Lecture Plan

Name of the College: Government College of Arts, Science and Commerce, Sanquelim-Goa

Name of Faculty: Minoshka D'Souza	**Subject:** Mathematics	
Paper code: MAT 204 Basic Number Theory	**Program:** B.Sc. Mathematics	**Division: -**
Academic year: 2025-26	**Semester:** IV	**Total Lectures:** 60

Course Objectives: This course helps in understanding basic concepts of number theory

Expected Course Outcome: On completion of this course the learner will be familiar with divisibility theory in integers, theory of congruences, number-theoretic functions and some non-linear diophantine equations

Student Learning Outcome: At the end of the course the student will be able to

1. Recall and explain concepts in divisibility, theory of congruences, number-theoretic functions and certain non-linear diophantine equations.
2. Prove important theorems in number theory
3. Apply knowledge gained to solve basic problems in number theory.
4. Analyze, compare and differentiate between various concepts in divisibility, theory of congruences, number-theoretic functions and certain non-linear diophantine equations.

Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
December	01/12/2025	06/12/2025	2	Divisibility, The Division Algorithm	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton
	08/12/2025	13/12/2025	4	The Division Algorithm, Greatest Common Divisor, Euclidean Algorithm	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton
	15/12/2025	20/12/2025	1	Euclidean Algorithm	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton
	22/12/2025	23/12/2025	2	Linear Diophantine Equation (ax + by = c)	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton
January	02/01/2026	03/01/2026	1	Linear Diophantine Equation (ax + by = c)	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton
	05/01/2026	10/01/2026	4	Primes and their Properties, Fundamental Theorem of Arithmetic, The Sieve of Eratosthenes – Method	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton
	12/01/2026	17/01/2026	4	Distribution of Primes, The Goldbach Conjecture, Definition of Congruence, Basic Concepts, Properties of Congruences	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton
	19/01/2026	24/01/2026	4	Linear Congruences, Chinese Remainder Theorem	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton

	26/01/2026	31/01/2026	3	System of Linear Congruences, Fermat's Little Theorem	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton
February	02/02/2026	07/02/2026	4	Pseudoprimes, Wilson's Theorem, Sum and Number of Divisors	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton
	09/02/2026	14/02/2026	4	Sum and Number of Divisors, Mobius Function	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton
	16/02/2026	21/02/2026	4	Mobius Function	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton
	23/02/2026	28/02/2026	4	Greatest Integer Function	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton
March	02/03/2026	07/03/2026	3	Euler's Phi Function	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton
	09/03/2026	14/03/2026	4	Euler's Phi Function, The equation x^2+y^2=z^2	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton
	16/03/2026	21/03/2026	4	The equation x^2+y^2=z^2	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton
	23/03/2026	28/03/2026	4	The equations x^4+y^4=z^2 and x^4-y^4=z^2	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton
	30/03/2026	31/03/2026	2	The equations x^4+y^4=z^2 and x^4-y^4=z^2	Exercises on topics covered	Latex	Elementary Number Theory (7th Edition) by David M. Burton

*** Assessment Rubrics**

Component	Max Marks
ISA 1	10
ISA 2	10
ISA 3	10
Semester End Exam	80