Maths 312 Syllabus

1. College	Science					
2. Department	Mathematics					
3. Program	B.Sc in Mathematics					
4. Course code	Maths 312					
5. Course title	Abstract Algebra II					
6. Course credits:	Lecture Hours: 3 Lab Hours: 0 Credit Hours: 3					
7. Pre-requisites:	Maths 311					
8. Course web-page:						
9. Lectures Timing & Location						
10. Course coordinator	Dr. Ahmed Matar					
11. Academic year	2019-2020					
12. Semester:		**First**	√	**Second**		**Summer**

13. Textbook(s):

Contemporary Abstract Algebra, Joesph Gallian Cengage (9th ed)

14. References:

A First Course in Abstract Algebra, John B. Fraleigh, Addison-Wesley (7thed)

Abstract Algebra, Dummit & Foote (3rd ed)

Topics in Algebra, I.N. Herstein, John Wiley & Sons (2nded)

15. Other resources used (e.g. e-Learning, field visits, periodicals, software, etc.):

16. Course description (from the catalog):

Rings. Fields. Integral domains. Subrings. Ideals. Factors rings. Homomorphism of rings. Isomorphism theorems. Prime ideals. Maximal ideals. Euclidean domain. The Gaussian Integers. Principal ideal domains. Unique factorization domains. Polynomial rings. Factorization of polynomials. Gauss lemma. Eisenstein criterion.

17. Course Intended Learning Outcomes (CILOs):

Students who successfully complete this course should be able to:

	Mapping to PILOs										
CILOs	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*	*k*
1. Identify different types of rings and subrings	√	√							√		
2. Produce factor rings	√	√	√	√					√		
3. Distinguish prime and maximal ideals	√	√	√	√					√		
4. Apply the isomorphism theorems of rings	√	√	√	√					√		
5. Conclude whether a ring is a Euclidean domain, a PID, or a UFD	√	√							√		
6. Apply the irreducibility criteria to determine the	√	√							√		

irreducibility of polynomials over the rational field											

18. Course assessment:			
Assessment Type	*Number*	*Weight*	*Date*
Quizzes	**-**	-	
Tests	***2***	*40%*	See weekly schedule
Laboratory/Practical	**-**	-	-
Homework	***8***	*20%*	TBA
Projects/Case Studies	**-**	-	-
Final	***1***	*40%*	***Comprehensive***
Total	***11***	*100%*	

19.Attendance Policy:

Extracts from the University Bulletin regarding withdrawal and enforced withdrawal:

A student's absence from lectures or classes in excess of 25% of the total assigned session will result in an automatics withdrawal of the student from the course, regardless of the causes for his/her absence.

a) A grade of (W) is given to a student who misses 25% or more of the total sessions assigned to the course if he/she presents a valid excuse for his/her absence.

b) A grade of (WF) is given to a student who misses 25% or more, but with no valid excuse.

20.Academic Honesty and Plagiarism:

All students are expected to follow the specific rules of academic honesty and plagiarism as per The Regulation of Professional conduct Violations for University of Bahrain Students, decision # 4/2006. Please refer the UoB website-Deanship of Students Affairs-Guidance Office.

Weekly Problems & Important Dates

Week	Date	Topics covered	CILOS	Problems	Important Dates
1	11/2/2020	12 Introduction to Rings	1	1-57	
2	16/2/2020	12 Introduction to Rings	1	1-57	
3	23/2/2020	13 Integral Domains	1	1-69	
4	1/3/2020	14 Ideals and Factor Rings	1-3	1-71	
5	8/3/2020	14 Ideals and Factor Rings	1-3	1-71	
6	15/3/2020	15 Ring Homomorphisms	1-4	1-69	
7	22/3/2020	15 Ring Homomorphisms	1-4	1-69	
8	29/3/2020	16 Polynomial Rings	1,5	1-61	**29/3 Test 1**
9	5/4/2020	**Midsemester break**			
10	12/4/2020	16 Polynomial Rings	1,5	1-61	
11	19/4/2020	17 Factorization of Polynomials	1,6	1-39	
12	26/4/2020	17 Factorization of Polynomials	1,6	1-39	**1/5 Labor Day**
13	3/5/2020	18 Divisibility in Integral Domains	5	1-47	
14	10/5/2020	18 Divisibility in Integral Domains	5	1-47	**12/5 Test 2**
15	17/5/2020	18 Divisibility in Integral Domains	5	1-47	
16	24/5/2020	Review			**24/5-26/5 Eid 28/5 Last Day of Classes**