Kingdom of Saudi Arabia Ministry of Higher Education Majmaah University Zulfi, College of Sciences Mathematics Department



المملكة العربية السعودية وزارة التعليم العالي جامعة المجمعة كلية العلوم بالزلفي قسم الرياضيات

Course Number/Name		MA	ГН343 Grouj	o Theory
Prepared by			Rabah Kellil	
Program Learning Outcomes	Level (0,1,2 3,4,5)	•	Relevant Activities	Assessment Methods/Metrics
a1. Apply fundamentals and concepts of mathematics.		3		Short examsQuizzesDiscussion
a2. Apply fundamentals and concepts General sciences and Computer skills.		2		•
a3. Realize Social and ethical values.	N	.A		•
b1. Read and construct mathematical arguments and proofs.		3		Short examsQuizzesDiscussion
b2. Apply critical thinking skills to solve problems that can be modeled mathematically.		3		Short examsQuizzesDiscussion
c1. Work independently and within a team		2		Midterm exam+ Home works for each Chapter
c2. Bear responsibility for different situations.		2	Report	 Home works for each thematic Discussion
c3. Realize codes of ethics and their importance.	N	ΙA		
d1. Communicate a depth and breadth of mathematical knowledge, both orally and in writing.		3		 Home works for each thematic presentation
d2. Ability to Organize, connect and communicate mathematical concepts and or algorithmic ideas.		3		 Home works for each thematic Presentation
d3. Critically interpret numerical and graphical data.	N.	A		•
e1. Use computer and its applications as an office tool		3	Report	• Lab work

COURSE CLASSIFICATION FORM

* Please mark (or type) High (5), Medium-High (4), Medium (3), Low-Medium (2), Low (1) or Not At All (0) indicating the level to which you believe, as an instructor, the students have achieved these outcomes in this course.

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Instructor Course Evaluation Form

The purpose of this evaluation is to collect instructor feedback for improving this course and the Mathematics program. Information will also be used for program accreditation purposes.

I. Program Learning Outcomes Evaluations

Course Number/Name	Course Number/Name MATH			S	emeste	r		pri 013		014	ŀ
Instructor	Dr. Ra	bah Kell	il								
The course listed above is de Low, Low- Medium, Mediur				lowing out	tcomes a	ıt a	Not	At	All	l,	
Please mark (or type) High (5), Medium-High (4), Medium (3), Low-Medium (2), Low (1 All (0) indicating the level to which you believe, as an instructor, the students have achiev outcomes in this course.											
Program Learning Out	comes		Relevant Acti	ivities		5	4	3	2	1	0
a1 Ability to apply knowledg basic mathematics	e of	Lectures	, Assignments,				4				
a2 Ability to apply knowledge of basic sciences		Assignments on creativity dealing with physical systems					3				
b1 Ability to Knowledge of contemporary economic issue	es.										
b2 Ability to apply kno of contemporary technologic								2			
c1 Ability to demonstrate fa with axiomatic reasoning, ind writing accurate, rigorous mathematical proofs.	cluding		project; and assignments on r improve processes				3				
c2 Ability to Make effective abstraction and inductive reak key characteristics of the lang structure of mathematics and	soning as guage and abstract	students	project in which show ability to app atical and Statistica		les of		3				
d1 Ability to Design and use mathematical models and use solve realistic problems, emp techniques from physics, con	e them to loying		demonstrate basic latics in the develop					2			

d2 Ability to Engage in statistical reasoning, including the capacity to produce and interpret statistical information, and to make proper					N A
d3 Ability to Analyze and interpret experimental data.	Design project in which students show ability to apply principles of Mathematical and Statistical data				N A
e1 Ability to identify a Mathematical problem from a word statement or observation of a situation.	Design project; Lectures and assignments on how to create, analyze or improve processes, devices or systems		4		
e2 Ability to formulate or idealize the identified problem as a mathematical model.	Design project; Lectures and assignments	4	4		
e3 Ability to Solve the formulated problem by applying the technical skills gained in various classes.	Lectures and oral discussions on identification of the project goals and constraints			3	
fl Ability to develop and demonstrate habits of effective thought.	Lectures and oral discussions on open- ended problems that require generation and exploration of	4	4		
f2 Ability to reason analytically to distinguish "possible" from "necessary," to recognize assumptions, to identify logical fallacies, and to	Design project in which the students will use analytical tools to aid in the design process, select preferred and support final design			3	
g1 Ability to function on a team.	Students work as part of a team on projects; studio discussions of how to understand the teamwork, the role of	4	4		
g2 Ability to function on a multi- disciplinary team.	Teams consist of students with variable and preferred interest in mechanical and /or			3	
h1 Ability to understand the importance of professional responsibility regarding product	Project, Lectures and assignments on presenting clear and complete identification				N A
h2 Ability to understand codes of ethics and their importance.	Lecture; course ethical				N A
il Ability to recognize life-long learning is a necessity as well as a responsibility of every Graduate	Design project with multiple aspects of data; students are urged to		4		
i2 Ability to familiarity with modern technological tools is a				3	
j1 Ability to o rganize, connect, and communicate mathematical and algorithmic ideas.				3	
j2 Ability to Acquire facility with several significant technological tools,				3	
j3 Ability to communicate effectively orally, visually, and in writing	Class and studio discussions. Biweekly oral progress reports to update instructor on			3	

Instructor Course Evaluation Form

j4 Ability to use modern mathematical and statistical techniques				
j5 Ability to use information and communications technology.	General discussions on the impact of alternative design solutions on the environment	3		
k1 Ability to select appropriate analytic and design tools for Mathematical problems	General discussions on feasibility studies of some problems that proposed solutions may alter the structure of society	3		
k2 Ability Use technological application software as analysis and application design	Design project with multiple aspects of design engineering; students are urged to learns independently	3		
k3 Ability to Utilize a computer as an office tool. Assumptions, to identify logical fallacies, and to develop.		3		

II. Textbook(s) and/or Lab Manuals (if applicable) Evaluations:

Based on your experiences in the course, please respond by circling the most appropriate number. Circle N/A for items that are not applicable, or if you have no opinion.

Catalog Description 1434-1435	The axioms of group theory and some examples of groups- Subgroups- Cyclic groups- Lagrange theorem- Normal subgroup- Factor group- homomorphisms- Fundamental theorems of isomorphisms- Automorphisms- Caley theorem and its generalization- Simple groups- Permutation groups- Class equation-Group action on a set- P-groups- Cauchy theorem- Sylow's theorems- External and internal direct product of group- Burnside theorem- Dihedral- Quaternians- Groups of automorphisms on finite and infinite cyclic groups. Circle One (5=Strongly Agree; 1=Strongly							
Course Prerequisites:		Circle (disagre		=Stron	gly Ag	ree; 1=S	trongly	
2a. Do you believe that accurate for this course	t the catalog description (above) is e?	5						
2b. Do you believe that the course prerequisites (above) are appropriate for this course?			4					
2c. If not, please list ar appropriate for this cou								

III. Textbook(s) and/or Lab Manuals (if applicable) Evaluations:

Textbook(s) and/or Lab Manuals (if applicable):	 Marshall Hall, Jr. : The Theory of Groups, Amer Mathematical , 1975. W. Ledermann , A. J. Wiet : Introduction to Group Theory, Publisher Longman , 1996. J. Rose : A course in group theory, Dover publications, Inc., 1994 	(5)			
3a. In general, do you b textbook for this course	believe this to be an appropriate e?	(5)			

Zulfi, College of Sciences

Mathematics Department

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structor Course Evaluation Form					
3b. Was the organization of the textbook appropriate for this course?	((5)			
3c. Was the level of the textbook appropriate for this course?			(4)		

$IV. \quad \mbox{Computer usage (if applicable) Evaluations:}$

Computer usage (if applicable):	Circle One (5=Strongly Agree; 1=Strongly
5a. Was the use of computer well integrated with the course?	3
5b. Was the computer lab adequately equipped with well- maintained and updated computers?	4
5c. Was the computer lab equipped with sufficient number of computers?	4
5d. Were the special software packages (MATLAB, SPSS, C+, FORTRAN, etc) available and accessible?	3
5e. Was adequate technical support available when needed?	4

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Student Course Evaluation Form

The purpose of this evaluation is to collect instructor feedback for improving this course and the Mathematics program. Information will also be used for program accreditation purposes.

I. Program Learning Outcomes Evaluations

Course Number/Name	MATH243 GroupTheory	Semester	Sp 20			4						
Instructor	Dr. Rabah Kellil											
Student Name		Student ID										
The course listed above is designed for students to achieve the following outcomes at a Not At All, Low, Low- Medium, Medium-High or High level.												
	(5), Medium-High (4), Medium (3), I which you believe, as an instructor,											
Prog	gram Learning Outcomes		5	4	3	2	1	0				
a1. Apply fundamentals an	d concepts of mathematics.											
a2. Apply fundamentals an	nd concepts General sciences and G	Computer skills.										
a3. Realize Social and ethi	cal values.											
b1. Read and construct ma	thematical arguments and proofs.											
b2. Apply critical thinking mathematically.	skills to solve problems that can b	be modeled										
c1. Work independently and	within a team											
c2. Bear responsibility for	different situations.											
c3. Realize codes of ethics	and their importance.											
d1. Communicate a depth and breadth of mathematical knowledge, both orally and in writing.												
d2. Ability to Organize, connect and communicate mathematical and algorithmic ideas.												
d3. Critically interpret numerical and graphical data.												
e1. Use computer and its a	pplications as an office tool											

Instructor Course Evaluation Form

II. Catalog Description , and Course Prerequisites Evaluations:

Based on your experiences in the course, please respond by circling the most appropriate number. Circle N/A for items that are not applicable, or if you have no opinion.

Catalog Description 1434-1435	The axioms of group theory and some examples of groups- Subgroups- Cyclic groups- Lagrange theorem- Normal subgroup- Factor group- homomorphisms- Fundamental theorems of isomorphisms- Automorphisms- Caley theorem and its generalization- Simple groups- Permutation groups- Class equation-Group action on a set- P-groups- Cauchy theorem- Sylow's theorems- External and internal direct product of group- Burnside theorem- Dihedral- Quaternians- Groups of automorphisms on finite and infinite cyclic groups.							
Course Prerequisites:	Bases of Mathematics		One (5= ongly dis		ly Ag	ree;		
2a. Do you believe tha accurate for this course	t the catalog description (above) is e?	5						
2b. Do you believe that the appropriate for this course	5							
2c. If not, please list ar appropriate for this cou	ny prerequisites you believe are not irse.			·				

III. Textbook(s) and/or Lab Manuals (if applicable) Evaluations:

Textbook(s) and/or Lab Manuals (if applicable):	 Marshall Hall, Jr. : The Theory of Groups, Amer Mathematical , 1975. W. Ledermann , A. J. Wiet : Introduction to Group Theory, Publisher Longman , 1996. J. Rose : A course in group theory, Dover publications, Inc., 1994 	Ag	Circle One (5=Strongly Agree; 1=Strongly Disagree)					
3a. In general, do you be textbook for this course	believe this to be an appropriate e?		4					
3b. Was the organization of the textbook appropriate for this course?								
3c. Was the level of the	e textbook appropriate for this course?		4					

IV. Computer usage (if applicable) Evaluations:

Computer usage (if applicable):		Circle One (5=Strongly Agree; 1=Strongly Disagree)					
4a. Was the use of computer well integrated with the course?				3			
4b. Was the computer lab adequately equipped with well- maintained and updated computers?			4				
4c. Was the computer lab equipped with sufficient number of computers?			4				
4d. Were the special software packages (MATLAB,						1	
4e. Was adequate technical support available when needed?			4				