



Elective Courses (List B)

MAT 624 – Algebra (2)

Course Code & Number	Course Name	Credit Hours	Lec.	Lab.	Tut.	Prerequisites
MAT 624	Algebra (2)	4	3	0	1	MAT 623

Syllabus:

Rings: Power Series Ring, Localizations of commutative rings, Chain Conditions on Rings, Noetherian and Artinian Rings, Semi-simple Rings, Wedderburn-Artin theorem.

Commutative Rings and their Modules: Properties of commutative Noetherian rings, Primary Ideals and primary submodules, Noetherian Modules, Primary Decomposition, Reduced primary decomposition, Krull Intersection Theorem, Nakayama lemma, Hilbert Basis theorem, integral extension of commutative rings, Dedekind Domains.

Fields: Extension fields, Algebraic and transcendental elements, The isomorphism extension theorem, Splitting field extensions, Geometric constructions, Separable and normal field Extensions, The fundamental theorem of Galois, Cyclotomic extensions, Insolvability of the quintic.

References

1. T. W. Hungerford; *Algebra*; 1st Edition, Springer Verlag, 1980. **(Main Reference)**
2. D. Dummit and R. Foote; *Abstract Algebra*; 3rd Edition, John Wiley, 2003.
3. J. Rotman; *Advanced Modern Algebra*; 2nd Edition, American Mathematical Society (AMS), 2010.

