AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title		Algebra						
Course Code		MTK603		Couse Level		Third Cycle (Doctorate Degree)		
ECTS Credit	10	Workload	252 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		The course aims to give fundamental theory of algebra for introduction to advanced algebra.						
Course Content		To give introduction to group theory, to give fundamental properties of ring theory, to introduce the polynomial rings, to study prime and maximal ideals, to introduce module theory.						
Work Placement		N/A						
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Individual Study				
Name of Lecturer(s)		Prof. Semra DOĞRUÖZ						

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	25
Final Examination	1	60
Assignment	2	15

Recommended or Required Reading

1	Algebra , Graduate Text in Mathematics, Thomas W. Hungerford, Springer , 1974.
2	Fundamentals of Abstract Algebra, D.S. Malik, John M. Mordeson, M.K. Sen, The McGraw-Hill Companies, Inc., 1997.
3	Abstract Algebra an Introduction, Thomas W. Hungerford, Thomson Learning, 1997.

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction to group theory
2	Theoretical	Homomorphisms and isomorphisms of groups
3	Theoretical	Direct product of groups
4	Theoretical	Finitely generated abelian groups
5	Theoretical	Introduction to ring theory
6	Theoretical	Subrings, ideals and homomorphisms
7	Theoretical	Localizations of rings
8	Intermediate Exam	Midterm exam
9	Theoretical	Direct sum of rings
10	Theoretical	Polynomial rings
11	Theoretical	Euclidean domains
12	Theoretical	Unique Factorization domains
13	Theoretical	Prime and maximal ideals
14	Theoretical	Noetherian and Artinian rings
15	Theoretical	Modules and vector spaces

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	5	3	112
Assignment	2	0	20	40
Midterm Examination	1	38	2	40
Final Examination	1	58	2	60
			Total Workload (Hours)	252
			[Total Workload (Hours) / 25*] = **ECTS**	10

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	To understand fundamental properties of group theory

2	To understand fundamental properties of ring theory
3	To study on some specific rings
4	To understand module theory
5	To be able to gain the skill of interpreting some interrelations among these concepts

Programme Outcomes *(Mathematics Doctorate)*

1	To be able to develop the current and advanced knowledge of mathematics domain to expertise level by an original idea or research, based on the level of its knowledge at the graduate level, and to be able to reach original definitions that will bring innovation to Mathematics.
2	To be able to comprehend the interdisciplinary interaction associated with Mathematics.
3	To be able to use and evaluate the new knowledge in the field of Mathematics with a systematic approach.
4	To be able to develop an idea, a method, a design or an application that will bring innovation to Mathematics, to use well known ideas, methods, designs or applications on a different research area, or to search, comprehend, design, adapt and apply an original subject matter.
5	To be able to criticize, analyze, synthesize and evaluate new and complex ideas.
6	To be able have high-level skills in research methods related to studies on Mathematics.
7	To be able to expand the frontiers knowledge in the field of Mathematics via generating or interpreting an original study, or publishing at least a scientific paper in national/international refereed journals.
8	To be capable of leadership in the positions that require the analyses of problems related to the field of Mathematics.
9	To be able to defend his/her original ideas among the experts in the discussion of math related issues, and to be able to communicate effectively to show his/her competence in the field of Mathematics.
10	To be able to contribute to the solution of the social, scientific, cultural and ethical problems related to the Mathematics, and to be able to support the development of social, scientific, cultural and ethical values.
11	To be able to have both oral and written communication using a foreign language.

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5
P1	3	3	4	4	4
P2	3	3	4	4	4
P3	4	4	4	4	4
P4	3	3	4	4	4
P5	4	4	4	4	4
P6	4	4	4	4	
P7	2	2	3	3	
P8	4	4	4	4	
P9	3	3	3	3	
P10	2	2	3	2	
P11	4	4	4	4	