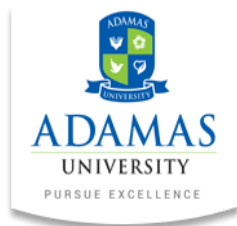




AU/SOBAS/PHY/BSPHY/2022-23/A



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

Program Code: **PHY3303**

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

Duration: 3 Years

Academic Year: 2022-23

The **B.Sc. (Hons) Physics** program is open to students with 10+2 passed in Science with Physics and Mathematics as compulsory papers. There is a variety of Core-courses that emphasize the fundamentals while keeping in mind the evolving nature of the subject. A strong laboratory component allows the students to explore a range of experiments from classic ones to those that are more recent and advanced. A platter of advanced discipline specific elective offer a glimpse into frontier areas of research and allow students to choose a field of specialization for higher study and socially as well as globally relevant foundation courses will help them to become more competent and confident in their professional career.

Department of Physics is following the UGC recommended CBCS curriculum from 2016-17 AY. In addition to that a few courses have been added to make the overall teaching learning experience comprehensive and updated. The type of the courses are as follows-

- Core Theory courses
- Core Lab based courses
- Discipline Specific Elective courses
- Discipline specific Lab based courses
- Generic Elective Theory courses
- Generic Elective Lab based courses
- Ability Enhancement compulsory courses
- Skill enhancement elective course
- Value added foundation courses
- Internship

Distribution of Courses Semester-wise:

1st Year

Semester – I					
Type of Course	Paper Name	Paper Code	No of Papers	Credit	L-T-P
<i>Core (Theory) Course</i>	MATHEMATICAL PHYSICS I	PHY11001	1	4	4-0-0
	MECHANICS	PHY11002	1	4	4-0-0
<i>Core (Lab) Course</i>	MATHEMATICAL PHYSICS LAB I	PHY12003	1	2	0-0-4
	MECHANICS LAB	PHY12004	1	2	0-0-4
<i>Generic Elective (Theory) Course</i>	ELECTIVE MATHEMATICS I* / ELECTIVE CHEMISTRY I/ ELECTIVE COMPUTER SCIENCE I/ ELECTIVE ZOOLOGY I/ ELECTIVE STATISTICS I* / ELECTIVE BOTANY I	MTH11508/ CHM11151/ CSE11641/ ZOL11001/ SDS11506/ BOT11001	1	6 [*] /4	5-1-0
<i>Generic Elective (Lab) Course</i>	ELECTIVE CHEMISTRY LAB I// ELECTIVE COMPUTER SCIENCE LAB I/ ELECTIVE ZOOLOGY LAB I/ ELECTIVE BOTANY LAB I	CHM12152/ CSE12642/ ZOL12002/ BOT12002	1	2	0-0-4
<i>Foundation (Ability Enhancement Compulsory Course)</i>	ENGLISH LANGUAGE AND LITERATURE	ENG11057	1	2	2-0-0
<i>Value Added Foundation Course</i>	DESIGN THINKING	DGS11001	1	2	2-0-0
Total			7/8	22	

* Elective Mathematics/Statistics is a Non-Lab based course, hence the distribution of credits are 5-1-0 (L-T-P)

Semester – II					
Type of Course	Paper Name	Paper Code	No of Papers	Credit	L-T-P
<i>Core (Theory) Course</i>	MATHEMATICAL PHYSICS II	PHY11005	1	4	4-0-0
	WAVE AND OPTICS	PHY11006	1	4	4-0-0
<i>Core (Lab) Course</i>	MATHEMATICAL PHYSICS LAB II	PHY12007	1	2	0-0-4
	WAVE AND OPTICS LAB	PHY12008	1	2	0-0-4
<i>Generic Elective (Theory) Course</i>	ELECTIVE MATHEMATICS II* / ELECTIVE CHEMISTRY II/ ELECTIVE COMPUTER SCIENCE II/ ELECTIVE ZOOLOGY II/ ELECTIVE STATISTICS II* / ELECTIVE BOTANY II	MTH11509/ CHM11153/ CSE11643/ ZOL11003/ SDS11507/ BOT11003	1	6 [*] /4	5-1-0
<i>Generic Elective (Lab) Course</i>	ELECTIVE CHEMISTRY LAB II// ELECTIVE COMPUTER SCIENCE LAB II/ ELECTIVE ZOOLOGY LAB II/ ELECTIVE BOTANY LAB II	CHM12154/ CSE12644/ ZOL12003/ BOT12003	1	2	0-0-4
<i>Foundation (Ability Enhancement Compulsory Course)</i>	ENVIRONMENTAL SCIENCE	EVS11112	1	2	2-0-0
<i>Value Added Foundation Course</i>	VENTURE IDEATION	EIC11001	1	2	
Total			7 / 8	22	

* Elective Mathematics/Statistics is a Non-Lab based course, hence the distribution of credits are 5-1-0 (L-T-P)

2nd Year

Semester – III

Type of Course	Paper Name	Paper Code	No of Papers	Credit	L-T-P
<i>Core (Theory)</i>	ELECTRICITY AND MAGNETISM I	PHY11009	1	4	4-0-0
	THERMAL PHYSICS	PHY11010	1	4	4-0-0
	ELECTRONICS I	PHY11011	1	4	4-0-0
<i>Core (Lab)</i>	ELECTRICITY AND MAGNETISM LAB I	PHY12012	1	2	0-0-4
	THERMAL PHYSICS LAB	PHY12013	1	2	0-0-4
	ELECTRONICS LAB I	PHY12014	1	2	0-0-4
<i>Generic Elective (Theory)</i>	ELECTIVE CHEMISTRY I/ ELECTIVE COMPUTER SCIENCE I/ ELECTIVE ZOOLOGY I/ ELECTIVE STATISTICS I*/ ELECTIVE BOTANY I	CHM11151/ CSE11641/ ZOL11001/ SDS11506/ BOT11001	1	4	4-0-0
<i>Generic Elective (Lab)</i>	ELECTIVE CHEMISTRY LAB I// ELECTIVE COMPUTER SCIENCE LAB I/ ELECTIVE ZOOLOGY LAB I/ ELECTIVE BOTANY LAB I	CHM12152/ CSE12642/ ZOL12002/ BOT12002	1	2	0-0-4
<i>Foundation (Skill Enhancement Compulsory Course)</i>	COMPUTATIONAL SKILLS / BASIC INSTRUMENTATION SKILLS / WEATHER FORECASTING / RADIATION SAFETY TECHNIQUES	PHY11061 /PHY11026/ GEO11019/ MEE12320/ PHY11055	1	2	2-0-0
<i>Value Added Course</i>	INTER DISCIPLINARY PROJECT	IDP14001	1	3	2-0-0
<i>Value Added Course</i>	COMMUNITY SERVICE	SOC14100	1	1	
Total			11	30	

Semester – IV

Type of Course	Paper Name	Paper Name	No of Papers	Credit	L-T-P
<i>Core (Theory)</i>	ELECTRICITY AND MAGNETISM II	PHY11018	1	4	4-0-0
	ELEMENTS OF MODERN PHYSICS	PHY11019	1	4	4-0-0
	ELECTRONICS II	PHY11020	1	4	4-0-0
<i>Core (Lab)</i>	ELECTRICITY AND MAGNETISM LAB II	PHY12021	1	2	0-0-4
	MODERN PHYSICS LAB	PHY12022	1	2	0-0-4
	ELECTRONICS LAB II	PHY12023	1	2	0-0-4
<i>Generic Elective (Theory)</i>	ELECTIVE CHEMISTRY II/ ELECTIVE COMPUTER SCIENCE II/ ELECTIVE ZOOLOGY II/ ELECTIVE STATISTICS II*/ ELECTIVE BOTANY II	CHM11153/ CSE11643/ ZOL11003/ SDS11507/ BOT11003	1	6*/ 4	5-1-0*/ 4-0-0
<i>Generic Elective (Lab)</i>	ELECTIVE CHEMISTRY LAB II// ELECTIVE COMPUTER SCIENCE LAB II/ ELECTIVE ZOOLOGY LAB II/ ELECTIVE BOTANY LAB II	CHM12154/ CSE12644/ ZOL12003/ BOT12003	1	2	0-0-4
<i>Foundation (Skill Enhancement Compulsory Course)</i>	COMPUTATIONAL SKILLS / BASIC INSTRUMENTATION SKILLS / WEATHER FORECASTING / RADIATION SAFETY TECHNIQUES	PHY11061 /PHY11026/ GEO11019/ MEE12320/ PHY11055	1	2	2-0-0
<i>Value Added Course</i>	HUMAN VALUES AND PROFESSIONAL ETHICS	PSG11021	1	2	2-0-0
Total			10	28	

3rd Year

Semester – V					
Type of Course	Paper Name	Paper Name	No of Papers	Credit	L-T-P
Core (Theory)	QUANTUM MECHANICS AND APPLICATIONS	PHY11027	1	4	4-0-0
	STATISTICAL MECHANICS	PHY11028	1	4	4-0-0
Core (Lab)	QUANTUM MECHANICS LAB	PHY12029	1	2	0-0-4
	STATISTICAL MECHANICS LAB	PHY12030	1	2	0-0-4
Discipline Specific Elective	EXPERIMENTAL TECHNIQUES/ EMBEDDED SYSTEMS- INTRODUCTION TO MICROCONTROLLER/ PHYSICS OF DEVICES AND INSTRUMENTATION/MEDICAL ELECTRONICS	PHY11031/ PHY11032/ PHY11033/PHY11056	1	4	4-0-0
	EXPERIMENTAL TECHNIQUES LAB/ MICROCONTROLLER LAB/DEVICES AND INSTRUMENTATION LAB//MEDICAL ELECTRONICS LAB	PHY12034/ PHY12035/ PHY12036/PHY12057	1	2	0-0-4
Discipline Specific Elective	ADVANCED MATHEMATICAL PHYSICS/ MACHINE LEARNING AND DATA ANALYTICS/ APPLIED DYNAMICS	PHY11037/ PHY11058/ PHY11039	1	4	5-1-0/ 4-0-0
	ADVANCED MATHEMATICAL PHYSICS LAB/ MACHINE LEARNING AND DATA ANALYTICS LAB/ APPLIED DYNAMICS LAB	PHY12040/ PHY12059/PHY12041	1	2	0-0-4
	INDUSTRY INTERNSHIP	PHY14042	1	2	
Total			9	26	

Semester – VI

Type of Course	Paper Name	Paper Name	No of Papers	Credit	L-T-P
<i>Core (Theory)</i>	ANALYTICAL MECHANICS AND SPECIAL THEORY OF RELATIVITY*	PHY11060	1	6	5-1-0
	SOLID STATE PHYSICS	PHY11044	1	4	4-0-0
	SOLID STATE PHYSICS LAB	PHY12046	1	2	0-0-4
<i>Discipline Specific Elective</i>	NUCLEAR AND PARTICLE PHYSICS*/ ASTROPHYSICS*/ ATMOSPHERIC PHYSICS/ NANO-MATERIALS AND APPLICATIONS	PHY11047/ PHY11048/ PHY11049/ PHY11050	1	6*/ 4	5-1-0/ 4-0-0
	ATMOSPHERIC PHYSICS LAB/ NANO MATERIALS AND APPLICATIONS LAB	PHY12051/PHY12052	1	2	0-0-2
<i>Compulsory</i>	DISSERTATION	PHY15053	1	8	
Total			6	26	

*Purely Theoretical papers with 6 credits

$$\text{Total Credit: } 22 + 22 + 30 + 28 + 26 + 26 = 154$$