CATALOG DESCRIPTION:

Math 01.527 Abstract Algebra II 3 s.h.
(Prerequisite: Math 01.340 Modern Algebra or Math 01.524 Abstract Algebra I)

The continuation of Abstract Algebra I covering advanced material from group theory, ring theory and field theory.

CONTENT:

1. Group Theory
   1.1 Normal group
   1.2 Fundamental Theorem of Group (Quotient Group)
   1.3 Group isomorphism theorems
   1.4 Cauchy's Theorem for abelian groups
   1.5 Group automorphism
   1.6 Cayley's Theorem
   1.7 Permutation groups
   1.8 Sylow's Theorem

2. Ring Theory
   2.1 Ideal and prime ideals
   2.2 Euclidean rings and principle ideal rings
   2.3 Polynomial factorization theorem
   2.4 Polynomials and zeros of a polynomial
   2.5 Irreducibility criteria

3. Theory of Fields
   3.1 Subfields and prime fields
   3.2 Field adjunction
   3.3 Simple field extensions
   3.4 Linear dependence over a skew field
   3.5 Linear equations over a skew field
   3.6 Algebraic field extensions
   3.7 Normal extension fields
   3.8 Roots of unity
   3.9 Finite commutative fields (Galois fields)
   3.10 Separable and inseparable extensions
   3.11 Perfect and imperfect fields
TEXTS:

