	Lecture Plan				
Name of the college: Government College of Arts , Science & Commerce, Sanquelim, Goa.					
Name of Faculty: Prajyot Maruti Patil	Subject: Elementary Number Theory				
Paper code: MAT-529	Program: M.Sc.	Division:			
Academic year: 2024-25	Semester: II	Total Lectures: 30			
 Expected Course Outcome: Display Understanding and knowledge of Primitive Roots, Quadratic Congruences and continued fractions. Prove important theorems in Number Theory. Apply knowledge of congruence and Primitive Roots to solve competitive exam problems. Create appropriate arguments to justify the proofs. 					
Student Learning Outcome:1. Display Understanding and knowledge of Primitive Roots	s, Quadratic Congruences and continue	d fractions.			

2. Apply knowledge of congruence and Primitive Roots to solve competitive exam problems.

Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignme nt	ICT Tools	Reference books
December	Week 1 04/12/24	07/12/24	02	The order of an integer modulo n, Primitive Roots for Primes		Smart Board	David M. Burton, Elementary Number Theory
December	Week 2 09/12/24	14/12/24	02	Composite numbers having primitive roots, The theory of indices		Smart Board PDF	David M. Burton, Elementary Number Theory
December	Week 3 16/12/24	21/12/24	02	Euler's criterion, the Legendre symbol			David M. Burton, Elementary Number Theory
January	Week 4 02/01/25	04/01/25	02	Quadratic reciprocity		Data projector	David M. Burton, Elementary Number Theory
January	Week 5 06/01/25	11/01/25	02	Quadratic congruences with composite moduli			David M. Burton, Elementary Number Theory

January	Week 6 13/01/25	18/01/25	02	Marine Mersenne, Perfect Numbers		David M. Burton, Elementary Number Theory
January	Week 7 20/01/25	25/01/25	02	Mersenne primes and amicable numbers, Fermat Numbers	Smart Board	David M. Burton, Elementary Number Theory
January-February	Week 8 27/01/25	01/02/25	02	Sums of two squares		David M. Burton, Elementary Number Theory
February	Week 9 03/02/25	08/02/25	02	Sums of more than two squares	Smart Board PDF	David M. Burton, Elementary Number Theory
February	Week 10 10/02/25	15/02/25	02	Sums of more than two squares		David M. Burton, Elementary Number Theory
February	Week 11 17/02/25	22/02/25	02	Finite continued fractions	Smart Board	David M. Burton, Elementary Number Theory
February-March	Week 12 24/02/25	01/03/25	02	Finite continued fractions		David M. Burton, Elementary Number Theory

March	Week 13		02	Infinite continued fractions	Smart Board	David M. Burton,
	03/03/25	08/03/25				Theory
March	Week 14		02		Smart Board	
	10/03/25	15/03/25				
March	Week 15		02	Farey fractions		David M. Burton,
	17/03/25	22/03/25				Elementary Number Theory
March	Week 16		02	Farey fractions		David M. Burton,
	24/03/25	29/03/25				Elementary Number Theory
March-April	Week 17		02	Pell's equation	Smart Board	David M. Burton,
	31/03/25	05/04/25				Elementary Number Theory

* Assessment Rubrics

Component	Max Marks
ISA 1	10
ISA 2	10
ISA 3	10
Practical	Nil
Project	Nil
Semester End	
Exam	20