AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Radical Theory								
Course Code	MTK643		Couse Level	Third Cycle (Doctorate Degree)					
ECTS Credit	7.5	Workload	188 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	This course gives the fundamental concepts of radical theory.								
Course Content	Construction of a radical property, ordinal numbers, construction of a second radical property, partitions of the simple rings, nil and nilpotent, the descending chain condition, ıdeals in nil semisimple rings with descending chain condition, direct sums, central ıdempotent elements, first structure theorem, idempotent elements, second structure theorem, simple rings, relationship between ascending chain condition and descending chain condition, the baer lower radical, prime rings, prime ideals, subdirect sums, prime and semiprime rings with ascending chain condition, Jacobson Radical, Brown-McCoy Radical, Levitzki Nil Radical								
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	25
Final Examination	1	60
Assignment	2	15

Recommended or Required Reading	
1	Rings and Radicals, N. J. Divinsky
2	A Radical Approach to Algebra, M. Gray

Week	Weekly Detailed Course Contents	
1	Theoretical	Construction of a radical property, ordinal numbers
2	Theoretical	Construction of a second radical property
3	Theoretical	Partitions of the simple rings
4	Theoretical	Nil and nilpotent, the descending chain condition
5	Theoretical	Ideals in nil semisimple rings with descending chain condition
6	Theoretical	Direct sums
7	Theoretical	Central idempotent elements, first structure theorem
8	Intermediate Exam	Midterm exam
9	Theoretical	Idempotent elements, second structure theorem: simple rings
11	Theoretical	The Baer Lower Radical, prime rings, prime ideals
12	Theoretical	Subdirect sums, prime and semiprime rings with ascending chain condition
13	Theoretical	Jacobson Radical
14	Theoretical	Jacobson Radical
15	Theoretical	Brown-McCoy Radical, Levitzki Nil Radical

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	3	3	84
Assignment	2	0	20	40
Midterm Examination	1	25	2	27
Final Examination	1	35	2	37
			Total Workload (Hours)	188
			[Total Workload (Hours) / 25*] = **ECTS**	7.5
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	To give fundamental properties of radical theory
2	To give relations between radical theory and other fields of algebra
3	To improve some theoretical approach on radical theory
4	To improve outstunding on radical theory
5	To relate radical theory with some other algebraic fields

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.
12	To be able to use computer software and information and communication technologies at an advanced level as required by mathematics.
13	To be able to supervise and teach values ??by taking into account social, scientific, cultural and ethical values ??during the collection, interpretation, application and announcement of mathematics-related data.
14	To be able to develop strategies, policies, and implementation plans for mathematics-related issues and to evaluate the results within the framework of quality processes.
15	To be able to apply the knowledge, problem-solving, and application skills acquired in mathematics to 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	4	4	5	5	4
P2	3	5	4	4	5
P3	4	5	4	5	5
P4	3	4	4	4	4
P5	3	5	5	5	4
P6	4	5	5	5	5
P7	3	3	5	4	4
P9	3	4	5	4	5