Lesson Plan (2022-23)

1St Sem

Name of the Assistant/ Associate Professor: - Dr. Vinod Kumar

Class: B.A/B.Sc 1st

Subject: Mathematics(Algebra)

Week	Topics
Sep 1	Symmetric, Skew symmetric, Hermitian and skew Hermitian matrices
Sep 2	Elementary Operations on matrices. Rank of a matrices. Inverse of a matrix. Linear dependence and independence of rows and columns of matrices. Row rank and column rank of a matrix.
Sep 3	. Eigenvalues, eigenvectors and the characteristic equation of a matrix. Minimal polynomial of a matrix.
Sep 4	Cayley Hamilton theorem and its use in finding the inverse of a matrix.
Oct 1	Applications of matrices to a system of linear (both homogeneous and non–homogeneous) equations.
Oct2	Theorems on consistency of a system of linear equations. Unitary and Orthogonal Matrices, Bilinear and Quadratic forms.
Oct 3	Relations between the roots and coefficients of general polynomial equation in one variable.
Oct 4	Solutions of polynomial equations having conditions on roots.
Nov 1	Common roots and multiple roots. Transformation of equations.
Nov 2	Nature of the roots of an equation Descarte's rule of signs.
Nov 3	Solutions of cubic equations (Cardon's method).
Nov 4	Biquadratic equations and their solutions.
Dec 1	Revision

Lesson Plan (2022-23)

5th Sem

Name of the Assistant/ Associate Professor: - Dr. Vinod Kumar

Class: B.Sc 3rd

Subject: Group and Rings (math)

Week	Topics
Sep 1	Definition of group with example and properties, subgroups and its criteria
Sep 2	Generation of group, cyclic group
Sep 3	Lagrange theorem and normal subgroups
Sep 4	Quotient group, homomorphism, isomorphism, automorphism
Oct 1	Automorphism of cyclic group, Alternating group, Kayley theorem
Oct2	Introduction to ring, subring
Oct 3	Fields, Ideal and Quotient rings
Oct 4	Euclideans rings, polynomial rings
Nov 1	Polynomial over the rational field
Nov 2	The Einstein criteria
Nov 3	Polynomial rings
Nov 4	Commutative rings
Dec 1	Unique factorization domain and revision

Lesson Plan (2022-23)

Name of Lecturer:-Dr. Vinod kumar

Class and Section :- B.sc 2nd

Semester :- 4th

Subject:- Mathematics (Group and Rings)

Sr. no.	Week/months	Topic / particulars
1	1st/ April	Definition of group with example and properties, subgroups and its criteria
2	2nd /April	Generation of group, cyclic group
3	3rd/ April	Lagrange theorem and normal subgroups
4	4th/ April	Quotient group, homomorphism, isomorphism, automorphism
5	1st/ May	Automorphism of cyclic group, Alternating group, Kayley theorem
6	2nd/ May	Introduction to ring, subring
7	3rd/ may	Fields, Ideal and Quotient rings
8	4th/ May	Euclideans rings, polynomial rings
9	5th/ May	Polynomial over the rational field
10	1st/ June	The Einstein criteria
11	2nd/ June	Polynomial rings, Commutative rings
12	3rd/ June	Unique factorization domain and revision

Signature

LESSON PLAN OF MATHEMATICS

Name of College:- CH. BANSI LAL GOVT. P.G. COLLEGE LOHARU (BHIWANI)

Academic Session:- 2022-23

Semester:- B.Sc VIth Sem

Subject:- LINEAR ALGEBRA

Teacher name:- Dr. Vinod kumar

	LESSON PLAN OF LINEAR ALGEBRA
APRIL	
Week 1:	**Introduction to Syllabus and Pattern**
	Vector space, Subspace
Week 2:	**Sum and direct sum of subspaces, Linear span, L.I. and L.D. subsets, finitely generated vector space, finite dimensional vector space.**
Week 3:	**Basis, Quotient space and its dimension, Homomorphism and isomorphism, Linear transformation and linear form of vector space**
May	
Week 1:	**Dual space, Bi dual space, annihilator of subspace, Null space, Range space of linear transformation**
Week 2:	**Rank and Nullity theorem, Algebra of linear transformation, Minimal polynomial of a linear transformation**
June	
Week 1:	**Singular and non-singular linear transformation, Matrix of linear transformation, change of basis, Eigenvalue and eigen vector**
Week 2:	**Inner product space, Cauchy- Schwarz inequality, Orthogonal vector, orthogonal sets and basis**
Week 3:	**Bessel's inequality, Gram-Schmidt orthogonalization process, Adjoint and its properties, Unitary linear transformation**

Lesson Plan (2022-23)

3rd Sem

Name of the Assistant/ Associate Professor: - Dr. Vinod kumar

Class: B.A /B.SC. 2nd

Subject: Numerical methods with Programming in C(Math)

Week	Topics
Sep 1	Programmer model of a computer, algorithms, flow chart
Sep 2	Data type, operators and expressions, input/output functions
Sep 3	Decision control structures, logical and conditional statements, Loops, Switch and Case control structure
Sep 4	Strings, character data types, Arithmetic operation on characters
Oct 1	Structure: definition and uses
Oct2	Solution of algebraic and transcendental equations; Bisection method
Oct 3	Regula falsi method, secant method
Oct 4	Fixed point iterative method, Newton Raphson's method
Nov 1	Newton iterative formulae for nth root of a number and order of convergence
Nov 2	Gauss elimination method, Gauss Jordan method
Nov 3	Iterative method and Jacobi method
Nov 4	Gauss seidal method and Relaxation method
Dec 1	Order of convergence and revision

Lesson Plan (2022-23)

Name of Lecturer:-Dr. Vinod kumar

Class and Section :- B.A/B.sc 1st

Semester :- 2nd

Subject:- Mathematics (vector calculus)

Sr. no.	Week/months	Topic / particulars
1	1st / APRIL.	General equation of second degree. Tracing of conics. Tangent at any point to the conic, chord of contact,
2	2nd /APRIL	pole of line to the conic, director circle of conic. System of conics.
3	3rd/ APRIL	Confocal conics. Polar equation of a conic, tangent and normal to the conic.
4	4th/ APRIL	Gradient of a scalar point function, geometrical interpretation of grad Φ , character of gradient as a point function.
5	1st/ MAY	Divergence and curl of vector point function, characters of Div $\vec{f}$ and Curl $\vec{f}$ as point function, examples.
6	2nd/ MAY	Gradient, divergence and curl of sums and product and their related vector identities. Laplacian operator
7	3rd/ MAY	Orthogonal curvilinear coordinates Conditions for orthogonality fundamental triad of mutually orthogonal unit vectors.
8	4th/ MAY	Gradient, Divergence, Curl and Laplacian operators in terms of orthogonal curvilinear coordinates
9	5TH/ MAY	Cylindrical co-ordinates and Spherical co-ordinates.
10	1ST/ JUNE	Vector integration; Line integral, Surface integral,
11	2Nd/ JUNE	Volume integral Theorems of Gauss, Green & Stokes and problems based on these theorems and revision

Signature