جامعة الزيتونة الأردنية
Al-Zaytoonah University of Jordan
كلية العلوم وتكنولوجيا المعلومات
Faculty of Science and information Technology

"عراقة وجودة"
"Tradition and Quality"

Course Plan for Bachelor program - Course Plan Development and Updating Procedures/ Mathematics Department	QF01/0407-3.0E

Course Plan for Mathematics (Bachelor Program) No.: (Academic year)
Approved by Deans Council by decision (07/72/2016-2017) dated (30/8/2017)
(133) Credit Hours

No.	Goals and learning outcomes
Goal 1	Provide students with the main concepts in mathematics.
ILO 1.1	Students will be able to distinguish types of functions and to their operations.
ILO 1.2	Use basic concepts in linear algebra.
ILO 1.3	Employing basic concepts in group theory effectively.
ILO 1.4	Identify basic concepts in statistical methods and probabilities
ILO 1.5	Utilizing the concepts of basic Euclidean geometry in different branches of mathematics.
GOAL 2	Provide students with knowledge in the core branches of mathematics.
ILO 2.1	Students will have proficiency in real and complex analysis.
ILO 2.2	Students will have proficiency in abstract algebra.
ILO 2.3	Students will have proficiency in theory of probability and mathematical statistics.
ILO 2.4	Students will have proficiency in different fields of applied mathematics such as differential equations and mathematical modeling.
GOAL 3	Enable students to develop logical thinking and construct rigorous proofs.
ILO 3.1	Students will understand the meaning of a mathematical proof.
ILO 3.2	Students will be able to communicating mathematics by writing a mathematical argument.
ILO 3.3	Students will have proficiency in using the different methods of proof such as proof by induction and the proof by contradiction.
GOAL 4	Provide students with sufficient proficiency in technology.
ILO 4.1	Students will be able to write programs in at least one programming language.
ILO 4.2	Students will get introduced at least one of the mathematical soft wares such as MATLAB, Maple and Mathematica and to some statistical packages and know how to use them in solving problems, testing conjectures and in visualizing concepts.
ILO 4.3	Students will develop an appreciation of the use of information technology in mathematics.

Note: G= Goal, ILO= Intended Learning Outcome
Assign 3-7 ILOs for each goal

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Student's information		Course number	Course title	Credit Hours	Theory Hours	Practical Hours	Prerequisite Co-requisite	vertisement Plan
Registered	passed							Semester/year
First: University Requirements (27) Credit Hours								
A. Mandatory requirement (15 credit hour)								
☐	☐	0420101	Military Sciences	3	3	0		1/2
☐	☐	0420111	Arabic Language (1)	3	3	0	Remedial Arabic Language	1/1
☐	☐	0420121	English Language (1)	3	3	0	Remedial English Language	1/2
☐	☐	0420151	National Education	3	3	0		1/1
☐	☐	0420171	Life Skills	3	3	0		1/1
B. Electives (12 credit hours, minimum 3 credits from each field)								
Field I. Humanitarian courses								
☐	☐	0420103	History of Jerusalem	3	3	0		1/2
☐	☐	0420112	Islamic Culture	3	3	0		2/2
☐	☐	0420131	Principles of Education	3	3	0		1/2
☐	☐	0420134	Sport and Health	3	2	2		2/2
☐	☐	0420142	Human Civilization	3	3	0		1/2
☐	☐	0420152	Introduction to Sociology	3	3			2/2
☐	☐	0501100	Innovation and Entrepreneurship in Business	3	3	0		2/2
☐	☐	0601102	Law in Our Life	3	3	0		1/2
Field II. Scientific course								
☐	☐	0120111	Information Technology and Society	3	3	0		1/2
☐	☐	0120153	Medicinal Plants	3	3	0		1/2
☐	☐	0301101	First Aid	3	3	0		1/2
☐	☐	0301102	Fundamental of Nutrition	3	3	0		2/2
☐	☐	0906100	Principles of Energy Science	3	3	0		2/2

Second: Faculty Requirements (21) credit hours								
Student's information		Course number	Course title	Credit Hours	Theory Hours	Practical Hours	Prerequisite Co-requisite	Advertisement Plan
Registered	passed							Semester/year
☐	☐	0120110	Principles of Programming	3	3	0	Introduction to Information Technology	2/2
☐	☐	0120117	Introduction to Information Technology	3	3	0	*Remedial computer skills	1/1

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		0120118	Professional Skills for Scientific Faculties	3	3	0	Remedial English Language	2/1
☐	☐	0120121	Calculus (1)	3	3	0	………………	1/1
☐	☐	0120131	General Physics (1)	3	3	0	………………	1/2

		0120141	General chemistry	3	3	0	………………	1/2
☐	☐	0120151	Biology	3	3	0	………………	2/3
Third: Major requirements (82) credit hours								
	A. Mandatory Major requirements (76) credit hours							
☐	☐	0101102	Calculus (2)	3	3	0	Calculus (1)	2/1
☐	☐	0101140	Statistics and Probability	3	3	0	………………	2/1
☐	☐	0101201	Calculus (3)	3	3	0	Calculus (2)	1/2
☐	☐	0101211	Set Theory	3	3	0	………………	1/2
☐	☐	0101212	Number Theory	3	3	0	Set Theory	2/2
☐	☐	0101221	Linear Algebra (1)	3	3	0	Calculus (1)	1/2
☐	☐	0101231	Euclidean Geometry	3	3	0	………………	2/2
☐	☐	0101251	Real Analysis (1)	3	3	0	Calculus (2) \ Set Theory	2/2
☐	☐	0101272	Numerical Analysis (1)	3	3	0	Calculus (1)	1/2
☐	☐	0101273	Ordinary Differential Equations (1)	3	3	0	Calculus (2)	1/2
☐	☐	0101322	Linear Algebra (2)	3	3	0	Linear Algebra (1)	2/3
☐	☐	0101323	Abstract Algebra (1)	3	3	0	Number Theory	1/3
☐	☐	0101341	Probability Theory	3	3	0	Statistics and Probability \Calculus (3)	1/3
☐	☐	0101352	Complex Analysis (1)	3	3	0	Real Analysis (1) \ Calculus (3)	1/3
☐	☐	0101361	Methods of teaching mathematics	3	3	0	Dep. App.	2/3
☐	☐	0101372	Mathematical Modeling (1)	3	3	0	Principles of Programming	1/3
☐	☐	0101374	Partial Differential Equations	3	3	0	Ordinary Differential Equations (1)	2/3
☐	☐	0101432	Topology	3	3	0	Real Analysis (1)	2/4
☐	☐	0101442	Mathematical Statistics	3	3	0	Probability Theory	1/4
☐	☐	0101443	Applied Statistics	3	3	0	Mathematical Statistics	2/4
☐	☐	0101453	Real Analysis (2)	3	3	0	Real Analysis (1)	1/4
☐	☐	0101462	Practical Education in Teaching Mathematics	3	3	0	Methods of teaching mathematics	2/4
☐	☐	0101471	Mathematical Modeling (2)	3	3	0	Mathematical Modeling (1)	1/4
☐	☐	0101472	Numerical Analysis (2)	3	3	0	Numerical Analysis (1)	2/4
☐	☐	0101475	Applied Mathematics	3	3	0	Partial Differential Equations	2/4
☐	☐	0101482	Research Seminar in Mathematics	1	1	0	Dep. App.	2/4

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B.	Major electives (6) credit hours						
☐	☐	0101370	Graph theory	3	3	0	Set Theory	2/3
☐	☐	0101424	Abstract Algebra (2)	3	3	0	Abstract Algebra (1)	1/4
☐	☐	0101455	Special Functions	3	3	0	Ordinary Differential Equations (1)	1/4
☐	☐	0101477	Selected Topics in mathematics	3	3	0	Dep. App.	1/4

Fourth: free electives (3) Credit Hours
(Student may choose any course from any course plan at the university unless the student had passed it previously)

❖ Co-requisite

(Courses Given to Other Majors)

Course number	Course title	Credit hours	Type of requirement (University Requirements, Faculty Requirements, Supporting Requirements)
0101104	3	Calculus (2) for engineering students	Supporting Requirements- Faculty of Engineering & Technology- For the following Departments: Mechanical engineering - Computer & communication engineering - Civil & infrastructure Engineering.
0101205	3	Calculus (3) for engineering students	Supporting Requirements- Faculty of Engineering & Technology- For the following Departments: Mechanical engineering - Computer & communication engineering - Civil & infrastructure Engineering.
0101273	3	Ordinary Differential Equations (1)	Supporting Requirements- Faculty of Engineering & Technology- For the following Departments: Mechanical engineering - Computer & communication engineering - Civil & infrastructure Engineering.