# Government college Aharwala, Bilaspur(Yamuna Nagar)

## Lession Plan for the Session 2022-23 (Even Semester)

**Name and Desig. :  Mohinder,   Assistant Professor of Mathematics**

**Class : BA/ B.Sc  IInd sem**

**Subject:  Vector calculus**

| Month | Topic of the Lecture |
|---|---|
| Feb 2023 | Review chapter , Multiple product of vectors-I |
| | Multiple product of vectors-II |
| | Differentiation of vectors-I |
| March  2023 | Differentiation of vectors-II |
| | Gradient, divergence and curl-I |
| | Gradient, divergence and curl-II |
| | Gradient, divergence and curl-III |
| April 2023 | Vector Integration-I |
| | Vector Integration-II |
| | Gauss's, green's and Stoke's theorems-I |
| | Gauss's, green's and Stoke's theorems-II |
| May 2023 | Curvilinear Co-ordinates-I |
| | Curvilinear Co-ordinates-II |

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## Lession Plan for the Session 2022-23 (Even Semester)

**Name and Desig. :  Mohinder,   Assistant Professor of Mathematics**

**Class : BA  IVth sem**

**Subject:  Sequence & Series**

| Month | Topic of the Lecture |
|---|---|
| **Feb 2023** | Introduction of sets and some basic definitions,least upper bound and theorems,examples |
| | Greatest lower bound, Archimedean property of real and some theorems, neighbourhood of a point, interior of a set and its related examples |
| | open and closed sets and their related theorems, discussion<br>Limit points and its properties, theorems, Bolzano weirstrauss theorem |
| **Mar 2023** | Examples, compact sets, Heine-Borel theorem and its converse<br>Discussion +test |
| | Sequenceand other definitions,convergent  seq and theorms,examples , basic theorems on limits |
| | Discussion day<br>Test, cauchy's ist theroem on limits, examples,cauchy 2nd therorem |
| | Monotone convergence theorem and ither theorems ,limit point and theorems,examples +discussion |
| **April 2023** | Infinite series, examples, Cauchy's theorem on limit, basic theorem and results |
| | p series test , Comparison tests and theorems, ratio test |
| | Cauchy's root test and others test on convergence or divergence Discussion, other tests on convergence +test |
| | Assignment, Alternating series,leibnitz theorems and related examples, Riemann's rearrangement theorem and its examples, multiplication of two series |
| **May 2023** | Abel's lemma test ,dirichlet's test and their related examples |
| | Cauchy product, product theorems, Abel's theorems and its examples, infinite product and examples, absolute convergence |

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## Lession Plan for the Session 2022-23 (Even Semester)

**Name and Desig. : Mohinder, Assistant Professor of Mathematics**

**Class : B.A VIth sem**

**Subject: Linear Algebra**

| Month | Topic of the Lecture |
|---|---|
| Feb 2023 | Definition of vector space and its examples<br>Theorems , subspace and its examples,discussion |
| | Linear combination,linear dependent and independence and its examples, linear span,  Theorems related to Spanning Sets and examples+ discussion |
| | Basis , Existence & Extension theorem, examples and theorems |
| | Quotient space ,examples, linear transformation and its properties, Examples ,transformation and theorems, examples |
| Mar 2023 | Discussion +test, rank and nullity and theorems, examples , fundamental theorem |
| | Theorems, examples  algebra of  linear transformation and its theorems, singular and non-singular transformation ,theorems, examples |
| Apr 2023 | Invertible linear transformation and its examples , theorems, Matrix of a linear transformation and its examples |
| | Theorems on basis and on+ inner product spaces and theorms , normed linear space, examples dual spaces examples, discussion |
| May 2023 | Gram schmidt orthogonalization process , theorems  and examples |
| | Linear operator  and adjoint operator and theorems |

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# Lession Plan for the Session 2022-23 (Even Semester)

**Name and Desig. :  Mohinder,   Assistant Professor of Mathematics**

**Class : Bca ll sem          Subject: Elements of mathematical foundations –ll**

| Month | Topic of the Lecture |
|---|---|
| Feb 2023 | Matrices |
| | Rank of matrix |
| Mar 2023 | Application of matrices to solution of system of linear equations |
| | Characteristics equation of a matrix |
| Apr 2023 | Groups |
| | Rings, fields and ideals |
| May 2023 | Principle of mathematical induction |
| | logical statements and truth tables |

**Name and Desig. : Mohinder, Assistant Professor of Mathematics**

**Class : BCA lV sem**

**Subject: COMPUTER-ORIENTED STATISTICAL METHODS**

| Month | Topic of the Lecture |
|---|---|
| February2023 | Preparing Frequency Distribution Table and Cumulative frequency, Measure of Central Tendency, Types: Arithmetic Mean, Geometric Mean, Harmonic Mean, Median, Mode. |
| | Measure of Dispersion: Range, Quartile Deviation, mean deviation, Coefficient of mean Deviation, Standard Deviation Moments : Moments About mean, Moments about any point, Moment about origin, Moment about mean in terms of moment about any point, Moment about any point in terms of Moment about mean. |
| | Probability Distribution: Random Variable- Discrete Random and Continuous Random variable, Probability Distribution of a Random Variable |
| | Mathematical Expectation Types: Binomial, Poisson, Normal Distribution, Mean and Variance of Binomial, Poisson, and Normal Distribution. |
| March 2023 | Correlation: Introduction, Types, Properties, Methods of Correlation: Karl Pearson's Coefficient of Correlation, Rank Correlation and Concurrent Deviation method, Probable error. Regression: Introduction, Aim of Regression Analysis, |
| | Types of Regression Analysis, Lines of Regression, Properties of Regression Coefficient and Regression Lines, Comparison with Correlation. |
| | Curve Fitting: Straight Line, Parabolic curve, Geometric Curve and Exponential Curve |
| | Baye's Theorem in Decision Making, Forecasting Techniques |
| April 2023 | Sample introduction, Sampling: Meaning, methods of Sampling |
| | Statistical Inference: Test of Hypothesis, Types of hypothesis, Procedure of hypothesis Testing |
| | Type I and Type II error, One Tailed and two tailed Test, Types of test of Significance: |
| | Test of significance for Attribute-Test of No. of success and test of proportion of success |
| May 2023 | Test of significance for large samples - Test of significance for single mean and Difference of mean, Test of significance for small samples |
| | ( t-test) – test the significance between the mean of a random sample, between the mean of two independent samples |

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## Lession Plan for the Session 2022-23 (Even Semester)

**Name and Desig. :  Mohinder,   Assistant Professor of Mathematics**

**Class : B.com IInd sem**

**Subject:  Business mathematics**

| Month | Topic of the Lecture |
|---|---|
| February2023 | Factorial notation and examples ,fundamental principles of counting |
| | Permutation ,examples, repeated permutation and questions |
| | Circular permutations , combinations and examples , practical problems |
| | Repeated combination and questions + discussion  +test  Binomial theorem and its questions. + assignment |
| March 2023 | Linear inequalities : intro and graphical method  and its solution |
| | Isocost method and its related questions + test |
| | Linear programming : introduction , formulation of equations , graphical method |
| | Pproblem discussion + problems related ro two varibles including the case of mixed constraints, Questions related to case having so solution multiple solutions |
| April  2023 | Unbounded solutions, redundant solutions and its qs |
| | Data represtation and interpretation , tabulation of data +test |
| | Represtation of data , significance of diagrams and problems, |
| | Assignment, types of diagrams and its questions, graph of time series |
| May 2023 | Test+ graph of line graph and frequency distribution and its questions |
| | Histogram , frequency polygon and cummulative frquency curve and its questions, Discussion +  + limiations of diagrams and graphs |