



Course Specification

— (Postgraduate)

Course Title: Advanced course in Rings Theory

Course Code: 202582-3

Program: Master of Pure Mathematics

Department: Mathematics and Statistics

College: Science

Institution: Taif University

Version: 1

Last Revision Date: 20/05/2023



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A. General information about the course:

1. Course Identification:

1. Credit hours: (3)			
2. Course type			
A.	<input type="checkbox"/> University	<input type="checkbox"/> College	<input checked="" type="checkbox"/> Department <input type="checkbox"/> Track
B.	<input checked="" type="checkbox"/> Required		<input type="checkbox"/> Elective
3. Level/year at which this course is offered: (2nd level/ 1st year)			
4. Course general Description:			
simple ring- prime ring- semiprime ring- primitive ring and semiprimitive ring- reduced ring- Von-Neumann regular ring- reversible ring- symmetric ring- semicommutative ring- Abelian ring- Armendariz ring and NI ring-Boolean ring- clean ring- uniquely clean ring and strongly clean ring-nil ideal- nilpotent ideal- nil ring and nilpotent ring-Brief introduction on radical theory of noncommutative rings(Prime radical (lower nilradical)- Upper nilradical- Jacobson radical).			
5. Pre-requirements for this course (if any):			
Abstract algebra.			
6. Pre-requirements for this course (if any):			
None			
7. Course Main Objective(s):			
<ol style="list-style-type: none"> 1. Study the concept of simple ring- prime ring . 2. Study the semiprime ring- primitive ring 3. Study semiprimitive ring. 4. Study Von-Neumann regular ring- reversible ring 5. Study symmetric ring- semicommutative ring- Abelian ring-. 6. Study Armendariz ring and NI ring. 7. Study Boolean ring- clean ring and strongly clean ring. 8. Study - nilpotent ideal- nil ring and nilpotent ring 9. Study brief introduction on radical theory of noncommutative rings. Prime radical (lower nilradical) 10. Study the Upper nilradical- Jacobson radical. 			

2. Teaching Mode: (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3	100%
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> • Traditional classroom • E-learning 		
4	Distance learning		





3. Contact Hours: (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify).....	
	Total	45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods:

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Recognize fundamentals of the definitions of simple ring- prime ring.	K1	• Lectures	- Quizzes - Exams - Assignments
1.2	Describe problems related to to the basic concepts of semiprime ring- primitive ring.	K3	• Lectures	- Quizzes - Exams - Assignments
2.0	Skills			
2.1	Apply appropriate the mathematical theories, and tools in proving various Theorems of Boolean ring- clean ring and strongly clean ring.	S1	• Lectures	- Quizzes - Exams - Assignments
2.2	Demonstrate understanding the important mathematical concepts, principles, theorems, formulas, computational techniques in the concept of radical	S5	• Lectures	- Quizzes - Exams - Assignments





Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	theory of noncommutative rings.			
3.0	Values, autonomy, and responsibility			
3.1	Participate effectively within groups and independently.	V1	Projects.	Through the oral presentation of the projects.
3.2	Give responsibility for learning importance and continuing personal and professional development.	V2	Projects.	Through the oral presentation of the projects.

C. Course Content:

No	List of Topics	Contact Hours
1,2	Definitions of simple ring- prime ring.	6
3,4	Semiprime ring- primitive ring .	6
5	Semiprimitive ring	3
6	Von-Neumann regular ring- reversible ring	3
7,8	Symmetric ring- semicommutative ring- Abelian ring- .	6
9	Armendariz ring and NI ring.	3
10,11	Boolean ring- clean ring and strongly clean ring	6
12,13	Nilpotent ideal- nil ring and nilpotent ring.	6
14	Brief introduction on radical theory of noncommutative rings. Prime radical (lower nilradical)	3
15	Upper nilradical- Jacobson radical	3
Total		45

D. Students Assessment Activities:

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes and HomeWorks	Continues	10 %
2.	Midterm exam	7 th -8 th	20 %
3.	Final exam	16 th	70%



*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities:

1. References and Learning Resources:

Essential References	Rings and their Modules, 1 st Edition, Kindle Edition by Paul E. Bland.
Supportive References	Lectures on Modules and Rings, 1999th Edition, by Tsit-Yuen Lam https://www.amazon.com/Lectures-Modules-Rings-Graduate-Mathematics/dp/0387984283
Electronic Materials	https://www.amazon.com/Lectures-Modules-Rings-Graduate-Mathematics/dp/0387984283
Other Learning Materials	None

2. Educational and Research Facilities and Equipment Required:

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classrooms
Technology equipment (Projector, smart board, software)	Data show
Other equipment (Depending on the nature of the specialty)	None

F. Assessment of Course Quality:

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect
Effectiveness of students assessment	Students	Indirect
Quality of learning resources	Students	Indirect
The extent to which CLOs have been achieved	Peer reviewer	Direct
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)





G. Specification Approval Data:

COUNCIL /COMMITTEE	Department of Mathematics and Statistics
REFERENCE NO.	
DATE	7-04-1445 H

