Semester I

Subject Name: Algebra	**Duration: 6 hrs /Cycle**
Subject Code: 1PGM2(2015 on)	**Credit : 4**

Unit I: Group Theory: Definition of a Group – Some Examples – Some Preliminary Lemmas – Subgroups – A Counting Principle - Normal Subgroups.

Unit II: Quotient and Permutation groups: Quotient Groups – Homomorphism – Automorphisms – Cayley's Theorem – Permutation Groups.

Unit III: Sylow's theorem and Direct Products: Another Counting Principle – Sylow's Theorems – Direct Products – Finite Abelian Groups.

Unit IV: Ring Theory: Definition and Examples of Rings – Some Special Classes of Rings – Homomororphisms – Ideals and Quotient Rings – More Ideals and Quotient Rings – The Field of Quotient of an Integral Domain.

Unit V: Polynomial Rings: Euclidean Rings – A Particular Euclidean Ring -Polynomials over the Rational Fields – Polynomial Rings over Commutative Rings.

Text Book: Topics in Algebra by I. N. Herstein, 2nd Edition 2006, John Wiley   and Sons.

Chapters: 2 (2.1 to 2.14), 3 (3.1 to 3.11).

Reference Books: 1. University Algebra by N.S. Gopalakrishnan, New Age Publications, New Delhi, 2010

2. A First Course in Abstract Algebra by J.B. Fraleigh, Dorling Kindersley (India) Pvt. Limited (2003).