

**Course Code** : ENCM 12562  
**Title** : Sustainable Utilization of Energy Resources  
**Pre-requisite** : ENCM 11522  
**Co-requisite** : None  
**Status** : Compulsory, Theory

**Learning outcomes:**

After completion of the course unit, the student will be able to;

- describe different energy resources and energy generation,
- explain global and national energy consumption patterns and impacts of excessive energy consumption,
- appreciate energy management of households and industries, and
- discuss strategies for sustainable utilization of energy.

**Course Content:**

Introduction to energy resources: wind, solar, tidal, geo-thermal, petroleum, coal, natural gas, hydro, nuclear, biogas, dendro, Energy Generation: hydropower, fossil fuels, petroleum, coal, natural gas, biogas, energy from waste, Classification of energy resources, Energy consumption patterns in the world, and in Sri Lanka, Impacts of accelerated energy consumption, Sustainable utilization of Energy: Energy management for households , and Industries, Potential of using alternative energies in Sri Lanka, Brief introduction to Energy conservation concepts and tools: ISO 9001, alternative energy sources, Energy Audits, Green Building, Life Cycle Analysis, Case studies on sustainable utilization of energy, Site visit to a ISO 50001 certified industry and a green building.

**Method of teaching and learning:**

A combination of lectures, computer based learning, assignments and small group discussions.

**Assessment:**

In-course assessment and end of semester examination.

**Recommended Reading**

1. Energy conservation in the home (2014). Colorado State University, USA.
2. Galarraga, I., G. Eguino & M. Markandya (2013). A Handbook of Sustainable Energy. Edward Elgar publishing, UK.
3. Röser, D., A. Asikainen., K. Raulund-Rasmussen & I. Stupak (2008). Sustainable Use of Forest Biomass for Energy. Springer publishing, USA.
4. Twidell, J. & T. Weir (2003). Renewable Energy Resources. Taylor & Francis, USA.