

**St. Xavier's College,**

**Ranchi**

***(An Autonomous College of Ranchi  
University)***

**Syllabi**

**Department of Physics**

## B.SC. HONOURS COURSE IN PHYSICS

This course is a full time course. The duration is for **three years** programme leads to the award of the degree of Bachelor in Physics. (**B.Sc. Physics**) The structure of this Programme is given in the following table.

### FIRST YEAR

<b>SEMESTER I</b>	<b>THEORY</b> 1.Mathematical Methods in Physics (I) 2.General Physics	<b>Paper I</b>
	<b>THEORY</b> 1.Mathematical Methods in Physics (II) 2.Acoustics	<b>Paper II</b>
	<b>PRACTICAL</b>	Paper III
<b>SEMESTER II</b>	<b>THEORY</b> 1.Heat and Thermodynamics	<b>Paper IV</b>
	<b>THEORY</b> 1.Wave Optics	<b>Paper V</b>
	<b>PRACTICAL</b>	<b>Paper VI</b>

### SECOND YEAR

<b>SEMESTER III</b>	<b>THEORY</b> 1.Electrostatics 2.Magnetism	<b>PAPER VII</b>
	<b>THEORY</b> 1.Current Electricity	<b>PAPER VIII</b>
	<b>PRACTICAL</b>	<b>Paper IX</b>
<b>SEMESTER IV</b>	<b>THEORY</b> 1.Mathematical Methods in Physics 2.Electromagnetic Theory	<b>Paper X</b>
	<b>THEORY</b> 1.Plasma 2.Special Theory of Relativity 3.Atomic Physics	<b>Paper XI</b>
	<b>PRACTICAL</b>	<b>Paper XII</b>

### THIRD YEAR

<b>SEMESTER V</b>	<b>THEORY</b> 1.Classical Mechanics 2.Quantum Mechanics	<b>Paper XIII</b>
	<b>THEORY</b> 1.Solid State Physics 2. Statistical Physics	<b>Paper XIV</b>
	<b>THEORY</b> 1.Analog Electronics 2.Digital Electronics	<b>Paper XV</b>
	<b>PRACTICAL</b>	<b>Paper XVI</b>
<b>SEMESTER VI</b>	<b>THEORY</b> 1.Statistical Physics 2.Nuclear Physics	<b>Paper XVII</b>
	<b>THEORY</b> 1.Quantum Mechanics 2.Laser	<b>Paper XVIII</b>
	<b>THEORY</b> 1.Analog Electronics 2.Solid State Physics	<b>Paper XIX</b>
	<b>PRACTICAL</b>	<b>Paper XX</b>

### B.SC. PHYSICS (SUBSIDIARY)

<b>SEMESTER I</b>	<b>THEORY PAPER</b> 1.Mathematical physics 2.General Properties of Matter a)Elasticity b)Surface Tension c)Viscosity 1.Thermal Physics a)Measurements b)Laws of Thermodynamics c)Kinetic Theory of Gases d)Real Gases e)Radiation Physics	<b>MARKS 75</b>
	<b>LAB SESSION</b>	<b>Marks 25</b>
<b>SEMESTER II</b>	<b>THEORY PAPER</b> <b>1.ACOUSTICS</b> a)Theory of Vibrations b) Intensity and Loudness of Sound <b>1.OPTICS</b> a)Coherence b)Diffraction c)Polarization of Light d)Velocity of Light <b>1.ELECTROSTATICS</b>	<b>Marks 75</b>

	<b>LAB SESSION</b>	Marks 25
<b>SEMESTER III</b>	<b>THEORY PAPER</b>	Marks 75
	I)Magnetism II)Current Electricity a)Transients b)Alternating Current Circuit I)Classical Mechanics II)Quantum Physics	
	<b>LAB SESSION</b>	Marks 25
<b>SEMESTER IV</b>	i)Special Theory of Relativity ii)Atomic Physics iii)Nuclear Physics iv)Solid State Physics and Electronics	Marks 75
	vii) Digital Circuits	
	<b>LAB SESSION</b>	25