Bsc. (Hon's) In Physics - Degree Content

Semester -1 (Year – 1)

1. Fundamentals of electronics
2. Mathematics for biological science students
3. Mechanics and properties of matter
4. Electricity and magnetism
5. Waves and Vibrations
6. Practical (Elementary – Physics) -1
7. Structure and properties of matter (Chemistry)
8. Organic Chemistry - 1
9. Concepts in inorganic chemistry
10. Main group and transition elements
11. Chemistry Practical - 1
12. Fundamentals of Polymer Physics
13. Fundamentals of Polymer Chemistry

Semester – 2 (Year – 1)

14. Applied Electricity & Basic Electronics
15. Thermodynamics
16. Practicals (Elementary – Physics) - 2
17. Chemical Thermodynamics
18. Organic Chemistry - 2
19. Introduction to Analytical Chemistry & Nuclear Chemistry
20. Chemistry Practical - 2
21. Polymer Degradation

22. Polymer Materials

Semester - 1 (Year 2)

23. Optics - 1
24. Analog and digital electronics
25. Optics Practicals - 1
26. Electronics Practicals - 1
27. Chemistry of Heterocyclic and Bioorganic Compounds
28. Phase equilibria and surface chemistry
29. Quantum Chemistry - 1
30. Concepts in Inorganic Chemistry - 2
31. Chemistry Practicals - 3
32. Polymer Thermodynamics
33. Polymer Characterization
34. Polymer Technology

Semester – 2 (Year – 2)

35. Statistical Physics - 1
36. Mathematical Physics - 1
37. Special Theory of Relativity
38. Atomic & Nuclear Physics - 1
39. Optics Practicals - 2
40. Electronics Practicals - 2
41. Chemistry of coordination compounds
42. Organic Spectroscopy

43. Electrochemistry

44. Chemical Kinetics

45. Chemistry Practicals 4

46. Polymer Viscoelasticity & Rheology

47. Polymer Kinetics

48. Polymer Processing & Product Testing

Green Colour – Physics Courses

Blue Colour – Chemistry courses

Pink colour – Polymer science and technology courses

B.Sc. (Honors) Degree Course Units

PART I
Semester I

PHY 301 1.0	Electromagnetic Theory I	c
PHY 302 1.0	Quantum Mechanics I	c
PHY 303 1.0	Computational tools of Physics	o
PHY 305 1.0	Geophysics I	c
PHY 306 1.0	Solid State Physics I	c
PHY 351 2.0	Mathematical Physics II	c
PHY 353 2.0	Optics II	o
PHY 358 2.0	Nuclear Physics II	c
PHY 359 2.0	Telecommunication	c
PHY 361 2.0	Seminar	c
PHY 307 1.0	Practical (Applied) -Semester I&II	a
PHY 308 1.0	Practical (Computational)-Semester I&II	a
PHY 355 4.0	Practical (Advanced)-Semester I&II	a

Semester II

PHY 309 1.0	Introduction to Microprocessors	c
PHY 310 1.0	Space Physics	s
PHY 311 1.0	Computer Hardware & Networking	c
PHY 312 1.0	Industrial Physics	s
PHY 313 1.0	Physics and Environment	s
PHY 314 1.0	Astronomy	o
PHY 315 1.0	Metrology	o
PHY 316 1.0	Paradigms of Physics and Sustainability	s
PHY 317 1.0	Reflection Seismology	o
PHY 318 1.0	Nanophysics I	o
PHY 319 1.0	Physics Education	o
PHY 320 1.0	Applied Optics	o
PHY 321 1.0	Medical Physics	o
PHY 322 1.0	Biophysics	o

Course Type

-a-
Compulsory

-c-
Core

-n-
Optional for those not doing Physics

-o-
Optional for those doing Physics

-s-
Optional for all students in the faculty

Course Type

-a-
Compulsory

-c-
Core

-n-
Optional for those not doing Physics

-o-
Optional for those doing Physics

-s-
Optional for all students in the faculty

PHY 323 1.0	Cosmology	o
PHY 356 2.0	Solid State Physics II	c
PHY 357 2.0	Geophysics II	c
PHY 360 2.0	Workshop Technology	c
PHY 307 1.0	Practical (Applied) -Semester I&II	a
PHY 308 1.0	Practical (Computational)-Semester I&II	a
PHY 355 4.0	Practical (Advanced)-Semester I&II	a

PART II
Semester I

PHY 452 2.0	Statistical Physics II	c
PHY 453 2.0	Microprocessor and Computer Interfacing	c
PHY 454 8.0	Project – Semester I&II	c
PHY 455 3.0	Internship	c
PHY 457 2.0	Particle Physics and Instrumentation	c
PHY 462 3.0	Classical Mechanics	c
PHY 463 1.0	Nanophysics II	o

Semester II

PHY 451 3.0	Electromagnetic Theory II	c
PHY 456 3.0	Quantum Mechanics II	c
PHY 458 2.0	Space and Atmospheric Physics	c
PHY 459 2.0	Computational Physics	c
PHY 460 1.0	Mathematical Physics III	o
PHY 454 8.0	Project – Semester I&II	c

Comments:
PHY 313 1.0: Some familiarity with Advanced Level mathematics will be essential for this course.
PHY 207 1.0: Knowledge in algebra is prerequisite for this course.
PHY 357 2.0: PHY 305 1.0 Geophysics I is prerequisite for this course.