

LAYOUT FOR BS (4-YEARS) PHYSICS

Compulsory			General			Foundation	
9 Courses	25-25 Cr. Hr		7-8 Courses	21-24 Cr. Hr.		9-10 Courses	30-33 Cr. Hr.
Subject	Remarks	Cr.Hr	Subject	Remarks	Cr.Hr	Subject	Cr.Hr
Communication Skills	English i	3	Humanities I	GOF I	3	Physics I – Basic Mechanics	3
Technical Writing	English ii	3	Principles of Chemistry	GRF I	3	Physics II – Electricity and Magnetism	3
Technical English	English iii	3	Ordinary Differential Equations	Math iii	3	Heat and Thermodynamics	3
						Waves and Oscillation	3
Self Development	English iv	3	Humanities II	GOF II	3	Modern Physics	3
Pakistan Studies	comp	2	Humanities III	GOF III	3	Optics	3
Islamic Studies	comp	2	Introductory Biology	GRF II	3	Quantum Mechanics I	3
						Electrodynamics	3
Calculus I	Math i	3	Numerical Analysis and Computation	Math iv	3	Classical Mechanics	3
Multivariable Calculus	Math ii	3				Lab I (Mechanics)	1
						Lab II (Electricity & Magnetism)	1
Elementary Computer Prog.	Comp	4	Electric Circuit Analysis	GOF IV	3	LAB III (Electronics, Waves, Heat and Thermodynamics)	2
Total	9	26	Total	8	24	Total = 10	31

Core Courses			Electives			Compulsory Courses = 09 General Courses = 08 Foundation Courses = 10 Major Core Courses = 13 Elective Courses = 04 Labs = 05 Final year project = 01
11-13 Courses	36-42 Cr. Hr.		4 Courses	12-12 Cr. Hr.		
Subject	Cr. Hr	Subject	Cr.hr			
Methods of Mathematical Physics	3	Elective I	3			
Electromagnetic and Relativity Theory	3	Elective II	3			
Physical Electronics	3	Elective III	3			
Methods of Mathematical and Computational Physics	3	Elective IV	3			
Quantum Mechanics II	3					
Solid State Physics I	3					
Solid State Physics II	3					
Statistical Mechanics	3					
Atomic & Molecular Physics	3					
Nuclear Physics	3					
LAB IV	2					
LAB V	2					
Project	6					
Total	13	40	Total	4	12	

AIR UNIVERSITY
Faculty of Basic and Applied Sciences

Scheme of Studies for BS (4-Year) Program in Physics

SEMESTER - I

Course Code	Course Title	Cr.Hrs	Remarks
PH-107	Physics I – Basic Mechanics	3-1-4	Found-1
MA-101	Calculus I	3-0-3	Comp-1 (Math-1)
HU-101	Communication Skills	3-0-3	Comp-2 (English-i)
HU-118	Islamic Studies	2-0-2	Comp-3
CS-160	Elementary Computer Programming	3-1-4	Comp-4

SEMESTER – II

Course Code	Course Title	Cr.Hrs	Remarks
PH-108	Physics II – Electricity and Magnetism	3-1-4	Found-2
MA-105	Multivariable Calculus	3-0-3	Comp-5 (Math-2)
HU-115	Pakistan Studies	2-0-2	Comp-6
HU-104	Technical Writing	3-0-3	Comp-7 (English-ii)
CH-100	Principles of Chemistry	3-0-3	General-1 (GRF-1)
HU-xxx	Humanities I	3-0-3	General-2 (GOF-1)

SEMESTER - III

Course Code	Course Title	Cr.Hrs	Remarks
PH-201	Heat and Thermodynamics	3-0-3	Found-3
PH-202	Waves and Oscillation	3-0-3	Found-4
PH-203	Modern Physics	3-0-3	Found-5
HU-105	Technical English	3-0-3	Comp-8 (English-iii)
MA-106	Ordinary Differential Equations	3-0-3	General-3 (Math-3)
BIO-101	Introductory Biology	3-0-3	General-4 (GRF-2)

SEMESTER - IV

Course Code	Course Title	Cr.Hrs	Remarks
PH-204	Optics	3-0-3	Found-6
PH-205	Electrodynamics	3-0-3	Found-7
PH-206	Lab I	0-2-2	Found-8
PH-207	Physical Electronics	3-0-3	Maj-1
BA-160	Self Development	3-0-3	Comp-9 (English-iv)
MA-202	Numerical Analysis and Computation	3-0-3	General-5 (Math-4)

SEMESTER - V

Course Code	Course Title	Cr. Hrs	Remarks
PH-301	Classical Mechanics	3-0-3	Found-9
PH-302	Electromagnetic and Relativity Theory	3-0-3	Maj-2
PH-304	Lab - II	0-2-2	Maj-3
PH-303	Methods of Mathematical Physics	3-0-3	Maj-4
EE-102	Electric Circuit Analysis	3-0-3	General-7 (GOF-2)
HU-xxx	Humanities II	3-0-3	General-8 (GOF-3)

SEMESTER – VI

Course Code	Course Title	Cr. Hrs	Remarks
PH-306	Methods of Mathematical and Computational Physics	3-0-3	Maj-5
PH-305	Quantum Mechanics I	3-0-3	Found-10
PH-307	Solid State Physics I	3-0-3	Maj-6
HU-xxx	Humanities III	3-0-3	General-8 (GOF-4)
PH-308	Nuclear Physics	3-0-3	Maj-7
PH-310	Lab-III	0-2-2	Maj-8

SEMESTER – VII

Course Code	Course Title	Cr. Hrs	Remarks
PH-401	Quantum Mechanics II	3-0-3	Maj-9
PH-402	Solid State Physics II	3-0-3	Maj-10
PH-4xx	Elective – I	3-0-3	Elec-1
PH-4xx	Elective – II	3-0-3	Elec-2
PH-498	Final Year Project	3-0-3	Maj. 11

SEMESTER - VIII

Course Code	Course Title	Cr. Hrs	Remarks
PH-403	Statistical Mechanics	3-0-3	Maj-12
PH-404	Atomic & Molecular Physics	3-0-3	Maj-13
PH-4xx	Elective - III	3-0-3	Elec-3
PH-4xx	Elective - IV	3-0-3	Elec-4
PH-499	Final Year Project	3-0-3	Maj. 11

