Teacher Name :Dr Rekha Dahiya

Class. : B.com 1st sec B

Paper. Mathematics

| Month/week | Topic |
| --- | --- |
| March  Week 4/5 | Introduction |
| April  Week 1 | Definition of matrix , types, algebra of matrix |
| Week 2 | Calculation of values determinants |
| Week 3 | Adjoint of a matrix , finding inverse of matrix |
| Week 4/5 | Elementary row and column operation |
| May  Week 1 | Differentiation |
| Week 2 | Differentiation |
| Week 3 | Compound interest |
| Week 4/5 | Annuities |
| June  Week 1 | Ratio |
| Week 2 | Percentage |
| Week 3 | Profit and loss |
| Week 4/5 | Revision and test |

**Lesson Plan**

**Academic Session 2020-21**

**Subject-Mathematics Class…B.Sc.IIIrd…**

**Paper:- Dynamics……… Name:- Dr Rekha Dahiya.**

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|  | **Month** |
|  | **March 2022** |
| Week 4 | Introduction |
| Week 5 | Velocity and acceleration along radial, transverse and normal direction |
| April  Week 1 | Relative velocity and acceleration |
| Week 2 | Simple harmonic motion |
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| Week 3 | Elastic string |
| Week 4 | Mass , momentum and force |
| Week 5  May week 1 | Newton's law of motion |
| Week 2 | work power and energy |
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| Week 3 | Definition of conservative force and impulsive forces |
| Week 4 | Motion on smooth and rough plane curves |
| Week 5 | Projectile motion of a particle in a plane |
| June  Week 1 | Vector angular velocity |
| Week 2 | Central orbit |
| Week 3 | Kepler's law |
| Week 4 | Motion of a particle in three dimension |
| Week 5 | Acceleration in terms of different co ordinate system |

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| Name of the Assistant Professor: Dr. SUDESH | |
| Class and Section: B.Sc. mathhons (4th Semester) | |
| Subject: STATISTICS | |
| Paper: ELEMENTARY INFERENCE | |
| **APRIL** | |
| Week 1: Definition of Parameter and Statistic ,Standard error of estimate, Point and interval estimation | |
| Week 2: Unbiasednes, Efficiency | |
| Week3*:* Consistency and Sufficiency | |
| Week4*:* Revision and test | |
| **MAY** |
| Week 1: Method of maximum likelihood estimation, Null and alternative hypothesis |
| Week 2: Simple and alternative hypothesis, critical region , level of significance |
| Week3: one tailed test and two tailed test, Types of error, Neyman - Pearson Lemma |
| Week4: Testing and interval estimation of a single mean, single proportion, two means  and two proportion, Fisher Z transformation |
| **JUNE** |
| Week1: Definition of Chi-Square test for goodness of fit and independence of attributes |
| Week2: Definition of student t and Snedcor F –Statistics ,Testing for mean and  variances of univariate normal distributions |
| Week3: Testing of equality of two means and two variances of two univariate normal  Distributions |
| Week4: Analysis of variance for one-way and two-way classified data |

**Name of Assistant Professor: - Mrs. Mamta**

**Class and Section:-**  B.Sc. Math (Hons) Semester  6th

**Subject: - Fluid Dynamics**

**Lesson Plan: (from 21march, 2021 to 30 June, 2021)**

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| **Week 4, 5(21March to 31march)**  Introduction of Fluid Dynamics, Eulerian Method & Its Examples |

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| **Week 1 (1April to 3 April)**  Lagrangian method and its example |

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| **Week 2, (4April to 10April)**    Streamline, Path lines and it's examples |

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| **Week 3 (11April to 17April )**  Streamline and its example and problems discussion |

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| **Week 4 (18April to 23 April)**  Vortex line and it's related theorem and example |

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| **Week 5, (24 April to 30 April)**  Test 1st unit topic, Velocity Potential and its related theorem and example ,rotational and irrational motion |

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| **Week 1, (01 May to 08 May)**    Equation of Continuity and all its form & Its Examples , Boundary Surface , |

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| **Week 2 (9 May to 15May)**  Assignment, Acyclic and cyclic Irrotational Motion , Kinetic energy of Irrotational Flow , Test  Unit 1 |

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| **Week 3 (16 May to 22May)**  Kelvins Minimum Energy Theorem & Its Examples, Axially Symmetric Flows , Liquid Streaming Past a Fixed Sphere, Motion of Sphere through a liquid at rest at infinity |

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| **Week 4,5(23May to 31 may)**  Problem of Above Topic, Equation of Motion of a Sphere, Three Dimensional Spaces ,Test - Unit 2, Source, Sink and Doublet and Their Images |

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| **Week 1, (01June to 5June)**  Stokes Stream Function and Its Example, Acceleration at a point of fluid Components of acceleration in cylindrical, Spherical Polar Co.ordinate, Problem of above Topic |

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| **Week 2, (6 June to 12 June)**  Assignments, Pressure at a point of moving fluid and its examples ,Eulers and Lagranges of motion, Bernoullis equation and its example ,Impulsive motion, stream function,Test-Unit 3 |

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| **Week 3, (13 June to 19 June)**  Irrational motion in two dimensions, Complex Velocity Potential, Milne-Thomson and its example, two dimensions source, sink ,doublets and their image, problem of above Topic. |

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| **Week 4, 5(20 June to 30 June)**  Assignments, Blasius Theorem, Two Dimensional Irrational motions produced by motions of circular and co-axial cylinder in an infinite mass of liquid, problem of above Topic, Test-Unit 4 |

**Lesson Plan**

**Academic Session 2020-21**

**Subject-Mathematics Class…B.Sc.IInd Hons…**

**Paper:- Hydrostatics……… Name:- Dr Rekha Dahiya.**

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| --- | --- |
|  | **Month** |
|  | **March 2022** |
| Week 4 | Introduction to force and pressure |
| Week 5 | Pressure equilibrium, conditions of equilibrium homogenous and heterogeneous fluid |
| April  Week 1 | Elastic fluid,surface of equal pressure |
| Week 2 | Fluid at rest under the action of gravity |
|  | Rotating fluid |
|  |  |
| Week 3 | Fluid pressure on plane surface |
| Week 4 | Centre of pressure, resultant pressure on surfaces |
| Week 5  May week 1 | Equilibrium of floating bodies |
| Week 2 | Curve of buoyancy, surface of buoyancy |
|  | Stability of equilibrium of floating bodies |
| Week 3 | Metacentre, work done in producing a displacement |
| Week 4 | Vessal containing liquid, gas law |
| Week 5 | Mixture of gases,internal energy |
| June  Week 1 | Adiabatic expansion |
| Week 2 | Work done in compressing a gas |
| Week 3 | Geothermal atmosphere convective equilibrium |
| Week 4 | Example based on atmosphere |
| Week 5 | Revision and test |

**Lesson Plan**

**Academic Session 2021-22**

**Subject-Mathematics Class…B.Sc physics hons 2 sem**

**Paper:-Mathematics………**

**Name: Dr. Preeti**

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|  | **April 2022** |
| Week 1,2 | Function of real variable |
| Week3 | Limit, continuity of functions |
| Week 4 | Differentiability of functions |
| Week5 | Take Problems |
|  | **MAY 22** |
| Week 1 | Uniform continuity, uniform theorem for analytic function,  Intermediate theorem |
| Week 2 | Taylors and Maclaurin series of elementry analytic function, Taylors theorem |
| Week 3 | Function of two or three variables, their continuity, differentiability, Schwartz and Youngs theorem, implicit theorem |
| Week 4 | Definition and examples of Riemann integal of bounded function, Riemann integal of monotonic and continuous function |
| Week 5 | Riemann as limit of sum |
|  | **JUNE 22** |
| Week 1 | Take problem of Riemann |
| Week 2 | Fundamental theorem of integral calculus,Mean value theorem |
| Week 3 | Integration of rational and irrational function,by partial fraction |
| Week 4 | Properties of definite integal, their problems |
| Week 5 | Take problem and assignment |

| **Name of the Assistant/Associate Professor: Sarita/Babita/Parvesh** | |
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| **Class and Section: B.Sc (NM),B.A., B.Sc. Mathhons (6th Semester)** | |
| **Subject: Mathematics** | |
| **Paper: Real and Complex Analysis** | |
| **March 2022** | |
| **Week 4:** Jacobians, Beta and Gama functions | |
| **April 2022** | |
| **Week 1:** Double and Triple integrals, Dirichlets integrals | |
| **Week 2*:*** Change of order of integration in double integrals | |
| **Week 3:** Fourier’s series: Fourier expansion of piecewise monotonic functions, Properties of Fourier Coefficients | |
| **Week 4:** Dirichlet’s conditions, Parseval’s identity for Fourier series | |
| **May 2022** |
| **Week 1:** Fourier series for even and odd functions, Half range series, Change of Intervals |
| **Week 2:** Extended Complex Plane, Stereographic projection of complex numbers. |
| **Week 3:** continuity and differentiability of complex functions, Analytic functions |
| **Week 4:** Cauchy-Riemann equations. Harmonic functions |
| **Week 5: Revision of Unit 1 and 2** |
| **June 2022** |
| **Week 1:** Mappings by elementary functions: Translation, rotation, Magnification and Inversion |
| **Week 2:** Conformal Mappings, Mobius transformations. Fixed points |
| **Week 3:** Cross ratio, Inverse Points and critical mappings |
| **Week4:** Test & Assignments **,Revision of Unit-IV** |
| **Week 5: Revision of entire Syllabus** |

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| **Name of the Assistant/Associate Professor: Dr. Kusum, Dr. Ridam** | |
| **Class and Section: B.Sc (NM),B.A. B.Sc. mathhons (4th Semester)** | |
| **Subject: Mathematics** | |
| **Paper: Sequence and Series** | |
| **March 2022** | |
| **Week 4: Boundedness of the set of Real numbers, least upper bound, greatest lower bound of the set, Examples related to l.u.b and g.l.b** | |
| **April 2022** | |
| **Week 1: Concepts /examples/Theorem of neighbourhoods, interior points, isolated points, limit points, open sets, closed set, interior of the set** | |
| **Week 2*:* Closure of a set in real numbers and their properties. Bolzano-Weierstrass theorem** | |
| **Week 3: Open Covers, Compact sets and Heine Borel Theorem. Revision of Unit -I** | |
| **Week 4: Sequence: Real sequences and their convergence, theorems on limits of sequence, Bounded and monotone sequence, Cauchy’s sequence** | |
| **May 2022** |
| **Week 1: Cauchy’s general principal of convergence, subsequences, Subsequential limits .Revision of Sequence** |
| **Week 2: Infinite series: Convergence and divergence of Infinite series, Comparison tests of Positive terms infinite series** |
| **Week 3: Cauchy’s general principle of convergence of series, Convergence and divergence of G.S,Hyper Harmonic series or p-series. Revision of Infinite series** |
| **Week 4: Infinite series: D’Alembert’s Ratio Test, Raabe’s test, Logarithmic test, De-Morgan and Bertrand’test** |
| **Week 5: Revision of Unit 1** |
| **June 2022** |
| **Week 1: Cauchy’s n th root test, Gauss test,Cauchy’s Integral test, Cauchy’s condensation test. Revision of Infinite Series test** |
| **Week 2: Alternating Series: Leibnitz’s test,absolute and conditional convergence. Arbitrary Series:Abel’s lemma,Abel’s test,** |
| **Week 3: Alternating Series: Dirichlet test, Insertion and Removal of Parenthesis, Rearrangement of terms in series, Dirichlet theorem, Reimann’s rearrangement theorem** |
| **Week4: Pringsheim’s theorem (statement only),multiplication of series, Cauchy product of series(Definition and examples only),Convergence and absolute convergence of infinite products. Revision of Unit-IV** |
| **Week 5: Test & Revision of entire Syllabus** |

| **Name of the Assistant/Associate Professor: Shalini Nagpal/Parul Singh** | |
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| **Class and Section: B.Sc. (NM), B.A., B.Sc. Maths Hons (4th Semester)** | |
| **Subject: Mathematics** | |
| **Paper: Special Functions and Integral Transforms** | |
| **March 2022** | |
| **Week 4:**  Series solution of differential equations: Power series method. | |
| **April 2022** | |
| **Week 1:** Beta and gamma functions, Bessel equation and solution, Bessel functions and their properties. | |
| **Week 2*:*** Recurrence relations and Generating Functions, Orthogonality of Bessel functions. | |
| **Week 3:** Legendre and Hermite differential equations and their solutions. Test of Unit-1. | |
| **Week 4:** Orthogonality ofLegendre and Hermite Polynomials, Rodrigues Formula for Legendre and Hermite Polynomials, Laplace integral representation of Legendre polynomial. | |
| **May 2022** |
| **Week 1:** Laplace Transforms: Existence theorem, Linearity of Laplace transform, Shifting theorems, Laplace transforms of derivatives and integrals, Differentiation and integration of Laplace Transforms. |
| **Week 2:** Inverse Laplace Transforms: Inverse Laplace Transforms of derivatives and integrals. |
| **Week 3:** Use of Laplace transform in Integral equations, Convolution theorem. |
| **Week 4:** Solution of differential equations using Laplace transform, Test of Unit-2. |
| **Week 5:** Fourier Transforms: Linearity Property, Shifting, Modulation, Convolution Theorem |
| **June 2022** |
| **Week 1:** Fourier transform of derivative, Relation between fourier and laplace transform. |
| **Week 2:** Parseval’s identity for fourier transform. |
| **Week 3:** Solution of differential equations using Fourier Transform. |
| **Week4:** Assignments and test of Unit-3 and Unit-4. |
| **Week 5: Revision of entire Syllabus.** |

**Lesson Plan**

**Academic Session 2021-22**

**Subject-Mathematics Class-B.Sc Maths hons-II Sem**

**Paper:-Discrete Mathematics Name:-mamta**

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| Week | **Month** |
|  | **March 2022** |
| Week 4-5 | Practical, Practical and introductions |
|  | Definition ofLattices and their properties |
|  | **April 2022** |
| Week 1 | lattice as algebraic system |
| Week 2 | Definition Bounded, Complement Lattice |
| Week 3 | Theorem and example related to bounded and complement lattice |
| Week 4 | Definition of Distributive lattice and its related theorem and example |
|  | **May 2022** |
| Week 1 | Test unit 1. Boolean algebra, definition and examples |
|  |  |
| Week2 | Design and implementation of digital networks |
|  | , switching circuits, Karnaugh map. |
| Week 3 |  |
|  | Test unit 2, Graph, definition, exemplary types of graphs |
| Week 4 | paths and circuits. Eulearian and Hermitian circuits. Seven bridges machine, |
| Week 5 | , shortest path traveling salesman problems. Planar graph. Matrix of graph |
|  | **June2022** |
| Week 1 | Trees, Isomorphism of Trees, Representation of Algebraic Expressions by Binary Trees, |
|  | Spanning Tree of a GDirected Graph. |
| Week 2 | Shortest Path Problem, Minimal spanning Trees, Cut Sets, |
| Week 3  Week 4 | Tree sreaching,test unit 3,test unit 4. Shortest Path Problem, Minimal spanning Trees, Cut Sets, Tree Searching Shortest Path Problem, Minimal spanning Trees, Cut Sets, Tree Searching |
| Week 5 | Revision |

**Lesson Plan**

**Academic Session 2021-22**

**Subject: Mathematics Class: B. Sc /B.A. /B. Sc (Hons) II Sem**

**Paper: Number Theory & Trigonometry Name:kusum ,sushma ,parul singh, Reena, Ridam**

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|  | **Month** |
|  | **March 2022** |
| Week4-5 | De Moivre’s theorem and its applications, |
|  | **April 2022** |
|  |  |
| Week 1  Week 2 | Expansion of trigonometrically functions,  Circular functions of complex variables |
| Week 3  Week4 | Hyperbolic functions and their properties,  Logarithm of a complex quantity  Doubts of Students |
|  | **May 2022** |
| Week 1 | Inverse circular and inverse hyperbolic functions and their properties |
| Week 2 | Gregory’s series, Summation of Trigonometry series |
| Week 3 | Divisibility, G.C.D. (greatest common divisors), L.C.M. (least common multiple), Primes, Fundamental theorem of arithmetic. |
| Week 4 | Linear Congruence, Linear Diophanatine equations in two variables  Assignment |
| May 5 | Fermat’s theorem. Wilson’s theorem and its converse  Problems of Students |
|  | **June 2022** |
| Week 1 | Chinese remainder theorem, Complete residue system and reduced residue system modulo m. |
| Week 2 | Euler’s -function Euler’s generalization of Fermat’s theorem  Problems of Students |
| Week 3 | Quadratic residues, Legendre symbols, Lemma of Gauss, Gauss reciprocity law, Assignment |
| Week 4 -5 | Greatest integer function [x]. The number of divisors and the sum of divisors of a natural number n (The functions d(n) and (n)), Moebius function and Moebius inversion formula |

**Lesson Plan**

**Academic Session 2021-22**

**Subject: Mathematics Class: B. Sc /B.A. /B. Sc (Hons) II Sem**

**Paper: Number Theory & Trigonometry Name:kusum ,sushma ,parul singh, Reena, Ridam**

|  |  |
| --- | --- |
|  | **Month** |
|  | **March 2022** |
| Week4-5 | De Moivre’s theorem and its applications, |
|  | **April 2022** |
|  |  |
| Week 1  Week 2 | Expansion of trigonometrically functions,  Circular functions of complex variables |
| Week 3  Week4 | Hyperbolic functions and their properties,  Logarithm of a complex quantity  Doubts of Students |
|  | **May 2022** |
| Week 1 | Inverse circular and inverse hyperbolic functions and their properties |
| Week 2 | Gregory’s series, Summation of Trigonometry series |
| Week 3 | Divisibility, G.C.D. (greatest common divisors), L.C.M. (least common multiple), Primes, Fundamental theorem of arithmetic. |
| Week 4 | Linear Congruence, Linear Diophanatine equations in two variables  Assignment |
| May 5 | Fermat’s theorem. Wilson’s theorem and its converse  Problems of Students |
|  | **June 2022** |
| Week 1 | Chinese remainder theorem, Complete residue system and reduced residue system modulo m. |
| Week 2 | Euler’s -function Euler’s generalization of Fermat’s theorem  Problems of Students |
| Week 3 | Quadratic residues, Legendre symbols, Lemma of Gauss, Gauss reciprocity law, Assignment |
| Week 4 -5 | Greatest integer function [x]. The number of divisors and the sum of divisors of a natural number n (The functions d(n) and (n)), Moebius function and Moebius inversion formula |

**Lesson Plan Academic Session 2021-22**

**Subject – Statistics Class – BSc (Hons) (Sem 6th)**

**Paper – Operation Research II Name – Dr. Sandeep Kumar**

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| **Week** | **Syllabus** |
| March  Week 5 | Inventory Control : introduction of inventory, factors affecting inventory, inventory models. |
| April  Week 1 | Deterministic models : Economic order quantity model when shortages are allowed / not allowed. |
| April  Week 2 | Price discounts model, multi-item inventory models. |
| April  Week 3 | Queuing Theory : Basic Characteristics of queuing system. |
| April  Week 4 | Birth-death equations, Steady state solution of Markovian queuing models with single and multiple servers. |
| May  Week 1 | With limited capacity (M/M/1/K and M/M/c/K). |
| May  Week 2 | Replacement Problems : Replacement of items whose running cost increases with time. |
| May  Week 3 | Replacement policies for the items that fail completely – Individual and the group replacement policies. |
| May  Week 4 | PERT and CPM : Introduction of PERT and CPM. |
| June  Week 1 | Earliest and lates times, Determination of critical path various types of floates. |
| June  Week 2 | Probablistic and Cost consideration in project scheduling |
| **June**  **Week 3** | **Sequencing problems : Processing of n jobs through 2 machines, n jobs through 3 machines.** |
| **June**  **Week 4** | **2 jobs through m machines, n jobs through m machines** |
| **June**  **Week 5** | **Revision and test** |

**Lesson Plan Academic Session 2021-22**

Subject - Statistics Class: B. Sc. III (VI Sem)

Paper: - Operations Research & Statistical Quality Control Name: Dr. Permila

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| **Week** | **Syllabus** |
| April 1st&April 2nd | Operations Research: Definitions, Nature Objectives, Scope and Importance. |
| April 3rd | Operation Research Models: Classification, Formulation, Principle of Modeling, Characteristics of a Good Model |
| April 4th | Advantages & Disadvantages. Applications of Operations Research Models. Linear Programming Problem: Definitions (Including General Form) |
| April 5th | Formulation (with Real Life examples) and Graphical Solution of LPP. Solution of Linear Programming Problems (LPP) by using Simplex Method. |
| May 1st | Degeneracy problems and their solutions.Transportation Problem (TP): Definition Formulation of a LPP as TP. Initial Basic Feasible Solution of TP by North-West Corner Rules, Row Minima Method |
| May 2nd | Column Minima Method, Matrix Minima Method (Least cost entry method) and Vogel’s Approximation Method. Assignment Problem: Definition and its Solution. |
| May 3rd | Statistical Quality Control: Meaning and uses of SQC, Causes of Variations in Quality, Product and Process Control, Control Charts, 3- Control Limits, Control Chart for Variables-X and R Chart |
| May 4th | Criteria for Detection of Lack of Control in X & R Charts, Interpretation of X & R Charts, Control Chart for Standard Deviation ( charts), Control Charts for Attributes- p and c Charts. |
| May 5th& June1st | Acceptance Sampling: Problem of Lot Acceptance, Stipulation of good and bad Lots,Producer’s and Consumers Risks, Single and Double Sampling Plans, their OC Functions |
| June 2nd | Concepts of AQL, LTPD, AOQL, Average Amount of Inspection and ASN Function, Rectifying Inspection Plans. Sampling Inspection Plans. |
| June 3rd | Demand Analysis: Laws of Supply and Demand, Price Elasticity of Demand, Demand Function with Constant Price Elasticity, Partial Elasticities of Demands (Income Elasticity & Cross Elasticity) |
| June 4th | Types of Data required for Estimating Elasticities,Family Budget DataTime Series Data, Leontief’s and Pigous’s Methods from Time Series Data to Estimate Demand Functions. |
| June 5th | Engel’s Law, Pareto’s Law of Income Distribution, Curves of Concentration, Lorenz Curve and Gini’s Coefficient. |

**Lesson Plan**

**Academic Session 2021-22**

**Subject-MATHEMATICS Class : B.sc 1. Sem. -2**

**Paper : LINEARALGEBRA Name : NEERAJ,REENA,PARVESH**

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| --- | --- | --- |
| **March** | | |
| Week  5 | Elementary Introduction,Vector spaces, subspaces, Sum and Direct sum of subspaces, Linear span, Linearly independent and dependent subsets of a vector space. |
|  | **April** |
| Week 1 | Finitely generated vector space |
| Week 2 | Existence theorem for basis of a finitely generated vector space |
| Week 3 | Finite dimensional vector spaces |
| Week 4 | Linear transformations and linear forms on vector spaces, Vector space of all the linear transformations Dual Spaces, Bidual spaces.**(Test )** |
|  | **May** |
| Week 1 | Annihilator of subspaces of finite dimensional vector spaces, Null Space, Range space of a linear transformation, Rank and Nullity Theorem. |
| Week 2 | Algebra of Liner Transformation, Minimal Polynomial of a linear transformation, Singular and non-singular linear transformations |
| Week 3 | Matrix of a linear Transformation |
| Week 4 | , Change of basis **(Assignment)** |
|  | **June** |
| Week 1 | Eigenvalues and Eigen vectors of linear transformations |
| Week 2 | Inner product spaces, Cauchy-Schwarz inequality, Orthogonal vectors, Orthogonal complements |
| Week 3 | Orthogonal sets and Basis, Bessel’s inequality for finite dimensional vector spaces, Gram-Schmidt, Orthogonalization process |
| Week 4 | Adjoint of a linear transformation and its properties,  Unitary linear transformations |
| Week 5 | **Tests and Assignments** |

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| **Name of the Assistant/Associate Professor** | Renu Mor |
| **Class and Section** | BSC 3rd year Math Honors |
| **Subject:- Method of applied Mathematics** | Mathematics |
| **Paper** | Elementary Topology |
| **March** |  |
| **Week 4**  Week5 | Definition and examples of topological space, comparison of topology of set,  intersection and union of topology of set, neighborhoods, interior point and interior of a set |
| **April**  **Week 1**  **Week2** | Closed set as a complement of a open set, Adherent point& limit point of a set, Closure of a set ,  Derived set, properties of a closure operator, Boundary of a set, Dense sub set, |
|  |  |
| **Week 3**  **Week4** | Interior & exterior boundary operators,  Alternative method of defining a topology in term of neighborhood system & Kurtowaski operator |
| **Week 5** | Relative induce topology, Base and sub base for a topology, Base for neighborhood system. |
| **May**  **Week 1**  **Week 2** | Continuous Functions, Open and closed functions, homeomorphism,  connectedness and its characterization, connected subset and their properties. |
| **Week 3** | Continuity and connectedness, components, locally connected spaces. |
| **Week 4**  **Week 5** | Closeness of compact subset and continuous map from a compact space into a hausdorff and its consequences ,  sequencilly and count ably compact sets , local compactness and one point compactification. |
| **June** |  |
| **Week1** | compact spaces and subset , compactness in terms of finite intersection property , continuity and compact sets , basic property of compactness. |
| **Week 2** | 1st countable, 2nd countable and separable spaces, heriditory and topological property. |
| **Week 3** | Count ability of a collection of disjoint open set and 2nd countable spaces |
| **Week 4** | Lindelof theorem there correctrization and basic properties |
| **Week 5** | Revision |

**Lesson Plan**

**Academic Session 2021-22**

**Subject-MATHEMATICS Class : B.sc 1. Sem. -2**

**Paper : LINEARALGEBRA Name : NEERAJ,REENA,PARVESH**

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| --- | --- | --- |
| **March** | | |
| Week  5 | Elementary Introduction,Vector spaces, subspaces, Sum and Direct sum of subspaces, Linear span, Linearly independent and dependent subsets of a vector space. |
|  | **April** |
| Week 1 | Finitely generated vector space |
| Week 2 | Existence theorem for basis of a finitely generated vector space |
| Week 3 | Finite dimensional vector spaces |
| Week 4 | Linear transformations and linear forms on vector spaces, Vector space of all the linear transformations Dual Spaces, Bidual spaces.**(Test )** |
|  | **May** |
| Week 1 | Annihilator of subspaces of finite dimensional vector spaces, Null Space, Range space of a linear transformation, Rank and Nullity Theorem. |
| Week 2 | Algebra of Liner Transformation, Minimal Polynomial of a linear transformation, Singular and non-singular linear transformations |
| Week 3 | Matrix of a linear Transformation |
| Week 4 | , Change of basis **(Assignment)** |
|  | **June** |
| Week 1 | Eigenvalues and Eigen vectors of linear transformations |
| Week 2 | Inner product spaces, Cauchy-Schwarz inequality, Orthogonal vectors, Orthogonal complements |
| Week 3 | Orthogonal sets and Basis, Bessel’s inequality for finite dimensional vector spaces, Gram-Schmidt, Orthogonalization process |
| Week 4 | Adjoint of a linear transformation and its properties,  Unitary linear transformations |
| Week 5 | **Tests and Assignments** |

**Lesson Plan**

**Academic Session 2021-22**

**Subject-MATHEMATICS Class : B.sc 1. Sem. -2**

**Paper : LINEARALGEBRA Name : NEERAJ,REENA,PARVESH**

|  |  |  |
| --- | --- | --- |
| **March** | | |
| Week  5 | Elementary Introduction,Vector spaces, subspaces, Sum and Direct sum of subspaces, Linear span, Linearly independent and dependent subsets of a vector space. |
|  | **April** |
| Week 1 | Finitely generated vector space |
| Week 2 | Existence theorem for basis of a finitely generated vector space |
| Week 3 | Finite dimensional vector spaces |
| Week 4 | Linear transformations and linear forms on vector spaces, Vector space of all the linear transformations Dual Spaces, Bidual spaces.**(Test )** |
|  | **May** |
| Week 1 | Annihilator of subspaces of finite dimensional vector spaces, Null Space, Range space of a linear transformation, Rank and Nullity Theorem. |
| Week 2 | Algebra of Liner Transformation, Minimal Polynomial of a linear transformation, Singular and non-singular linear transformations |
| Week 3 | Matrix of a linear Transformation |
| Week 4 | , Change of basis **(Assignment)** |
|  | **June** |
| Week 1 | Eigenvalues and Eigen vectors of linear transformations |
| Week 2 | Inner product spaces, Cauchy-Schwarz inequality, Orthogonal vectors, Orthogonal complements |
| Week 3 | Orthogonal sets and Basis, Bessel’s inequality for finite dimensional vector spaces, Gram-Schmidt, Orthogonalization process |
| Week 4 | Adjoint of a linear transformation and its properties,  Unitary linear transformations |
| Week 5 | **Tests and Assignments** |

**Lesson Plan**

**Academic Session 2021-22**

**Subject-Mathematics Class…B.Sc physics hons 4sem**

**Paper:-Mathematics.**

**Name: Dr. Preeti**

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|  | **Month** |
|  | **April 2022** |
| Week 1,2 | Probability distribution |
| Week 3 | Discrete, Binomial Distribution |
| Week 4 | Poisson Distribution |
| Week5 | Geometric Distribution, Continuous Distribution and their problems |
|  | **May 22** |
| Week1 | Normal Distribution, Exponential Distribution |
| Week 2 | Bivariate, Conditional, Marginal Distribution |
| Week 3 | Correlation and Regression |
| Week 4 | Weak law of large number |
| Week 5 | Central limit theorem and their numericals |
|  | **June 22** |
| Week 1 | Regression for two variables and Take problem |
| Week 2 | Definition of random sample, parameters and statistics |
| Week 3 | Sampling Distribution, Standard Error,Mean, Variance of Random sample from normal population |
| Week 4 | Test of significance based on T ,F,Chi Square test,take problem |
| Week 5 | Take problem and assignment |
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**Lesson Plan**

**Academic Session 2021-22**

**Subject-Mathematics Class.B.A/B.SC-I**

**Paper:- O.D.E Name:- Dr. Parvesh Kumari & Dr. Savita Deswal**

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|  | **Month** |
|  | **March 2022** |
| 4th Week | Geometrical meaning of a differential equation. Exact differential equations, integrating factors. |
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|  | **April 2022** |
| 1st Week | First order higher degree equations solvable for x,y,p Lagrange’s equations  Test, |
| 2nd Week | Clairaut’s equations.Equation reducible to Clairaut’s form. Singular solutions. |
| 3rd Week | Orthogonal trajectories: in Cartesian coordinates and polar coordinates. Self orthogonal family of curves |
| 4th Week | Linear differential equations with constant coefficients. Assignment 1 |
|  | **May 2022** |
| 1st Week | Test 1, Homogeneous linear ordinary differential equations. |
| 2nd Week | Equations reducible to homogeneous linear ordinary differential equations, Equations reducible to homogeneous linear ordinary differential equations |
| 3rd Week | Linear differential equations of second order: Reduction to normal form |
| 4th Week | Transformation of the equation by changing the dependent variable/ the independent variable. Solution by operators of non-homogeneous linear differential equations. Assignment 2 |
|  | **June 2022** |
| 1st Week | Test 2, Reduction of order of a differential equation. Method of variations of parameters. Method of undetermined coefficients. |
| 2nd Week | Ordinary simultaneous differential equations. Solution of simultaneous differential equationsinvolving operators x (d/dx) or t (d/dt) etc. |
| 3rd Week | Simultaneous equation of the form dx/P = dy/Q = dz/R. Total differential equations. Condition for Pdx + Qdy +Rdz = 0 to be exact.  General method of solving Pdx + Qdy + Rdz = 0 by taking one variable constant. Method of auxiliary  equations. |
| 4th Week | Revision |

**Lesson Plan**

**Academic Session 2021-22**

**Subject-Mathematics Class-B.A/B.SC/B.SC Maths Hons-IV sum**

**Paper:- Programming in c &numerical methods Name:Sushma/ridham/Savita Deswal/**

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| Week | **Month** |
|  | **March** |
| Week4-5 | Programmer’s model of a computer Algorithms,Flow charts, |
|  | **April 2022** |
| Week 1 | Data types, Operators and expressions |
| Week 2 | Input / outputs functions |
| Week 3 | Decisions control structure: Decision statements, Logical and conditional statements |
| Week 4 | Implementation of Loops, Switch Statement & Case control structures  Functions, Preprocessors and Arrays. |
|  | **May 2022** |
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| Week 1 | Strings: Character Data Type, Standard String handling Functions  Arithmetic Operations on Characters. Structures: |
| Week 2 | Definition, using Structures ,Use of Structures in Arrays and Arrays in Structures. |
| Week 3 | Pointers: Pointers Data type, Pointers and Arrays, Pointers and Functions. |
| Week4-5 | 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. |
|  | **June 2022** |
| Week 1 | Simultaneous linear algebraic equations: Gauss-elimination method, |
| Week 2 | Gauss-Jordan method, Triangularization method (LU decomposition method). |
| Week 3 | Crout’s method, Cholesky Decomposition method. Iterative method |
| Week 4 | Jacobi’s method, Gauss-Seidal’s method, Relaxation method |
| Week 5 | Test and Assignment |

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| Name of the Assistant/Associate Professor:Sarita,Babita,Dr.Neeraj |
| Class and Section:B.A(Sem 2) |
| Subject: Mathematics |
| Paper:Vector Calculus |
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| March |
| Week 4  Multiple products of vectors,, differentiation of vectors |
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| April |
| Week 1  reciprocalvectors :scalars and vector point function, derivatives along curve  Directional derivatives  Class test  Class test |
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| Week 2Gradient of scalar point function  Examples  Problem discussion  Test |
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| Week 3Divergence of vector point function |
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| Week 4Curl of vector point function  sums and product and their related vector identify  Problem discussion  test |
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| May |
| Week 1 Laplacian operatorVector integration  Numericals,  Problems  Test |
| Week 2Vector integrationProblems of line integral  Presentations |
| Week 3Unit -4Surface integral and volume integral |
| Week- 4 Gauss and Green theorem |
| Week -5- Stoke throrem  Assignment based on unit 4  Test  Problem discussion |

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| June |
| Week 1 |
| Unit 3 ;Orthogonal curvilinear coordinates |
| Week 2 |
| Condition for orthogonality,  fundamental triad of mutually orthogonal unit vectors  presentation  test |
| Week 3 |
| Gradient, divergence ,curl and laplacian operator  in term of curvilinear coordinates  spherical and cylindrical coordinates.  Problem discussion  Revision |
| Week 4 onwards |
| Unit wise test  Revision  Exams |