

Course Type	Course Code	Name of Course	L	T	P	Credit
OE	ESO405	Clean Energies	3	0	0	9

Course Objective

To gain fundamental knowledge on clean technologies for energy generation

Learning Outcomes

Upon successful completion of this course, students will be able:

To understand role of alternative technologies for energy production

To make interpretation about the energy sources and comprehend them with types

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Energy Alternatives and its Principles	6	To understand need of renewable energy
2	Solar Radiation, availability, measurement and estimation, Solar Thermal Conversion Devices, storage and applications	12	To understand Fundamentals solar energy conversion
3	Hydel power, Tidal Energy, Ocean Thermal Energy, Geothermal Energy, Molten salt energy storage	12	To understand fundamentals other means of Renewable sources
4	Wind Energy Conversion, Bioenergy Technologies, Fuel Cell	12	To understand fundamentals other means or of Renewable sources

Recommended Text Book

1. Vaughn C. Nelson, Kenneth L. Starcher, Introduction to Renewable Energy, 2nd Edition, CRC press 2015

Recommended Reference Book

1. J. Twidell and T. Weir, Renewable Energy Resources, 3rd edition, Routledge, London, 2015.
2. B. Viswanathan, M. Aulice Scibioh, Fuel Cells: Principles and Applications 1st Edition, CRC press 2006.