



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Field Extensions							
Course Code		MTK511		Course Level		Second Cycle (Master's Degree)			
ECTS Credit	8	Workload	200 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		This course gives the fundamental concepts of field extensions.							
Course Content		Algebraic Extensions, Characteristic, Perfect Fields, Seperability of extensions, normal extensions, Finite Fields, Primitive Elements, Algebraically Closed Fields, Norm and Traces, Automorphisms of extensions, and Galois Extensions, the Fundamental Theorem of Galois theory, Cyclotomic Fields, Cyclic Extensions, The First cohomology group.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Individual Study, Problem Solving					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	30
Final Examination	1	50
Assignment	1	20

Recommended or Required Reading

1	Algebraic Extension of Fields, Paul J. McCarty
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Week	Weekly Detailed Course Contents	
1	Theoretical	The polynomial rings
2	Theoretical	Algebraic extensions
3	Theoretical	Characteristic, perfect fields
4	Theoretical	Separability of extensions
5	Theoretical	normal extensions
6	Theoretical	Finite fields, primitive elements
7	Theoretical	Algebraically closed fields
8	Theoretical	Norm and traces
9	Intermediate Exam	Midterm Exam
10	Theoretical	Automorphisms of extensions, and Galois Extensions
11	Theoretical	the fundamental theorem of Galois theory
12	Theoretical	Cyclotomic fields
13	Theoretical	Cyclic extensions
14	Theoretical	The first cohomology group
15	Theoretical	Çeşitli örnekler
16	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	3	3	84
Assignment	1	20	2	22
Midterm Examination	1	40	2	42
Final Examination	1	50	2	52
Total Workload (Hours)				200
[Total Workload (Hours) / 25*] = ECTS				8

*25 hour workload is accepted as 1 ECTS



Learning Outcomes

1	To be able to give fundamental properties of field extensions
2	To be able to relate field extensions with other fields of algebra
3	To be able to develop some theoretical approach on field extensions
4	To be able to develop individual work on field extensions
5	To be able to relate field extensions with some other fields except algebra.

Programme Outcomes (*Mathematics Master*)

1	To be able to have an adequate theoretical and practical domain knowledge.
2	To be able to comprehend the interdisciplinary interaction associated with Mathematics.
3	To be able to use theoretical and practical domain knowledge gained in the field of Mathematics.
4	To be able to interpret knowledge from different disciplines integrating knowledge in the field of mathematics and produce new information.
5	To be able to define, analyse, model and to solve the problems by scientific methods in Mathematics.
6	To be able to conduct a math related specialistic study independently.
7	To be able to develop new strategic approaches to solve problems occurred in unforeseen and complex math-related applications by taking responsibility.
8	To be able to lead in situations that require solving problems related to the mathematics.
9	To be able to criticize his/her knowledge and skills acquired in the field mathematics.
10	To be able to transfer his/her ideas and suggestions for solutions to problems by supporting quantitative or qualitative data verbally and in writing.
11	To be able to communicate both orally and written in a foreign language.
12	To be able to use computer hardware and information technologies with software required by Mathematics.
13	To be able to contribute to the solution of the social, scientific, cultural and ethical problems related to the Mathematics, and being able to support the development of social, scientific, cultural and ethical values.
14	To be able to develop mathematics-related strategies, policies and operational plans, and to evaluate the results obtained within the framework of quality processes.
15	To be able to use his/her knowledge in the field of mathematics and practical problem-solving skills in interdisciplinary studies.

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	5	3	4	5	5
P2	5	5	4	4	5
P3	4	4	5	5	4
P4	5	4	5	5	5
P5	4	5	5	5	4
P6	3	3	3	3	3
P7	2	3	4	5	3
P11					4
P15	2	4	4	5	5

