

The study plan for the Bachelor of Physics

based on a two-semester system

Sixth edition

1444 AH (2022/2023 AD)

Physics Department

College of Science and Humanitarian Studies

(Salman bin Abdulaziz University, Alkharj)

Study Plan for Bachelor of Physics

Description of the plan

The student should successfully pass 139 credit units before graduation.

Undergraduate Study Plan of Physics Program

The following table displays the details of the study plan

Requirements	No. of courses	Credit hours
Preparatory Year	11	31
University requirements	4	8
Department compulsory	23	62
Department electives(Elective Internal Course)	4	12
Non-department compulsory	4	13
Graduation Project	1	3
Field Training	1	2
Non-department electives(Elective External Course)	1	2
Free courses	2	6
Total	51	139

The undergraduate study plan is distributed on the following levels:

1. Level one: (Preparatory year)

Code No.	Course Title	No. of Units	Pre-requisite
Math 1050	Differential Calculus	3 (3, 2, 0)	
ENGL 1210	Reading Skills	3 (3, 3, 0)	
ENGL 1220	Writing Skills	3 (3, 3, 0)	
IC 101	Introduction Of Islamic Culture	2 (2, 0, 0)	
Phys 1010	General Physics (1)	4 (3, 1, 1)	
Total		15 (14, 9, 1)	

2. Level Two: (Preparatory year)

Code No.	Course Title	No. of Units	Pre-requisite
ENGL1230	Conversation And Listening Skills	3 (3, 3, 0)	
ARAB 101	Language Skills	2 (2, 0, 0)	
Math 1060	Integral Calculus	3 (3, 2, 0)	Math 1050
CT 1400	Computer Skills	3 (2, 0, 1)	
MC 1400	Communication Skills	2 (2, 0, 0)	
ENGL 1604	English For Technical Purposes	3 (3, 3, 0)	
Total		16 (15, 8, 1)	

3. Level Three (Second Year)

Code No.	Course Title	No. of Units	Pre-requisite
Chem 2010	General Chemistry (1)	4 (3, 0, 1)	
Phys 2110	Optics (1)	3 (3, 1, 0)	Phys 1010
Phys 2140	Classical Mechanics (1)	3 (3, 1, 0)	Phys 1010
Phys 2190	Electric And Geometrical Optics Lab	2 (0, 0, 2)	Phys 1010
Phys 2210	Electromagnetic (1)	3 (3, 1, 0)	Phys 1010
Math 2230	Algebra And Analytic Geometry For Students Of Physics And Statistics	3 (3, 1, 0)	
Total		18 (15, 4, 3)	

4. Level Four (Second Year)

Code No.	Course Title	No. of Units	Pre-requisite
Phys 2250	Optics2	3 (3, 1, 0)	Phys 2110
Phys 2410	Thermodynamics	3 (3, 1, 0)	Phys 1010 & Math 1060
Phys 2930	Optics Lab	2 (0, 0, 2)	Phys 2110
Phys 2430	Electromagnetism (2)	3 (3, 1, 0)	Phys 2210
Math 3320	Calculus-Iii, Multivariable Calculus	3 (3, 1, 0)	Math 1060
Chem xxxx	Elective External Course	2 (2, 0, 0)	Chem 2010
IC102	The Islam and Society Building	2 (2, 0, 0)	
Total		18 (16, 3, 2)	

5. Fifth Level (Third Year)

Code No.	Course Title	No. of Units	Pre-requisite
Phys 3010	Mathematical Physics (1)	3 (3,1, 0)	
Phys 3150	Classical Mechanics (2)	3 (3,1, 0)	Phys 2140
Phys 3560	Quantum Mechanics (1)	3 (3,1, 0)	
Math 3410	Differential Equations For Physics Students	3 (3,1, 0)	Math 3320
Phys 3920	Electromagnetic Lab	2 (0,0, 2)	Phys 2430
Arab 103	Arabic Editing	2 (2,0, 0)	
xxxx	Free Course	3 credit units	
Total		19 (17,4, 2)	

6. Sixth Level (Third Year)

Code No.	Course Title	No. of Units	Pre-requisite
Phys 3020	Mathematical Physics (2)	3 (3, 1, 0)	Phys 3010
Phys 3420	Statistical Physics (1)	3 (3, 1, 0)	Phys 2410
Phys 3710	Solid State Physics (1)	3 (3, 1, 0)	
Phys 3760	Atomic Physics	3 (3, 1, 0)	Phys 3560
Phys 3950	Solid State Physics Lab	2 (0, 0, 2)	
xxxx	Free Course	3 credit units	
Total		17 (15, 4, 2)	

Field Training Phys 4590:

The student must perform field training for a period of seven weeks as a basic condition for obtaining a bachelor's degree after passing 90 credit hours from the department's plan in an entity recognized by the college.

Code No.	Course Title	No. of Units	Pre-requisite
Phys 4590	Field Training	2 (0, 0, 15)	

7. Seventh Level (Fourth Year)

Code No.	Course Title	No. of Units	Pre-requisite
Phys 4240	Analogue Electronics	3 (2,1,1)	Phys 2210
Phys 4560	Quantum Mechanics (2)	3 (3,1,0)	Phys 3560
Phys 4960	Modern Physics Lab	2 (0,0,2)	
Phys xxxx	Elective Internal Course	3 credit units	
Phys xxxx	Elective Internal Course	3 credit units	
IC 103	The Foundation Of The Economic System In Islam	2 (2,0,0)	
Total		16 (13,4,3)	

8. Eighth Level: (Fourth Year)

Code No.	Course Title	No. of Units	Pre-requisite
Phys 4010	Ethics For Physics	1 (1,0,0)	
Phys 4050	Computational Physics	3 (2,1,1)	Phys 3150
Phys 4340	Nuclear And Particle Physics	3 (3,1,0)	Phys 3760
Phys 4990	Graduation Project	3 (1, 0, 2)	after passing 116 credit hours
Phys xxxx	Elective Internal Course	3 credit units	
Phys xxxx	Elective Internal Course	3 credit units	
IC 103	Biography of the Prophet	2 (2, 0, 0)	
Total		18 (15, 4, 3)	

- **Elective Internal Course (from inside the department): (12 credit units)**

The student chooses four courses from the following list:

Code No.	Course Title	No. of Units	Pre-requisite
Phys 4190	Nanophysics	3 (3, 1, 0)	Phys 3710
Phys 4220	Statistical Physics (2)	3 (3, 1, 0)	Phys 3420
Phys 4230	Plasma Physics	3 (3, 1, 0)	Phys 2430
Phys 4320	Experimental Physics	3 (3, 1, 0)	Phys 3710
Phys 4330	Digital Electronics	3 (3, 1, 0)	Phys 4240
Phys 4350	Laser Physics And Its Applications	3 (3, 1, 0)	Phys 3760
Phys 4360	Radiation Physics	3 (3, 1, 0)	Phys 4340
Phys 4720	Solid Stat Physics (2)	3 (3, 1, 0)	Phys 3710
Phys 4740	Material Science	3 (3, 1, 0)	Phys 3710
Phys 4750	Solar Energy Physics	3 (3, 1, 0)	Phys 3710
Phys 4810	Non-Crystalline Materials	3 (3, 1, 0)	Phys 3710
Phys 4820	Introduction To Astronomy	3 (3, 1, 0)	Phys 3150
Phys 4080	Biophysics	3 (3, 0, 0)	Phys 2430
Phys 4081	Medical Physics	3 (3, 0, 0)	Phys 2430

- **Elective External Course (outside Physics department) one from these courses: (2 credit units)**

The student chooses one course from the following two courses:

Code No.	Course Title	No. of Units	Pre-requisite
Chem 2170	Principles of inorganic chemistry	2 (2, 0, 0)	Chem 2010
Chem 2470	Principles of Organic Chemistry	2 (2, 0, 0)	Chem 2010

- **Free course: (6 credit units)**

The student can choose two or more courses with a total of 6 credit units to develop his ambition or skills. These courses can be from outside the college or within the college, provided that the previous requirement is met.