

SYLLABUS

ALGEBRA-II

Factorization Theory in Integral Domains, Divisibility, Unique Factorization Domain (UFD), Principal Ideal Domain (PID), Euclidean Domain (ED) and their relationships, Noetherian and Artinian Rings, Examples and Counter Examples, Artinian Rings without zero divisors, Nil ideals in Artinian Rings, Hilbert Basis Theorem.

Modulus, Differences between Modules and Vector Spaces, Module Homomorphisms, Quotient Modules, Completely Reducible or Semi-simple Modules, Free Modules, Representation and Rank of Linear Mappings, Smith Normal Form over a PID, Finitely Generated Modules over a PID, Rational Canonical Form, Applications to finitely generated abelian groups.