

Lesson Plan

Name: Dr. Anup Singh

Class: B.Sc.- 2 (4th Sem.)

Subject: Mathematics

Paper: SEQUENCES AND SERIES

April 2022	Unit 1:	Boundedness of the set of real numbers; least upper bound, greatest lower bound of a set, neighborhoods, interior points, isolated points, limit points, open sets, closed set, interior of a set, closure of a set in real numbers and their properties. Bolzano- Weiestrass theorem, Open covers, Compact sets and Heine-Borel Theorem. Problems discussion and revision of unit 1, Assignment 1 and Test 1.
May 2022	Unit 2:	Real Sequences and their convergence, Theorem on limits of sequence, Bounded and monotonic sequences, Cauchy's sequence, Cauchy general principle of convergence, Subsequences, Subsequential limits. Infinite series: Convergence and divergence of Infinite Series, Comparison Tests of positive terms Infinite series, Cauchy's general principle of Convergence of series, Convergence and divergence of geometric series, Hyper Harmonic series or p-series. Problems discussion and revision of unit 2, Assignment 2 and Test 2.
June 2022	Unit 3:	Infinite series: D-Alembert's ratio test, Raabe's test, Logarithmic test, de Morgan and Bertrand's test, Cauchy's Nth root test, Gauss Test, Cauchy's integral test, Cauchy's condensation test. Problems discussion and revision of unit 3, Assignment 3 and Test 3.
July 2022	Unit 4:	Alternating series, Leibnitz's test, absolute and conditional convergence, Arbitrary series: abel's lemma, Abel's test, Dirichlet's test, Insertion and removal of parenthesis, rearrangement of terms in a series, Dirichlet's theorem, Riemann's Re-arrangement theorem, Pringsheim's theorem (statement only), Multiplication of series, Cauchy product of series, (definitions and examples only) Convergence and absolute convergence of infinite products. Problems discussion and revision of unit 4, Assignment 4 and Test 4.



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Name: Dr. Anup Singh

Class: B.Sc.- 2 (4th Sem.)

Subject: Mathematics

Paper: PROGRAMMING IN C & NUMERICAL METHODS

April 2022	Unit 1:	Programmer's model of a computer, Algorithms, Flow charts, Data types, Operators and expressions, Input / outputs functions. Problems discussion and revision of unit 1, Assignment 1 and Test 1.
May 2022	Unit 2:	Decisions control structure: Decision statements, Logical and conditional statements, Implementation of Loops, Switch Statement & Case control structures. Functions, Preprocessors and Arrays. Problems discussion and revision of unit 2, Assignment 2 and Test 2.
June 2022	Unit 3:	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. Pointers: Pointers Data type, Pointers and Arrays, Pointers and Functions. Solution of Algebraic and Transcendental equations: Bisection method, Regula-Falsi method, Secant method, Newton-Raphson's method. Newton's iterative method for finding pth root of a number, Order of convergence of above methods. Problems discussion and revision of unit 3, Assignment 3 and Test 3.
July 2022	Unit 4:	Simultaneous linear algebraic equations: Gauss-elimination method, Gauss-Jordan method, Triangularization method (LU decomposition method). Crout's method, Cholesky Decomposition method. Iterative method, Jacobi's method, Gauss-Seidal's method, Relaxation method. Problems discussion and revision of unit 4, Assignment 4 and Test 4.



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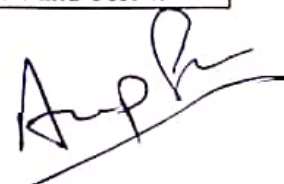
Name: Dr. Anup Singh

Class: B.Sc.- 3 (6th Sem.)

Subject: Mathematics

Paper: LINEAR ALGEBRA

April 2022	Unit 1:	Vector spaces, subspaces, Sum and Direct sum of subspaces, Linear span, Linearly Independent and dependent subsets of a vector space. Finitely generated vector space, Existence theorem for basis of a finitely generated vector space, Finite dimensional vector spaces, Invariance of the number of elements of bases sets, Dimensions, Quotient space and its dimension. Problems discussion and revision of unit 1, Assignment 1 and Test 1.
May 2022	Unit 2:	Homomorphism and isomorphism of vector spaces, Linear transformations and linear forms on vector spaces, Vector space of all the linear transformations Dual Spaces, Bidual spaces, annihilator of subspaces of finite dimensional vector spaces, Null Space, Range space of a linear transformation, Rank and Nullity Theorem Problems discussion and revision of unit 2, Assignment 2 and Test 2.
June 2022	Unit 3:	Algebra of Linear Transformation, Minimal Polynomial of a linear transformation, Singular and non-singular linear transformations, Matrix of a linear Transformation, Change of basis, Eigen values and Eigen vectors of linear transformations. Problems discussion and revision of unit 3, Assignment 3 and Test 3.
July 2022	Unit 4:	Inner product spaces, Cauchy-Schwarz inequality, Orthogonal vectors, Orthogonal complements, Orthogonal sets and Basis, Bessel's inequality for finite dimensional vector spaces, Gram-Schmidt, Orthogonalization process, Adjoint of a linear transformation and its properties, Unitary linear transformations. Problems discussion and revision of unit 4, Assignment 4 and Test 4.



Lesson Plan

Name: Dr. Anup Singh

Class and Section: B.Com.- 1 (2nd Sem.)

Subject: B. Mathematics

April 2022	Unit 1:	Permutations and Combinations Binomial Theorem Problems discussion and revision of unit 1, Assignment 1 and Test 1.
May 2022	Unit 2:	Linear inequalities: graphical solution of linear equalities in two variables, solution of system of linear inequalities in two variables. Problems discussion and revision of unit 2, Assignment 2 and Test 2.
June 2022	Unit 3:	Linear programming-formulation of equation: graphical method of solution; problems relating to two variables including the case of mixed constraints; cases having no solution, multiple solutions, unbounded solution and redundant constraints Problems discussion and revision of unit 3, Assignment 3 and Test 3.
July 2022	Unit 4:	Data representation and interpretation: introduction, classification and tabulation of data, Diagrammatic and graphic representation of data: significance of diagrams and graphs, Types of diagrams: bar diagram, pie chart, pictographs, graphs of time series or line graphs; graphs of frequency distribution: histogram, frequency polygon, ogives or cumulative frequency curves, limitations of diagrams and graphs. Problems discussion and revision of unit 4, Assignment 4 and Test 4.

