Applications of Set Theory.
Week 2	Unit II: Matrices and Determinants: Definition of a Matrix ; Types of Matrices,
Week 3	Algebra of Matrices; Properties of Determinants;
Week 4	Calculation of Values of Determinants upto Third Order;
Month : SEPTEMBER	
Week	Topic Covered
Week 1	Adjoint of a Matrix, Elementary Row and Column Operations;
Week 2	Finding Inverse Matrix through Adjoint;
Week 3	Solution of a System of Linear Equations having Unique Solution and Involving not more than Three Variables.
Week 4	Test and Assignments
Month : OCTOBER	
Week	Topic Covered
Week 1	Unit III: Compound Interest: Certain Different Types of Interest Rate;
Week 2	Concept of Present Value and Amount of a Sum.
Week 3	Deepawali Break
Week 4	Unit IV: Annuities: Types of Annuities;
Week 5	Test and Assignments
Month : NOVEMBER	
Week	Topic Covered
Week 1	Present Value and Amount of an Annuity,
Week 2	Including the Case of Continuous Compounding
Week 3	*Revision, Test and Assignments

Name of Assistant Professor:- Dr Shilpi
Class:- Skill Enhancement Course (3rd Semester)
Subject:- 23MAT501SE01:: Operations Research Techniques
 (External Marks-35, Internal Marks-15,
 Practical Marks-Internal-05, External-20)

Month : JULY	
Week	Topic Covered
Week 3	Unit I: Definition, Scope, Methodology and Applications of OR.
Week 4	Types of OR Models. Concept of Optimization,
Week 5 (4 Days)	Linear Programming: Introduction, Formulation of a Linear Programming Problem (LPP), Requirements for an LPP,
Month : AUGUST	
Week	Topic Covered
Week 1	Advantages and limitations of LP. Graphical Solution: Multiple, Unbounded and Infeasible Solutions.
Week 2	Unit II: Principle of Simplex Method: Standard Form, Basic Solution, Basic Feasible Solution.
Week 3	Computational Aspect of Simplex Method: Cases of Unique Feasible Solution,
Week 4	No Feasible Solution, Multiple Solution and Unbounded Solution and Degeneracy.
Month : SEPTEMBER	
Week	Topic Covered
Week 1	Two Phase Method with Examples and Big- M methods with Examples
Week 2	Unit III: Duality in LPP, Primal-Dual Relationship.
Week 3	Transportation Problem: Methods for Finding Basic Feasible Solution of a Transportation Problem,
Week 4	Test and Assignments
Month : OCTOBER	
Week	Topic Covered
Week 1	Modified Distribution Method for Finding The Optimum Solution,
Week 2	Unbalanced and Degenerate Transportation Problems,
Week 3	Deepawali Break
Week 4	Transshipment Problem, Maximization in a Transportation Problem.
Week 5	Test and Assignments
Month : NOVEMBER	
Week	Topic Covered
Week 1	Unit IV: Assignment Problem: Solution by Hungarian method, Unbalanced Assignment Problem, Maximization in an Assignment Problem, Crew Assignment And Travelling Salesman Problem.
Week 2	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.
Week 3	*Revision, Test and Assignments

Name of Assistant Professor:- Dr Shilpi
Class:- BA/B.Sc/BSc (Hons)-III (5th Semester)
Subject:- BM351/12BSM351:: Real Analysis

Month : JULY	
Week	Topic Covered
Week 4	Unit I: Riemann Integral, Integrability of Continuous Functions
Week 4	Integrability of Monotonic Functions
Week 5 (4 Days)	The Fundamental Theorem of Integral Calculus.
Month : AUGUST	
Week	Topic Covered
Week 1	Mean Value Theorems of Integral Calculus with Examples
Week 2	Unit II: Improper Integrals and Their Convergence
Week 3	Comparison Tests, Abel's and Dirichlet's Tests, Frullani's Integral, Integral as a Function of a Parameter
Week 4	Continuity, Differentiability and Integrability of an Integral of a Function of a Parameter
Month : SEPTEMBER	
Week	Topic Covered
Week 1	Unit III: Definition and Examples of Metric Spaces, Neighborhoods, Limit Points, Interior Points,
Week 2	Open and Closed Sets, Closure and Interior, Boundary Points, Subspace of a Metric Space,
Week 3	Equivalent Metrics, Cauchy Sequences, Completeness,
Week 4	Cantor's Intersection Theorem, Baire's Category Theorem, Contraction Principle
Month : OCTOBER	
Week	Topic Covered
Week 1	Unit IV: Continuous Functions, Uniform Continuity,
Week 2	Compactness for Metric Spaces,
Week 3	Deepawali Break,
Week 4	Sequential Compactness, Bolzano-Weierstrass Property
Week 5	Total Boundedness, Finite Intersection Property,
Month : NOVEMBER	
Week	Topic Covered
Week 1	Continuity in Relation with Compactness
Week 2	Connectedness, Components, Continuity in Relation with Connectedness
Week 3	*Revision, Test and Assignments

Name of Assistant Professor:- Dr Jaiveer
 Class:- BA/B.Sc/BSc (Hons)-III (5th Semester)
 Subject:- BM352/12BSM352:: Groups and Rings

Month : JULY	
Week	Topic Covered
Week 3	Unit I: Definition of a Group with Example and Simple Properties of Groups
Week 4	Subgroups and Subgroup Criteria,
Week 5 (3 Days)	Generation of Groups,
Month : AUGUST	
Week	Topic Covered
Week 1	Cyclic Groups, Cosets, Left and Right Cosets
Week 2	Index of a Sub-Group Coset Decomposition, Lagrange's Theorem and its Consequences, Normal Subgroups, Quotient Groups,
Week 3	Unit II: Homomorphisms, Isomorphisms, Automorphisms and Inner Automorphisms of a Group, Automorphisms of Cyclic Groups,
Week 4	Permutations Groups. Even and Odd Permutations, Alternating Groups, Cayley's Theorem, Center of a Group and Derived Group of a Group.
Month : SEPTEMBER	
Week	Topic Covered
Week 1	Unit III: Introduction to Rings, Subrings, Integral Domains and Fields,
Week 2	Characteristics of a Ring. Ring Homomorphisms,
Week 3	Ideals (Principle, Prime and Maximal) and Quotient Rings
Week 4	Field of Quotients of an Integral Domain
Month : OCTOBER	
Week	Topic Covered
Week 1	Unit IV: Euclidean Rings, Polynomial Rings, Polynomials Over the Rational Field,
Week 2	The Eisenstein's Criterion,
Week 3	Deepawali Break
Week 4	Polynomial Rings Over Commutative Rings,
Week 5	Unique Factorization Domain
Month : NOVEMBER	
Week	Topic Covered
Week 1	R Unique Factorization Domain Implies so is $R[X_1, X_2, \dots, X_n]$
Week 2	R Unique Factorization Domain Implies so is $R[X_1, X_2, \dots, X_n]$ with Examples
Week 3	*Revision, Test and Assignments

Name of Assistant Professor:- Dr Shilpi
Class:- BA/B.Sc/BSc (Hons)-III (5th Semester)
Subject:- BM353/12BSM353:: Numerical Analysis

Month : JULY	
Week	Topic Covered
Week 3	Unit I: Finite Differences Operators and their Relations.
Week 4	Finding the Missing Terms and Effect of Error in a Difference Tabular Values
Week 5 (4 Days)	Finding the Missing Terms and Effect of Error in a Difference Tabular Values
Month : AUGUST	
Week	Topic Covered
Week 1	Interpolation with Equal Intervals: Newton's Forward Interpolation Formulae and Newton's Backward Interpolation Formulae with Examples
Week 2	Interpolation with Unequal Intervals: Newton's Divided Difference, Lagrange's Interpolation Formulae, Hermite Formula
Week 3	Unit II: Central Differences: Gauss Forward and Gauss's Backward Interpolation Formulae,
Week 4	Sterling, Bessel Formula. Probability Distribution of Random Variables,
Month : SEPTEMBER	
Week	Topic Covered
Week 1	Binomial Distribution, Poisson's Distribution, Normal Distribution: Mean, Variance and Fitting.
Week 2	Unit III Numerical Differentiation: Derivative of a Function using Interpolation Formulae as Studied in Sections –I & II.
Week 3	Eigen Value Problems: Power Method, Jacobi's Method, Given's Method
Week 4	House-Holder's Method, QR Method, Lanczos Method.
Month : OCTOBER	
Week	Topic Covered
Week 1	Unit IV: Numerical Integration: Newton-Cote's Quadrature Formula, Trapezoidal Rule, Simpson's One Third and Three-Eighth Rule
Week 2	Chebychev Formula, Gauss Quadrature Formula
Week 3	Deepawali Break
Week 4	Numerical Solution of Ordinary Differential Equations: Single Step Methods- Picard's Method. Taylor's Series Method
Week 5	Euler's Method, Runge-Kutta Methods
Month : NOVEMBER	
Week	Topic Covered
Week 1	Multiple Step Methods; Predictor-Corrector Method
Week 2	Modified Euler's Method, Milne-Simpson's Method
Week 3	*Revision, Test and Assignments

Name of Assistant Professor:- Dr Jaiveer
Class:- B.Sc (Honours) Mathematics (5th Semester)
Subject:- BHM354:: Integral Equations(Paper-IV)

Month : JULY	
Week	Topic Covered
Week 3	Unit I: Linear Integral Equations, Some Basic Identities, Initial-Value Problems Reduced to Volterra Integral Equations
Week 4	Method of Successive Approximation to Solve Volterra Integral Equations of Second Kind,
Week 5 (4 Days)	Iterated Kernels and Neumann Series for Volterra Equation
Month : AUGUST	
Week	Topic Covered
Week 1	Resolvent Kernel as a Series in λ , Laplace Transform Method for a Difference Kernel, Solution of a Volterra Integral Equation of the First Kind
Week 2	Unit II: Boundary Value Problems Reduced to Fredholm Integral Equations, Method of Successive Approximations to Solve Fredholm Equation of Second Kind
Week 3	Iterated Kernels and Neumann Series for Fredholm Equations,
Week 4	Resolvent Kernel as a Sum of Series, Fredholm Resolvent Kernel as a Ratio of Two Series
Month : SEPTEMBER	
Week	Topic Covered
Week 1	Fredholm Equations with Degenerate Kernel, Approximation of a Kernel by a Degenerate Kernel, Fredholm Alternative
Week 2	Unit III: Green's Function. Use of Method of Variation of Parameters to Construction the Green's Function for a Non-Homogeneous Linear Second Degree BVP
Week 3	Basic Four Properties of the Green's Function,
Week 4	Alternate Procedure for Construction of the Green's Function by Using its Basic Four Properties.
Month : OCTOBER	
Week	Topic Covered
Week 1	Method of Series Representation of the Green's Function in Terms of the Solutions of the Associated Homogeneous BVP.
Week 2	Reduction of a BVP to a Fredholm Integral Equation with Kernel as Green's Function
Week 3	Deepawali Break
Week 4	Unit IV: Homogeneous Fredholm Equations with Symmetric Kernels
Week 5	Solution of Fredholm Equations of the Second Kind with Symmetric Kernel
Month : NOVEMBER	
Week	Topic Covered
Week 1	Method of Fredholm Resolvent Kernel, Method of Iterated Kernels,
Week 2	Fredholm Equations of the First Kind with Symmetric Kernels
Week 3	*Revision, Test and Assignments

Name of Assistant Professor:- Dr Shilpi
 Class:- B.Sc (Honours) Mathematics (5th Semester)
 Subject:- BHM355:: Methods of Applied Mathematics

Month : JULY	
Week	Topic Covered
Week 3	Unit I: Solution of 3D Laplace, Wave and Heat Equations in Spherical Polar Co-Ordinates by the Method of Separation of Variables.
Week 4	Solution of 3D Laplace Equation in Cylindrical Polar Co-Ordinates by the Method of Separation of Variables.
Week 5 (4 Days)	Solution of 3D Wave and Heat Equations in Cylindrical Polar Co-Ordinates by the Method of Separation of Variables.
Month : AUGUST	
Week	Topic Covered
Week 1	Fourier Series Solution of the Wave Equation, Transformation of Boundary Value Problems.
Week 2	Unit II: Fourier Series Solution of the Heat Equation, Steady-State Temperature in Plates
Week 3	The Heat and Wave Equations in Unbounded Domains, Fourier Transform Solution of Boundary Value Problems.
Week 4	The Heat Equation in an Infinite Cylinder and in a Solid Sphere.
Month : SEPTEMBER	
Week	Topic Covered
Week 1	Unit III: Hankel Transform of Elementary Functions. Operational Properties of the Hankel Transform.
Week 2	Applications of Hankel Transforms to PDE.
Week 3	Definition and Basic Properties of Finite Fourier Sine and Cosine Transforms, its Applications to the Solutions of BVP's and IVP's
Week 4	Applications of Finite Fourier Sine and Cosine Transforms to the Solutions of BVP's and IVP's
Month : OCTOBER	
Week	Topic Covered
Week 1	Unit IV: Moments and Products of Inertia, Angular Momentum of a Rigid Body,
Week 2	Principal Axes and Principal Moment of Inertia of a Rigid Body,
Week 3	Deepawali Break
Week 4	Kinetic Energy of a Rigid Body Rotating about a Fixed Point,
Week 5	Momental Ellipsoid and Equipomental Systems, Coplanar Mass Distributions, General Motion of a Rigid Body.
Month : NOVEMBER	
Week	Topic Covered
Week 1	Momental Ellipsoid and Equipomental Systems, Coplanar Mass Distributions, General Motion of a Rigid Body.
Week 2	Momental Ellipsoid and Equipomental Systems, Coplanar Mass Distributions, General Motion of a Rigid Body.
Week 3	*Revision, Test and Assignments

Name of Assistant Professor:- Dr SUDESH KUMARI
Class:- B.Sc (Honours) Mathematics (5th Semester)
Subject:- BHM356:: Operations Research-I(Paper-VI)

Month : JULY	
Week	Topic Covered
Week 3	Unit I: Definition, Scope, Methodology and Applications of OR.
Week 4	Types of OR Models. Concept of Optimization,
Week 5 (3 Days)	Linear Programming: Introduction, Formulation of a Linear Programming Problem (LPP)
Month : AUGUST	
Week	Topic Covered
Week 1	Requirements for an LPP, Advantages and Limitations of LP. Graphical Solution: Multiple, Unbounded and Infeasible Solutions.
Week 2	Unit II: Principle of Simplex Method: Standard Form, Basic Solution, Basic Feasible Solution.
Week 3	Computational Aspect of Simplex Method: Cases of Unique Feasible Solution, No Feasible Solution,
Week 4	Multiple Solution and Unbounded Solution and Degeneracy and Test
Month : SEPTEMBER	
Week	Topic Covered
Week 1	Two Phase and Big- M Methods.
Week 2	Unit III: Duality in LPP, Primal-Dual Relationship with Examples
Week 3	Transportation Problem: Methods for Finding Basic Feasible Solution of a Transportation Problem, Modified Distribution Method for Finding the Optimum Solution,
Week 4	Unbalanced and Degenerate Transportation Problems, Transshipment Problem, Maximization in a Transportation Problem and Test
Month : OCTOBER	
Week	Topic Covered
Week 1	Unit IV: Assignment Problem: Solution by Hungarian Method,
Week 2	Unbalanced Assignment Problem,
Week 3	Deepawali Break
Week 4	Maximization in an Assignment Problem,
Week 5	Crew Assignment and Travelling Salesman Problem.
Month : NOVEMBER	
Week	Topic Covered
Week 1	Game Theory: Two Person Zero Sum Game, Game with Saddle Points, The Rule of Dominance
Week 2	Algebraic, Graphical and Linear Programming Methods for Solving Mixed Strategy Games.
Week 3	*Revision, Test and Assignments

