

### **MA-634 HOMOLOGICAL ALGEBRA-I (3 Credits)**

Revision of basic concepts of Ring Theory. Modules, Homomorphisms and Exact Sequences, Product and co-product of Modules. Comparison of Free Modules and Vector Spaces Projective and Injective Modules. Hom and Duality Modules over Principal ideal Domain Noetherian and Artinian Module and Rings Radical of Rings and Modules Semisimple Modules.

#### **RECOMMENDED BOOKS:**

1. K. R. Fuller and F.W. Anderson: Rings and Categories of Modules, Stringer Verlag 1973.
2. J. Lambek: lectures on Rings and Modules, New York, 1966.
3. F. Kasch: Modules and Rings. Academic Press, 1982.
4. T.W. Hungerford: Algebra, Holt, Rinehart and Winston, Inc. New York, 1974.
5. J. J. Rotman, An Introduction to Homological Algebra, Academic Press, New York, 1979.
6. O. Zariski and P. Samuel, Commutative Algebra, Vol. I, Springer-Verlag, New York, 1958.
7. O. Zariski and P. Samuel, Commutative Algebra, Vol. II, Springer-Verlag, New York, 1960
8. M. F. Atiyah and I. G. Macdonald, Introduction to Commutative Algebra, Addison Wesley Pub. Co. 1969. .