

## Physics

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This major aspires to impart a formal training in Physics at an intermediate level for the students. Accordingly, the proposed curriculum covers all fundamental aspects of condensed matter physics, Optics, Thermodynamics, Nuclear and particle physics. In addition to developing better understanding of the fundamentals, the students will be exposed to the societal interface of physics and the role of physics in the development of technology. It is envisaged that the students will have a broader vision and the program will permit students to shape their career as per their choice without being bound to a particular framework. A higher study in Physics (master's program), in case a student chooses, will be an effortless progression and the students will be able to compete with the best and at any institute across the globe.

Each of the theory course (3 lectures per week) is supplemented with tutorials (1 tutorial per week). The tutorials will provide students with ample opportunities for brainstorming ideas and problem solving efforts. True to the character of Physics, there will be Laboratory classes to develop experimental finesse and have hands-on experience of the implications of theory.

In the semester - III of the program, students will learn to develop mathematical tools essential to the study of Physics. The emphasis of course "Mathematics" is on applications in solving problems of interest to physicists. In addition, students will be exposed to historical developments in classical mechanics and optics, which forms the foundation of contemporary science.

In the semester - IV the students will develop their skill to solve physical problems using mathematical tools and learn the fundamental aspects of electromagnetism. In addition, they will understand and appreciate the role of inorganic, organic and physical chemistry in a broader sense.

In the semester - V the students will further enhance their mathematical skill to solve physical problems, learn Kinetic theory, Thermodynamics in conjugation with Statistical Physics. The quantum mechanics, the demand of the present technology, will be introduced.

In the concluding semester the students will be exposed to the three iconic disciplines of science and technology, namely solid state physics, electronics, and nuclear and particle physics. Moreover, they will be introduced to the more recent technological advances and the role of the three courses therein.

### SCHEME OF COURSES

#### Semester III

Sl. No	Course Name	Credit
1	Mathematics	4
2	Mechanics (Mechanics; Waves & Oscillation; Special theory of relativity)	4
3	Optics	4

4	Laboratory - I	2
	<b>Total</b>	<b>14</b>

#### Semester IV

Sl. No	Course Name	Credit
1	Chemistry (Physical, Inorganic, Organic)	4
2	Mathematical Physics	4
3	Electromagnetism	4
4	Laboratory - II	2
5	Laboratory - III	2
	<b>Total</b>	<b>16</b>

#### Semester V

Sl. No	Course Name	Credit
1	Computational Physics	4
2	Thermal Physics (Kinetic theory; Thermodynamics; Statistical Physics)	4
3	Quantum Mechanics	4
4	Laboratory - IV	2
	<b>Total</b>	<b>14</b>

#### Semester VI

Sl. No	Course Name	Credit hours
1	Solid state Physics	4
2	Electronics	4
3	Nuclear and Particle Physics	4
4	Laboratory - V	2
5	Laboratory - VI	2
	<b>Total</b>	<b>16</b>

Should a student wish to pursue a 4-year program, additional four electives (3-1-0) and a project (minimum of 12 credits) will be required.