

Course Title	Power and Energy Management			Course Code	BST 31342		
Year	3	Semester	1	Credits	02	Theory (hr)	15
						Practical (hr)	30
						Independent Learning (hr)	

**Aim of the Course:**

To provide the knowledge and skills on management of power and energy and explore the potential of renewable energy sources

**Intended Learning Outcomes:**

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

- Identify the thermal and renewable energy sources.
- Explain the principles of basic energy.
- Describe the potential thermal and renewable energy sources and management of which in terms of technical, social and economic feasibility.

**Course Capsule:**

Theory
Introduction to basic energy principles; Thermal energy resources and their uses; Introduction to renewable energy sources; Introduction to solar energy, conversion of solar energy into electricity: photovoltaic cells, solar power plants; Wind energy conversion systems; Hydro-power systems: components of a hydro-electric plant, working principle of a hydro power plant; Types of hydro-power plants, benefits and obstacles of hydro-power; Introduction to bio gasification; Bio gasification systems

Practical
Basic components of an energy unit; light meter, thermometer, volt meter, watt meter; Air flow measurement devices; Steam conversion calculations; Energy auditing; Design of non-concentrate solar heater; Design of concentrate solar heater; Design of a bio gasifiers; Field visit to a electricity generating wind turbine plant; Field visit to a solar power plant; Field visit to a dendro-thermal power plant

**Assessment:**

Continuous assessment: 50%  
 End semester assessment: 50%