

## Program Structure – M.Sc. Physics

### I Semester

Cat.	Course Number, Course Title	L-T-P	Credits
C	PH5XX Mathematical Physics	3-0-0-0	3
C	PH5XX Classical Mechanics	3-0-0-0	3
C	PH5XX Quantum Mechanics-I	3-0-0-0	3
C	PH5XX Electronics	3-0-0-0	3
C	PH5XX Statistical Physics	3-0-0-0	3
C	Electronics Lab	0-0-3-0	1.5
C	Condensed Matter Physics Lab	0-0-3-0	1.5
C	Hands-on	0-0-3-0	1.5
<b>Total</b>			<b>19.5</b>

### II Semester

Cat.	Course Number, Course Title	L-T-P	Credits
C	PH5XX Electrodynamics	3-0-0-0	3
C	PH5XX Condensed Matter Physics	3-0-0-0	3
C	PH5XX Physics of Atoms & Molecules	3-0-0-0	3
C	PH5XX Nuclear & Particle Physics	3-0-0-0	3
E	Program Elective-1	3-0-0-0	3
C	Atomic & Nuclear Physics Lab	0-0-3-0	1.5
C	Optics & Lasers Lab	0-0-3-0	1.5
C	Hands-on	0-0-3-0	1.5
<b>Total</b>			<b>19.5</b>

### III Semester

Cat.	Course Number, Course Title	L-T-P	Credits
E	Program Elective-2	3-0-0-0	3
E	Program Elective-3	3-0-0-0	3
E	Program Elective-4	3-0-0-0	3
E	Open Elective-1	3-0-0-0	3
C	Computational Physics Lab	0-0-3-0	1.5
C	Seminar	0-0-1-0	0.5
P	Project	0-0-0-5	5
<b>Total</b>			<b>19.0</b>

### IV Semester

Cat.	Course Number, Course Title	L-T-P	Credits
E	Program Elective-5	3-0-0-0	3
E	Program Elective-6	3-0-0-0	3
E	Open Elective-2	3-0-0-0	3
P	Project	0-0-0-10	10
<b>Total</b>			<b>19.0</b>

## **Program Electives**

### **Multidisciplinary Science and Technology**

1. Computational Physics
2. High Energy Physics and Space Science
  - Introduction to Space Science
  - GTR
  - Particle Physics
  - Neutrino Telescope
  - X-ray Astronomy
  - Cosmology
3. Nanoscience & Nanotechnology
4. Advanced Condensed Matter Physics
5. Introduction to Materials Characterization
6. Introduction to Medical Physics (Optical, radiation based, image analysis, MRI) Fundamentals of Plasma & Fusion Science
7. Introduction to Quantum Technologies
8. Laser Technologies
9. Computational Materials Science
10. Statistical methods for data analysis
11. Nonlinear Dynamics and Chaos

### **Engineering Physics**

1. Fibre Optics & Communication
2. Engineering Optics
3. Energy Harvesting Technologies
4. Solar Energy Technologies
5. Quantum Optics & Engineering
6. Cold Plasma Technologies
7. Nuclear Engineering