



Program Name: **B.Sc. (Physics)**

Major in Physics

4 years Program following NEP Guidelines

Program Code: **PHY3403**

Offered by Department of Physics, School of Basic and Applied Sciences, Adamas University

Duration: 4 Years

Academic Year: 2024-25

SCHOOL OF BASIC AND APPLIED SCIENCES								
UNDERGRAGUATE COURSE STRUCTURE								
B.Sc. (Physics) (4 year program)								
SEMESTER I								
S.No	Type of Course	Code	Title of the Course	Contact Hours Per Week				Remarks
				L	T	P	C	
1	CC	PHY100	Mathematical Methods I	3	0	1	4	CC-1
2	CC	PHY101	Mechanics and Waves	3	0	1	4	CC-2
3	MDC	PHY182/MTH105/BEG109/CSE109	Basics of Geophysics/ C Programming/Script Writing in Bengali/Python Programming	3	0	0	3	
4	AEC	AEC101	Communicative English - I	3	0	0	3	
5	Minor	MTH175/CSE102 + CSE104	Mathematics I/ Open Source Software + Open Source Software Lab	3	0	1	4	
6	VAC	VAC101	Environmental Education - I	2	0	0	2	
Semester Credits							20	
SEMESTER II								
7	CC	PHY102	Electromagnetic Theory I	3	0	1	4	CC-3
8	CC	PHY103	Thermal Physics	3	0	1	4	CC-4
9	MDC	BIT106/PHY183/BEG117/ENG109/CSE110	Astrobiology/ Introduction to Nuclear Engineering/ Storytelling in Bengali/ Editing and Publishing: An Introduction/ Database Management System	2 Or 3	0 Or 0	1 OR 0	3	
10	SEC	SEC122	Introduction to Scientific Analysis and Documentation Skills	1	0	1	2	
11	VAC	VAC105	Community Engagement and Social Responsibility	1	0	1	2	
12	AEC	AEC102	Communicative English-II	3	0	0	3	

13	Minor		Full Stack Development (CSE106) & Full Stack Development Lab (CSE108)/ Mathematics II (MTH176)	3 0 3	0 0 1	0 1 0	4	
Semester Credits							22	
SEMESTER III								
14	CC	PHY200	Mathematical Methods II	3	0	1	4	CC-5
15	CC	PHY201	Electronics I	3	0	1	4	CC-6
16	MDC	BEG209/ ENG203/ CSE212/ MGT211	Bengali Grammar/ Language and Society/ OOP with Java/ Creativity and Innovation				3	
17	Minor	MTH275 / (CSE 202 + CSE 204)	Mathematical Analysis/ Business Intelligence + Business Intelligence Lab				4	
18	AEC	AEC106	Professional Communication Skills				2	
19	SEC	SEC168/ SEC177/ SEC 175	Website Development/ MS-Excel for Data Analysis & Power Point/ Personality Development and Communication				2	
20	VAC	VAC102	Human Values and Ethics				2	
Semester Credits							21	
SEMESTER IV								
21	CC	PHY202	Quantum Mechanics	4	0	0	4	CC-7
22	CC	PHY203	Electronics II	3	0	1	4	CC-8
23	CC	PHY204	Analytical Mechanics and Special Theory of Relativity	4	0	0	4	CC-9
24	SEC						2	

25	Minor						4	
26	VAC						2	
Semester Credits							20	
SEMESTER V								
27	CC	PHY300	Electromagnetic Theory II	3	0	1	4	CC-10
28	CC	PHY301	Statistical Mechanics	4	0	0	4	CC-11
29	CC	PHY302	Advanced Quantum Mechanics	4	0	0	4	CC-12
30	Minor			3	1	0	4	
31	SEC						2	
31	INT	PHY340	Internship				4	
Semester Credits							22	
SEMESTER VI								
32	CC	PHY303	Numerical Methods and Simulations in Physics	1	0	3	4	CC-13
33	CC	PHY304	Solid State Physics	3	0	1	4	CC-14
34	CC	PHY305	Nuclear and Particle Physics	3	0	1	4	CC-15
35	Minor						4	
36	SEC						2	
37	Project	PHY341					4	
Semester Credits							22	

Total Credits of the Program after 3rd Year							127	
SEMESTER VII								
38	CC	PHY400	Advanced Statistical Mechanics	4	0	0	4	CC-16
39	CC	PHY401/ PHY402/ PHY403/ PHY404/ PHY405	Introduction to Astronomy and Astrophysics*/ Nanomaterials and Fabrication Technology/ Guided Wave Optics/ Properties of Solids I/ Physics for Medicine	3	0	1	4	CC-17
40	CC	PHY406/ PHY407/ PHY408/ PHY409/ PHY410/	Introduction to Cosmology/ Nanoelectronics and Nanophotonics/ Nonlinear Optics and Bio-Photonics/ Introduction to Material Science/ Biomedical Instrumentation	3	0	1	4	CC-18
41	CC (For With research)	PHY440	Research Methodology	3	0	1	4	CC-19 (With Research)
42	CC (For Without research)	PHY441/	Machine Learning and Data Analytics	1	0	3	4	CC-19(without Research)
43	Minor						4	
Total Semester Credit							20	
Semester VIII								

44	CC	PHY411/ PHY412/ PHY413/ PHY414/ PHY415/	Introduction to General Theory of Relativity* OR Computational Astrophysics/ Quantum Transport*/ LASER and Optoelectronic Devices/ Properties of Solids II/ Medical Imaging and Image Processing	3	0	1	4	CC-20
45	Minor						4	
45	CC (For Without research)	PHY442/	X Ray Crystallography and related techniques	3	0	1	4	CC-21 (without Research)
46	CC (For Without Research)	PHY443/ PHY444	Introduction to Vacuum Technology and its Applications OR Solar Energy and its Applications	3	0	1	4	CC-22(without Research)
47	Minor (For without research)						4	
49	Dissertation (For With Reserach)	PHY499	Project/Dissertation	12	0	0	12	
Total Semester Credit							20	
Total Credits of the Program after 4th Year							167	

*NOTE: With research is only allowed for Students *who secure 75% marks and above in the first six semesters*