

Course Title	Fundamentals of Physics			Course Code	BST 12102		
Year	1	Semester	2	Credits	02	Theory (hr)	20
						Practical (hr)	20
						Independent Learning (hr)	30

Aim of the Course:

To provide knowledge on the fundamental physical principles and concepts, and expose the students to the scientific method.

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain natural physical phenomena.
- Perform simple experiments and interpret the results.
- Find solutions for problems involving physics principles.

Course Capsule:

Theory
Measurements and units; mechanics: dynamics; speed, velocity and acceleration, Newton’s laws of motion, force and energy, gravitation; Properties of matter: elasticity, Young modulus; fluids: pressure, surface tension, viscosity; heat: temperature and heat, heat capacities, heat transfer, thermometers; waves: oscillations and waves, characteristics of sound waves, light waves, velocity of waves; geometric optics: reflection and refraction of light, lenses, optical instruments; electricity and magnetism: electric charges and currents, electric fields and forces, current electricity, dc circuits, magnetic fields, forces on charges and currents in magnetic fields, motion of electrons in fields

Practical
Use of measuring instruments - vernier caliper, micrometer screw gauge; Measurement of acceleration due to gravity; Young modulus of a metal; Surface tension by capillary rise/by microscope slide; Determination of specific heat capacity of water/oil by electrical method; Velocity of sound (resonance tube experiment); Determination of refractive index of glass; focal length of lenses (plane mirror & lens formula method); Assembling optical instruments (astronomical telescope and compound microscope); Proof of Ohm’s law

Assessment:

Continuous assessment: 50%
 End semester assessment: 50%