Course Specifications

General Information

Course name	Abstract Algebra(1)
Course number	MATH3314
Faculty	
Department	
Course type	Major Needs
Course level	3
Credit hours (theoretical)	3
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

1 - To understand the basic definitions in Group Theory
2 - To be able to prove the basic theorems in group theory and use it appropriately
3 - To solve contemporary problems according to group theory results
4 - To explain certain algebraic facts using elementary principles
5 - To realize the importance of the group as a fundamental object in algebra

Intended Learning Outcomes

Knowledge and Understanding	* Define and compute with examples, binary operations, binary relations, congruence of integers and congruence classes
	* Define groups, subgroups, cyclic groups, homomorphism and related objects
Intellectual Skills	* Prove basic properties of groups, including Lagranges Theorem and the Isomorphism Theorems
	* Prove more advanced results about normal subgroups, and quotient groups
	* Prove more advanced results concerning groups
Professional Skills	* Create examples to illustrate the underlying theory, and work with direct sums and Finite abelian groups
	* Create examples to illustrate the underlying theory, and work with these examples
General Skill	* Team work
	* Presentation skills

Course Contents

1 - Binary operations, relations, congruences of integers, congruence classes
2 - Groups, subgroups, homomorphisms and isomorphisms
3 - Finite permutation groups, cayleys theorem, normal subgroups
4 - Quotient groups, fundamental theorem of group homomorphism
5 - Direct sums, finite abelian groups

Teaching and Learning Methods

1 - Lectures, homework and presentationss

Students Assessment

Assessment Method	TIME	MARKS
First Mid Term	week 5	20
Homework During , Attendance and participation	During semester	10
Second mid term	week 10	20
Final Exam	week 16	50

Books and References

Essential books	Linda Gilbert , Jimmie Gilbert (2015) Elements of modern algebra,8th Ed
Recommended books	Farleigh, J. , (1994) A first course in abstract algebra, Addison-Wesley, 5th Ed
	Joseph A. Gallian, (2002)Contemporary abstract algebra ,Houghton Mifflin Company,5th Ed
	Herstein, I. N. (1990) Abstract algebra, Macmilling company ,2th Ed