

Requirement of the Study Plan

Program Requirement: A student must successfully complete 184 credit hours as per the following schedule:

Requirements	No. of Courses	Credit Hours
Preparatory Year	١٦	46
University Requirement	4	8
Department Requirement (Core Courses)	21	81
Department Requirement (Elective Courses)	5	20
Compulsory Courses from other Departments	4	17
Elective Courses From other Departments	1	4
Free Courses	3	6
Field Training	1	2
Total Courses and Credit Hours	55	184

The undergraduate study plan is distributed on the following levels

Study level ١: (Preparatory1)

Course Code	Course Name	Credit Hours	Prerequisite
Math 1050	Differential calculus	4(2,2,0)	---
IC 101	Introduction to Islamic culture	2(2,0,0)	
ENGL 1210	Reading Skills	5(2,3,0)	
ENGL 1220	Writing Skills	5(2,3,0)	
Total Credit Hours		١٦ (8,8,0)	

Study Level ٢: (Preparatory 2)

Course Code	Course Name	Credit Hours	Prerequisite
Math 1060	Integral Calculus	4(2,2,0)	Math 1050
ARAB 101	Language Skills	2(2,0,0)	
ENGL 1230	Conversation and listening skills	5(2,3,0)	

CT 1400	Computer Skills	3(2,0,1)	
Total Credit Hours		14(8,5,1)	

Study Level ٣: (Preparatory 3)

Course Code	Course Name	Credit Hours	Prerequisite
PHYS 1010	General Physics (1)	5(3,1,1)	
MC 1400	Communication skills	2(2,0,0)	
ENGL 1604	English for Technical Purposes	5(4,0,1)	
ENGL 1606	English for Academic Purposes	4(2,2,0)	
Total Credit Hours		16 (11,3,2)	

Study Level ٤:

Course Code	Course Name	Credit Hours	Prerequisite
Math 2240	Algebra and Analytic Geometry	٤(٤,٠,0)	Math 1060
Math 2311	Infinite Series and Calculus Applications	٤(٤,٠,0)	Math 1060
Stat 2010	Elementary Probability and Statistics	٤(٤,٠,0)	Math 1060
Phys 2180	General Physics for Students of Mathematics (2)	5(4,0,1)	Phys 1010
Total Credit Hours		17 (16,0,1)	

Study Level ٥:

Course Code	Course Name	Credit Hours	Prerequisite
Math 2250	Linear Algebra- I	٤(٤,٠,0)	Math 2240
Math 2290	Mechanics	٤(٤,٠,0)	Math 1060
Math 2301	Visual Programming of Mathematical Problems	4(3,٠,1)	CT 1400
Stat 2040	Statistical Methods	٤(٤,٠,0)	Stat 2010
IC 102	The Islam and Society Building	2(2,0,0)	-----
Total Credit Hours		18(17,0,1)	

Study Level ٦:

Course Code	Course Name	Credit Hours	Prerequisite
Math 2321	Actuarial Mathematics-I	4(4,0,0)	Math 1060
Math 245٥	Group Theory	٤(٤,٠,0)	Math 2240
Stat 3280	Statistical Packages	4(٣,٠,1)	Stat 2040

IC 103	The Economic System in Islam	2(2,0,0)	
XXX	Free Course	2 (2,0,0)	
Total Credit Hours		16 (15,0,1)	

Study Level ٧:

Course Code	Course Name	Credit Hours	Prerequisite
Math 3320	Multivariable Calculus	٤(٤,٠,0)	Math 1060
Math 3330	Ordinary Differential Equations- I	٤(٤,٠,0)	Math 2311
Math 3280	Linear Algebra- II	٤(٤,٠,0)	Math 2250
IC 104	Foundations of the Political System in Islam	2(2,0,0)	
XXX	Free Course	2 (2,0,0)	
Total Credit Hours		١6 (16,0,0)	

Study Level ٨:

Course Code	Course Name	Credit Hours	Prerequisite
Math 3340	Ordinary Differential Equations-II	٤(٤,٠,0)	Math 3320 + Math 3330
Math 3350	Vector Analysis	٤(٤,٠,0)	Math 3320
Math 3370	Numerical Analysis	٤(٤,٠,0)	Math 2250
Math 3460	Real Analysis- I	٤(٤,٠,0)	Math 3320 + Math 3330
Total Credit Hours		١٦ (16,0,0)	

Study Level ٩:

Course Code	Course Name	Credit Hours	Prerequisite
Math 3510	Mathematical Packages	4(3,٠,1)	Math 2301 +Math 3330
Math 445°	Rings and Fields	٤(٤,٠,0)	Math 245°
Math xxx	Elective Internal Course	٤(٤,٠,0)	Depending on the chosen course
xxx	Elective External Course	٤(٤,٠,0)	Depending on the chosen course
Total Credit Hours		16(15,0,1)	

Study Level ١٠:

Course Code	Course Name	Credit Hours	Prerequisite
Math4590	Field Training	2 (0,0,6)	
Math 4620	Ethics for Mathematics	2(2,0,0)	Math 3460
Arab 103	Arabic Editing	2(2,0,0)	
Math xxxx	Elective Internal Course	٤(٤,٠,0)	
xxx	Free Course	2(2,0,0)	
Total Credit Hours		12(10,0,6)	

Study Level ١١:

Course Code	Course Name	Credit Hours	Prerequisite
Math 4360	Introduction to Partial Differential Equations	٤(٤,٠,0)	Math 3330 + Math 3320
Math 4430	Introduction to Topology	٤(٤,٠,0)	Math 3460
Math xxx	Elective Internal Course	٤(٤,٠,0)	Depending on the chosen course
Total Credit Hours		12 (12,0,0)	

Study Level ١٢:

Course Code	Course Name	Credit Hours	Prerequisite
Math 4350	Complex Analysis	٤(٤,٠,0)	Math 3330 + Math 3320
Math 4820	Graduation Project	٣(٣,٠,١)	After exceeded 155 hours
Math xxx	Elective Internal Course	٤(٤,٠,0)	Depending on the chosen course
Math xxx	Elective Internal Course	٤(٤,٠,0)	Depending on the chosen course
Total Credit Hours		1٥(14,0,1)	

- **Department Requirement (Elective Courses)(3 Credits Hours)**

Five courses to be chosen from the following two groups of elective courses:

(The student chooses two courses from one group and three courses from the other group.)

Group 1

Course Code	Course Name	Credit Hours	Prerequisite
Math 3240	Actuarial Mathematics -II	3(3, 1, 0)	Math 2321
Math 3270	Number Theory	3(3, 1, 0)	Math 2311
Math 4390	Differential Geometry	3(3, 1, 0)	Math 3320 + Math 3330
Math 4420	Introduction to Functional Analysis	3(3, 1, 0)	Math 3280 + Math 3460
Math 4470	Real Analysis-II	3(3, 1, 0)	Math 3460
Math 4520	Calculus of Variations	3(3, 1, 0)	Math 3320 + Math 3330
Math 4530	Methods of Optimization	3(3, 1, 0)	Math 3260 + Math 3320
Math4580	Special Functions	3(3, 1, 0)	Math3340

Group 2

Course Code	Course Name	Credit Hours	Prerequisite
Math 3260	Mathematical Programming	3(3, 1, 0)	Math 2250
Math 4380	Non-linear Dynamics	3(3, 1, 0)	Math 3340 + Math 3320
Math 4400	Fluid Mechanics	3(3, 1, 0)	Math 2290 + Math 4360
Math 4410	Classical Mechanics	3(3, 1, 0)	Math 2290 + Math 4360
Math 4480	Principles of Automatic Control	3(3, 1, 0)	Math 2250 + Math 3320 + Math 3340
Math 4490	Applications of Continuum Mechanics	3(3, 1, 0)	Math 3350 + Math 4360
Math 4500	Numerical Methods to Solve Partial differential equations	3(3, 1, 0)	Math 4360 + Math 3370
Math 4540	Computational Geometry	3(3, 1, 0)	Math 3320 + Math 3340
Math 4550	Wavelet and Signal Processing	3(3, 1, 0)	Math 3340+Math3280
Math 4560	Dynamics of the Rigid Body	3(3, 1, 0)	Math 2290 + Math 3330
Math4570	Quantum Mechanics	3(3, 1, 0)	Math3340+Math4360+Math4410

- **Elective Courses From Other Departments (4 Credits Hours)**

One course to be chosen from the following courses:

Course Code	Course Name	Credit Hours	Prerequisite
IS 2511	Fundamentals of Database Systems	3(3,0,0)	Math 2301
Math 2300	Visual Programming 2	3(3,0,0)	Math 2301
Phys 2140	Classical Mechanics 1	3(3,0,0)	Phys 1010
Phys 2230	Modern Physics	3(3,0,0)	Phys 1010
Phys 2410	Thermodynamics	3(3,0,0)	Phys 1010 + Math 1060
Stat 2150	Probability 1	3(3,0,0)	Stat 2040

- **Free Courses (6 Units)**

One or more courses of total 6 credit hours to be chosen from among the courses offered within the college or outside the college, provided they meet the prerequisites.

- **Field Training:**

As a partial fulfillment for the award of degree of Bachelor of Science in Mathematics, every student will have to undergo field training after completion of 125 credit hours and submit a report.

Math4590	Field Training	2 (0,0,6)	After exceeded 134 hours
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