

Programme: B.Sc.(Hons.)		Year: IV		Semester: VIII	
Class: B.Sc.		Subject: Mathematics			
Course Code:		Course Title: Abstract Algebra			
Course Outcome	CO1 :Understanding the concepts of abstract mathematics, normal subgroups, finite groups, class equation of a group and its consequences. CO2 :Properties and relationships of Euclidean rings, ideals, principal ideal domains, fields etc. CO3 : Concept of homomorphism in groups and modules. CO4 : Understanding relationships among polynomial rings, roots of polynomials and extension fields. CO5 : Concept of fixed field, Galois group of a polynomial over a field and constructible numbers.				
Units	Paper Contents				Hours
I	Normal subgroups, Simple groups, Conjugacy, Normalization, Centre of a group, Class-equation of a group and its consequences, Theorems for finite groups, Cauchy's theorem, Sylow's theorem.				12
II	Homomorphisms, Endomorphisms, Automorphisms, Inner automorphisms, Group of automorphisms and Inner automorphisms, Maximal subgroups, Composition series, Jordan-Holder theorem, Normal series, Solvable groups, Direct-Products.				12
III	Ideals, Principal Ideal, Maximal and Prime ideals, Quotient ring, Euclidean Rings, Module, Sub-module, Module homomorphism, Linear sum and direct sum of sub-modules.				12
IV	Extension fields, Transitivity of finite extensions, Algebraic element, Algebraic field extensions, Minimal polynomials, Roots of polynomials, Multiple roots, Splitting field, Existence of SF of a polynomial.				12
V	Automorphism of a field, Fixed field, Group of Automorphism of a field K relative by a subfield F of K, Galois group of a Polynomial over a field, Construction with straight edge and Compass.				12
Suggested Books					
1.I.N. Herstein, Topics in Algebra, Wiley Eastern Ltd.					
2.J. Fraleigh, A First Course in Abstract Algebra, Pearson Education.					
3.Mac-Donald , Theory of Groups and Fields, Clarendon Press					
4. Khanna and Bhambari, A Course in Abstract Algebra(VikashPub.,III Edition.)					

Mapping of course outcomes with program outcomes & program specific outcomes

CO's No.	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	3	3	3	3	1	2	1	2	3
CO2	3	3	3	3	1	2	2	2	3
CO3	3	3	3	3	1	2	1	2	3
CO4	3	3	3	3	1	2	2	2	3
CO5	3	3	3	3	1	2	2	2	3