

Govt. College for Women, Shahzadpur (Ambala)
Lesson Plan(2023-24 Even)

Faculty Name: Aarti Saini
Paper Name: Algebra and Number Theory
Class : B.Sc V th sem
External Marks: 50

Paper Code: B-23- MAT-201
Semester: 2nd semester
Session: Even
Internal Marks:20

Course Objectives

- * To introduce the students with the basic concepts of Algebra and their applications in solving polynomial equations, cubic and biquadratic equations.
- * To understand the basic concepts of number theory and their applications in problem solving and life- long learning

Course Outcome

At the end of the course, student will have:

- * technical and cognitive skills used in solving problems based on Cayley- Hamilton theorem.
- *Have technical and practical skills required for solving algebraic equations, finding inverse and eigen values of matrices by using built in functions of MAXIMA software.
- * Have knowledge of concepts, facts, principles and theories of Number Theory

Month	Dates	Topics To be Covered	Assignment/ Test/ others
February	15Feb -16 Feb	Symmetric, Skew symmetric, Hermitian and skew Hermitian matrices, Elementary operations on matrices, Rank of a matrix, Inverse of a matrix,	
	19 Feb - 23Feb	Linear dependence and independence of rows and columns of matrix, Row rank and column rank of a matrix,	Test
	26 Feb - 29 Feb	Eigen values, Eigen vectors and characteristic equation of a matrix, Minimal polynomial of a matrix,	Assignment
March	4 March - 8March	Cayley-Hamilton theorem and its use in finding the inverse of a matrix, Unitary and orthogonal matrices, Relations between the roots and coefficients of general	Test
	11 March - 15 March	Solutions of polynomial equations having conditions on roots, Practical, Common roots and multiple roots, Practical	
	18 March -22 March	Transformation of equations, Practical	Assignment
April	1 April-5 April	Nature of the roots of an equation, Practical	Test
	8 April- 12 April	Descarte's rule of signs. Practical	
	15 April- 19 April	Solutions of cubic equations (Cardon's method), Biquadratic equations and their solutions. Practical	Test
	22 April - 30 April	Divisibility, Greatest common divisor (gcd),Least common multiple (lcm), Prime numbers, Fundamental theorem of arithmetic. Practical	
May	1 May- 3 May	Linear congruences, Practical	
	6 May - 10 May	Fermat's theorem, Euler's theorem,	Test
	13 May - 17 May	Wilson's theorem and its converse, Chinese Remainder theorem, Practical	
	20 May - 24 May	Linear Diophantine equations in two variables, Practical	Test

Signature of Teacher