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**P.I.G. GOVT. COLLEGE FOR WOMEN, JIND**

**LESSON-PLAN (Session 2024-25) EVEN SEMESTER**

**Name of Teacher**: Jitender Sharma

**Designation: ASSOCIATE PROFESSOR**

**Subject: Real & Complex Analysis**

**Class: B.Sc NM 6th sem ,B.A 6th Sem**

| **Subject/Paper: Sr. No.** | **Months** | **Topics to be covered** | **Remarks if any,** |
| --- | --- | --- | --- |
| **1** | **January, February** | **Jacobians, Beta and Gama functions, Double and Triple integrals, Dirichlets integrals, change of order of integration in double integrals.** | **Group discussion** |
| **2** | **February,March** | **Fourier’s series: Fourier expansion of piecewise monotonic functions, Properties of Fourier Co-efficients, Dirichlet’s conditions, Parseval’s**  **identity for Fourier series, Fourier series for even and odd functions, Half range series, Change of Intervals .**  **Extended Complex Plane, Stereographic**  **projection of complex numbers.** | **ASSIGNMENT** |
| **3** | **March April** | **Continuity and differentiability of complex functions, Analytic functions, Cauchy-Riemann equations. Harmonic functions.**  **Mappings by elementary functions: Translation, rotation, Magnification and Inversion.** | **UNIT TEST** |
| **4** | **April May** | **Conformal Mappings, Mobius transformations. Fixed points, Cross ratio, Inverse Points and critical mappings.** |  |

**\*Vacation as per university calendar**

**1 assignment and 01 unit test will be taken as per schedule.**

**P.I.G. GOVT. COLLEGE FOR WOMEN, JIND**

**LESSON-PLAN (Session 2024-25) EVEN SEMESTER**

**Name of Teacher**: kusum devi

**Designation: Assistant professor**

**Subject: Real and Complex Analysis**

**Class: Bsc6th sem (computer science)**

| **Subject/Paper: Sr. No.** | **Months** | | **Topics to be covered** | | | **Remarks if any,** | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Jan, Feb | | Jacobians, Beta and Gamma functions, Double and triple integrals, Dorichlet's integrals, Change of order of integrayion in double integrals. | | | Assignment 1 | |
| 2 | Feb, March | | Fourier's series:Fourier expansion of piecewiss monotonic functions, properties of Fourier coefficients, Dirichlet's conditions, Parseval's identity ForFourier series, Fourier series for even and odd functions, Half range series, Change of intervals. | | | Class Test, Group Discussion | |
| 3 | March  April | | Extended Complex plane, Stereographic projection of complex numbers, continuity and differetiability of complex functions, Analytic functions, cauchy-Riemann equatio s. Harmonic functions | | | Class Test will be taken | |
| 4 | April  May | | Mappinggs by elimentry functions:Translation, Rotation, Magnification and Inversion, Conformal Mappings, Mobius transformations. Fixed points, cross ratio, Inverse Points and Critical mappings. | | | Group Discussion and quiz will be organized | |
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**P.I.G. GOVT. COLLEGE FOR WOMEN, JIND**

**LESSON-PLAN (Session 2024-25) EVEN SEMESTER**

**Name of Teacher**: kusum devi

**Designation: Assistant professor**

**Subject: Business Mathematics**

**Class: B. Com-2nd sem( secA)**

| **Subject/Paper: Sr. No.** | **Months** | | **Topics to be covered** | | | **Remarks if any,** | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Jan, Feb | | Binomial Theorem;Permutations and combinations. | | | Assignment 1 | |
| 2 | Feb, March | | Linear programming :Formulation of linear programming problems and their solution by graphical and simplex methods, Applications of linear programming in solving problems related to business and commerce | | | Class Test, Group Discussion | |
| 3 | March  April | | Differentiation; dedivative of some functions and other functions having applications in business studies ; Maxima and minima of Revenue, cost, Demand, production, Profit functions and other functions related to business and commerce. | | | Class Test will be taken | |
| 4 | April  May | | Intigration :Definite and Indefinite, basic rules of integration, applicationof integration in commerce and businesss problems. | | | Group Discussion and quiz will be organized | |
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**P.I.G. GOVT. COLLEGE FOR WOMEN, JIND**

**LESSON-PLAN (Session 2024-25) EVEN SEMESTER**

**Name of Teacher**: kusum devi

**Designation: Assistant professor**

**Subject: mathematics**

**Class: Numerical Ability Enhancement Skills 2nd sem**

| **Subject/Paper: Sr. No.** | **Months** | | **Topics to be covered** | | | **Remarks if any,** | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Jan, Feb | | HCF, LCM of integers, Ratio and Proportion, Progression:Airthmetic Progression, Geometric Progression, Harmonic progression with their simple and basic practical applications, Number series completion. | | | Assignment 1 | |
| 2 | Feb, March | | Percentage, Profit&Loss, Alligationor mixture, Average, Average speed problems, calendar | | | Class Test, Group Discussion | |
| 3 | March  April | | Realnumber system, Operations on numbers, Tests for divisibility of natural numbers , Decimals, Fractions Square roots, cube roots, Surds and Indices, Use of BODMAS | | | Class Test will be taken | |
| 4 | April  May | | Logary, Areaof Quadrilaterals, Volume and surface area of cube, cuboid, cylinded, cone, sphere and Hemisphere. | | | Group Discussion and quiz will be organized | |
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**P.I.G. GOVT. COLLEGE FOR WOMEN, JIND**

**LESSON-PLAN (Session 2024-25) EVEN SEMESTER**

**Name of Teacher**: Kusum Devi

**Designation: Assistant Professor**

**Subject: Mathematics (Linear Algebra)**

**Class: BSc (Physical Science) -6th sem**

| **Subject/Paper: Sr. No.** | **Months** | **Topics to be covered** | **Remarks if any,** |
| --- | --- | --- | --- |
| 1 | Jan.Feb | 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 basis sets, Dimensions, Quotient space and its dimension | Assignment |
| 2 | Feb, March | 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 | Class Test |
| 3 | March , April | 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. | Group Discussion |
| 4 | April ,May | 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. | Group Discussion |

\*Vacation as per university calendar

01assignments and 01 unit test will be taken as per schedule.

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**P.I.G. GOVT. COLLEGE FOR WOMEN, JIND**

**LESSON-PLAN (Session 2024-25) EVEN SEMESTER**

**Name of Teacher**: POOJA SHARMA

**Designation: Assistant professor**

**Subject: Business Mathematics**

**Class: B. Com-2nd sem( secb)**

| **Subject/Paper: Sr. No.** | **Months** | | **Topics to be covered** | | | **Remarks if any,** | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Jan, Feb | | Binomial Theorem;Permutations and combinations. | | | Assignment 1 | |
| 2 | Feb, March | | Linear programming :Formulation of linear programming problems and their solution by graphical and simplex methods, Applications of linear programming in solving problems related to business and commerce | | | Class Test, Group Discussion | |
| 3 | March  April | | Differentiation; dedivative of some functions and other functions having applications in business studies ; Maxima and minima of Revenue, cost, Demand, production, Profit functions and other functions related to business and commerce. | | | Class Test will be taken | |
| 4 | April  May | | Intigration :Definite and Indefinite, basic rules of integration, applicationof integration in commerce and businesss problems. | | | Group Discussion and quiz will be organized | |
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**P.I.G. GOVT. COLLEGE FOR WOMEN, JIND**

**LESSON-PLAN (Session 2024-25) EVEN SEMESTER**

**Name of Teacher**: Vikram Gupta

**Designation: Assistant professor**

**Subject: Dynamics**

**Class: Bsc Final (CS) , B.A Final**

| **Subject/Paper: Sr. No.** | **Months** | **Topics to be covered** | **Remarks if any,** |
| --- | --- | --- | --- |
| 1 | Jan,Feb | Velocity and acceleration along radial, transverse, tangential and normal directions. Relative velocity and acceleration. Simple harmonic motion. Elastic strings. | Assignment 1 |
| 2 | Feb, March | Mass, Momentum and Force. Newton's laws of motion. Work, Power and Energy. Definitions of Conservative forces and Impulsive forces. | Class Test, Group Discussion |
| 3 | March  April | Motion on smooth and rough plane curves. Projectile motion of a particle in a plane. Vector angular velocity. |  |
| 4 | April  May | General motion of a rigid body Central Orbits, Kepler's laws of motion. Motion of a particle in three dimensions. Acceleration in terms of different co-ordinate systems. | Group Discussion |

\*Vacation as per university calendar

* 01 assignments and 01 unit test will be taken as per schedule.

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**P.I.G. GOVT. COLLEGE FOR WOMEN, JIND**

**LESSON-PLAN (Session 2024-25) EVEN SEMESTER**

**Name of Teacher**: Vikram Gupta

**Designation: Assistant Professor**

**Subject: Mathematics**

**Class: BSc (CS) Final, B.A Final**

| **Subject/Paper: Sr. No.** | **Months** | **Topics to be covered** | **Remarks if any,** |
| --- | --- | --- | --- |
| 1 | Jan.Feb | 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 basis sets, Dimensions, Quotient space and its dimension | Assignment |
| 2 | Feb, March | 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 | Class Test |
| 3 | March , April | 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. | Group Discussion |
| 4 | April ,May | 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. | Group Discussion |

\*Vacation as per university calendar

* 01assignments and 01 unit test will be taken as per schedule.

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**P.I.G. GOVT. COLLEGE FOR WOMEN, JIND**

**LESSON-PLAN (Session 2024-25) EVEN SEMESTER**

**Name of Teacher**: POOJA SHARMA

**Designation: Assistant professor**

**Subject: Dynamics**

**Class: Bsc Final (n.m)**

| **Subject/Paper: Sr. No.** | **Months** | **Topics to be covered** | **Remarks if any,** |
| --- | --- | --- | --- |
| 1 | Jan,Feb | Velocity and acceleration along radial, transverse, tangential and normal directions. Relative velocity and acceleration. Simple harmonic motion. Elastic strings. | Assignment 1 |
| 2 | Feb, March | Mass, Momentum and Force. Newton's laws of motion. Work, Power and Energy. Definitions of Conservative forces and Impulsive forces. | Class Test, Group Discussion |
| 3 | March  April | Motion on smooth and rough plane curves. Projectile motion of a particle in a plane. Vector angular velocity. |  |
| 4 | April  May | General motion of a rigid body Central Orbits, Kepler's laws of motion. Motion of a particle in three dimensions. Acceleration in terms of different co-ordinate systems. | Group Discussion |

\*Vacation as per university calendar

* 01 assignments and 01 unit test will be taken as per schedule.

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**P.I.G. GOVT. COLLEGE FOR WOMEN, JIND**

**LESSON-PLAN (Session 2024-25) EVEN SEMESTER**

**Name of Teacher**: Vikram Gupta

**Designation: Assistant Professor**

**Subject: Mathematics**

**Class: BSc (CS) Final, B.A Final**

| **Subject/Paper: Sr. No.** | **Months** | **Topics to be covered** | **Remarks if any,** |
| --- | --- | --- | --- |
| 1 | Jan.Feb | 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 basis sets, Dimensions, Quotient space and its dimension | Assignment |
| 2 | Feb, March | 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 | Class Test |
| 3 | March , April | 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. | Group Discussion |
| 4 | April ,May | 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. | Group Discussion |

\*Vacation as per university calendar

* 01assignments and 01 unit test will be taken as per schedule.

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**P.I.G. GOVT. COLLEGE FOR WOMEN, JIND**

**LESSON-PLAN (Session 2024-25) EVEN SEMESTER**

**Name of Teacher**: **Parveen**

**Designation: Assistant professor**

**Subject: Algebra & Number Theory**

**Class: Bsc4th sem. (Physical Science), B.A 4th sem.**

| **Subject/Paper: Sr. No.** | **Months** | | **Topics to be covered** | | | **Remarks if any,** | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Jan, Feb | | Symmetric, Skew symmetric, Hermitian and skew Hermitian matrices, Elementary operations on matrices, Rank of a matrix, Inverse of a matrix, Linear dependence and independence of rows and columns of matrix, Row rank and column rank of a matrix, Eigen values, Eigen vectors and characteristic equation of a matrix, Minimal polynomial of a matrix, Cayley-Hamilton theorem and its use in finding the inverse of a matrix, Unitary and orthogonal matrices. | | | Assignment 1 | |
| 2 | Feb, March | | 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, Transformation of equations, Nature of the roots of an equation, Descarte's rule of signs. | | | Class Test, Group Discussion | |
| 3 | March  April | | Solutions of cubic equations (Cardon's method), Biquadratic equations and their solutions. Divisibility, Greatest common divisor (ged), Least common multiple (lem), Prime numbers, Fundamental theorem of arithmetic | | | Class Test will be taken | |
| 4 | April  May | | Linear congruences, Fermat's theorem, Euler's theorem, Wilson's theorem and its converse, Chinese Remainder theorem, Linear Diophantine equations in two variables. | | | Group Discussion and quiz will be organized | |
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**P.I.G. GOVT. COLLEGE FOR WOMEN, JIND**

**LESSON-PLAN (Session 2024-25) EVEN SEMESTER**

**Name of Teacher**: POOJA SHARMA

**Designation: Assistant professor**

**Subject: Business Mathematics**

**Class: VAC 4sem**

| **Subject/Paper: Sr. No.** | **Months** | | **Topics to be covered** | | | **Remarks if any,** | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Jan, Feb | | . Ancient period :development of mathematics during Vedic period and ancient period overview of Vedic period mathematical idea in Vedas and manu spirit in Indian mathematics ,life ,background notable work aryabhata brahmagupt bhaskaracharya mahaviracharya and leelavathi | | | Assignment 1 | |
| 2 | Feb, March | | Medieval period :Kerala school of mathematics Madhava of Sangamagrama ,nilaKanta Somayaji jyesthaDeva overview of historical background and their contribution | | | Class Test, Group Discussion | |
| 3 | March  April | | Modern period Srinivasan Ramanujan Satyendra nath Bose ,radhanath Shikda,r D.R karekar earlier life education challenges ,achievements and their contribution | | | Class Test will be taken | |
| 4 | April  May | | Medals and prices in mathematics and contemporary mathematicians: introduction to the prestigious, field medal ,Abel price and their significance biography and contribution of illustration mathematics from Indian: Subramanya chandrasekhara ,CR Rao ,SR srinivasan vardan ,Manjul Bhargav, Akshay Venkatesh ,Harishchandra and Shakuntala Devi. | | | Group Discussion and quiz will be organized | |
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