



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Commutative Algebra							
Course Code		MTK604		Couse Level		Third Cycle (Doctorate Degree)			
ECTS Credit	7.5	Workload	189 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		To give necessary fundamental properties of commutative algebra for algebraic geometry.							
Course Content		To remind some basic module theory, to give localization and primary decompositions, to give integral dependence and valuations, to study chain conditions related Noetherian and Artinian rings, to study Dedekind domains, to study on dimension theory.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Individual Study					
Name of Lecturer(s)									

Assessment Methods and Criteria

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

Recommended or Required Reading

1	Introduction to Commutative Algebra, M.F. Atiyah and I.G. MacDor, University of Oxford, Addison-Wesley Publishing Company, 1969
2	Değişmeli Cebire Giriş (Translation in Turkish) A. Harmancı, M.Akgül, H.I.Tutalar ve K.Taş, Hacettepe University, 1980

Week	Weekly Detailed Course Contents	
1	Theoretical	Modules
2	Theoretical	Exact sequences
3	Theoretical	Tensor product of modules
4	Theoretical	Algebras
5	Theoretical	Rings and modules of fractions
6	Theoretical	Localizations
7	Theoretical	Primary decomposition
8	Intermediate Exam	Midterm exam
9	Theoretical	Integral dependence and valuations
10	Theoretical	Chain conditions
11	Theoretical	Noetherian and Artinian rings
12	Theoretical	Dedekind domains
13	Theoretical	Completions
14	Theoretical	Dimension theory
15	Theoretical	Non algebraic dimensions

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	3	3	84
Assignment	2	0	10	20
Midterm Examination	1	33	2	35
Final Examination	1	48	2	50
Total Workload (Hours)				189
[Total Workload (Hours) / 25*] = ECTS				7.5
*25 hour workload is accepted as 1 ECTS				



Learning Outcomes

1	To remind basic module theory which is necessary for algebraic geometry
2	To understand some advanced module and ring theory concepts
3	To explain chain conditions which is necessary for algebraic geometry
4	To understand completions for topologies
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 to 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	4	4	4	3	4
P2	4	4	4	4	4
P3	4	4	4	4	4
P4	4	4	4	4	4
P5	4	3	4	4	
P6	3	3	4	4	
P7	4	4	4	4	
P8	3	4	4	4	
P9	3	4	3	3	
P10	3	3	3	3	
P11	4	4	4	4	

