

BSc in Physics – Curriculum Chart

Term 1

	Courses	Credits	Code	Prerequisites
1	General Mathematics (1)	۳	۳۸۱۳.۰۳	
2	Basic Physics (1)	۳	۳۸۱۵.۰۱۵	
3	General Chemistry (1)	۳	۳۸۱۷.۰۶۶	
4	General Chemistry (1) Lab	۱	۳۸۱۷.۰۸۰	General Chemistry (1)
5	<i>General Courses of Islamic Teachings (1)</i>	۲	-	
6	General English	۳	۳۸۱۹.۰۰۷	
7	General Persian	۳	۳۸۱۶.۰۰۸	
Total Credits		18		

Term 2

	Courses	Credits	Code	Prerequisites
8	General Mathematics (2)	۳	۳۸۱۳.۰۰۴	General Mathematics (1)
9	Differential Equations	۳	۳۸۱۳.۰۰۹	General Mathematics (1)
10	Basic Physics (2)	۳	۳۸۱۵.۰۱۶	Basic Physics (1)
11	Basic Physics (3)	۳	۳۸۱۵.۰۱۷	Basic Physics (1)
12	Computer Programming	۳	۳۸۱۵.۰۱۸	-
13	Basic Physics (1) Lab	۱	۳۸۱۵.۰۲۰	Basic Physics (1)
14	Physical Education (1)	۱	۲۲۱.۰۰۰۱	-
Total Credits		17		

Term 3

	Courses	Credits	Code	Prerequisites
15	Analytical Mechanics (1)	۳	۲۰۲۲.۰۶۳	Basic Physics / Differential Equations
16	Mathematical Physics (1)	۳	۲۰۲۲.۰۶۵	General Mathematics (2) / Differential Equations
17	Basic Physics (4)	۳	۳۸۱۵.۰۱۹	Basic Physics (2)
18	Basic Physics (2) Lab	۱	۳۸۱۵.۰۲۱	Basic Physics (2)
19	Basic Physics (3) Lab	۱	۳۸۱۵.۰۱۳	Basic Physics (3)
20	Machine Tool Workshop	۱	۳۸۱۵.۰۲۳	-
21	<i>Elective Course-1</i>	۳	-	-
22	Electrotechnics Workshop	1	۳۸۱۵.۰۲۴	-
23	Physical Education (2)	1	۲۲۱.۰۰۰۲	Physical Education (1)
Total Credits		17		

Term 4

	Courses	Credits	Code	Prerequisites
24	Analytical Mechanics (2)	3	2.221.01	Analytical Mechanics (1)
25	Mathematical Physics (2)	3	2.22.088	Mathematical Physics (1)
26	Thermodynamics and Statistical Mechanics (1)	3	2.22182	Basic Physics (3)
27	Basic Physics (4) Lab	2	3815.22	Basic Physics (4)
28	<i>Elective Course-2</i>	3	-	
29	<i>General Courses of Islamic Teachings-2</i>	2	-	
30	Knowledge of Family and Population	2	3818.07	
Total Credits		18		

Term 5

	Courses	Credits	Code	Prerequisites
31	Electromagnetism (1)	3	2.22.23	Basic Physics (2) / Mathematical Physics (1)
32	Quantum Mechanics (1)	3	2.22118	Basic Physics (4) / Mathematical Physics (1)
33	Thermodynamics and Statistical Mechanics (2)	3	2.22183	Thermodynamics and Statistical Mechanics (1)
34	<i>Elective Course-3</i>	3		
35	<i>Elective Course-4</i>	3		
36	<i>General Courses of Islamic Teachings -3</i>	2		
Total Credits		17		

Term 6

	Courses	Credits	Code	Prerequisites
37	Electromagnetism (2)	3	2.22.46	Electromagnetism (1)
38	Quantum Mechanics (2)	3	2.22135	Quantum Mechanics (1)
39	Solid-State Physics (1)	3	2.22.72	Thermodynamics and Statistical Mechanics (1) / Quantum Mechanics (1)
40	Astronomy and Astrophysics	3	2.22148	Basic Physics (4)
41	<i>Elective Course-5</i>	3		
42	<i>General Courses of Islamic Teachings-4</i>	2		
Total Credits		17		

Term 7

	Courses	Credits	Code	Prerequisites
43	Optics	۳	۲۰۲۲۱۱۵	Basic Physics (3) / Electromagnetism (2)
44	Nuclear Physics and Elementary Particles	۳	۲۰۲۲۱۴۹	Quantum Mechanics (1)
45	Solid-State Physics (1) Lab	۲	۲۰۲۲۵۱۱	Solid-State Physics (1)
46	<i>Elective Course-6</i>	۳		
47	<i>Elective Course-7</i>	۳		
48	<i>General Courses of Islamic Teachings-5</i>	۲		
49	<i>General Courses of Islamic Teachings-6</i>	۲		
	Total Credits	18		

Term 8

	Courses	Credits	Code	Prerequisites
50	Optics Lab	۲	2022156	Optics
51	Elective Course-8	۳		
52	Elective Course-9	۳		
53	Elective Course-10	۳		
54	Elective Course-11	۳		
	Total Credits	14		

Students could take 33 credits from the courses of the following table, provided that they are offered by the department. These courses are chosen under the guidance of the students' supervisors to prepare them for specific subfield the students choose to minor in.

Minor in Optics and Laser: from 1 to 9

Minor in Condensed Matter: from 10 to 19

Minor in Nuclear: from 20 to 29

Minor in Elementary Particles and Quantum Field Theory: from 30 to 35

Minor in Meteorology: from 36-39

	Course	Credits	Minor
1	Atomic and Molecular Physics	3	Optics and Laser
2	Laser Physics	3	Optics and Laser
3	Introduction to the Laser Applications	3	Optics and Laser
4	Laser Lab	3	Optics and Laser
5	Spectroscopy	3	Optics and Laser
6	Plasma Physics	3	Optics and Laser
7	Fundamentals of Optical Systems Design	3	Optics and Laser
8	Optoelectronics	3	Optics and Laser
9	Light Sources and Detectors	3	Optics and Laser
10	Crystallography	3	Condensed Matter
11	Thin Film Physics	3	Condensed Matter
12	Physics of Semiconductors	3	Condensed Matter
13	Solid-State Physics (2)	3	Condensed Matter
14	Solid-State Physics (2) Lab	2	Condensed Matter
15	Fundamentals of Nano-Physics	3	Condensed Matter
16	Superconductivity and Applications	3	Condensed Matter
17	Physical Properties of Materials	3	Condensed Matter
18	Magnetic Materials	3	Condensed Matter
19	Physics of Ceramics	3	Condensed Matter
20	Nuclear Physics (1)	3	Nuclear
21	Nuclear Physics (2)	3	Nuclear
22	Particle Accelerators and Optics of Ion Beams	3	Nuclear
23	Nuclear Reactor Physics (1)	3	Nuclear
24	Nuclear Reactor Physics (2)	3	Nuclear
25	Ray Measurement and Detection	3	Nuclear
26	Nuclear Physics Lab	2	Nuclear
27	Radioisotopes and Applications	3	Nuclear
28	Radioisotopes Lab	1	Nuclear
29	Health Physics and Protection against Rays	3	Nuclear
30	Elementary Particles	3	Elementary Particles and Quantum Field Theory
31	Symmetry and Group Theory	3	Elementary Particles and Quantum Field Theory
32	Theory of Relativity	3	Elementary Particles and Quantum Field Theory
33	Gravity	3	Elementary Particles and Quantum Field Theory
34	The Structure And Evolution Of Stars	3	Elementary Particles and Quantum Field Theory
35	Cosmology	3	Elementary Particles and Quantum Field Theory

36	General Meteorology	3	Meteorology
37	Climatology	3	Meteorology
38	Fundamentals of Dynamic Meteorology	3	Meteorology
39	Numerical Weather Prediction	3	Meteorology

General Courses

Course	Code	Credits
General Persian	۳۸۱۶۰۰۸	۳
General Chemistry (2) Lab	۳۸۱۶۰۸۱	۱
General Chemistry (1)	۳۸۱۷۰۶۶	۳
General Chemistry (2)	۳۸۱۷۰۶۷	۳
General Chemistry (1) Lab	۳۸۱۷۰۸۰	۱
Islamic Thought (1)	۳۸۱۸۰۰۱	۲
Islamic Thought (2)	۳۸۱۸۰۰۲	۲
Thematic Commentary of the Holy Quran	۳۸۱۸۰۰۳	۲
Analytical History of the Early Islam	۳۸۱۸۰۰۴	۲
Islamic Revolutions and its Roots	۳۸۱۸۰۰۵	۲
Islamic Ethics	۳۸۱۸۰۰۶	۲
Knowledge of Family and Population	۳۸۱۸۰۰۷	۱
English Language	۳۸۱۹۰۰۷	۳
Physical Education (2)	۲۲۱۰۰۰۱	۱
Physical Education (2)	۲۲۱۰۰۰۲	۱
General Mathematics (1)	۳۸۱۳۰۰۳	۳
General Mathematics (2)	۳۸۱۳۰۰۴	۳
Differential Equations	۳۸۱۳۰۰۹	۳
Student Life Skills	۳۸۱۶۰۹۳	۲