Home

SavitribaiPhule Pune University
Third Year of Artificial Intelligence and Data Science (2019 Course)
317537(B): Audit Course6
AC6-B: Sustainable Energy Systems

Prerequisite: General awareness of environment and natural resources of energy

Course Objectives:

- To understand the importance of sustainable energy systems development
- To create awareness about renewable energy sources and technology
- To learn about adequate inputs on a variety of issues in harnessing renewable energy
- To recognize current and possible future role

Course Outcomes:

On completion of the course, learner will be able to–

CO1: Understand the importance of Sustainable Energy Systems
CO2: Develop the awareness towards Sustainable Energy Systems protection
CO3: Know different types of natural resource pollution
CO4: Develop the awareness towards the exploitation and utilization of conventional and non-conventional energy resources

Course Contents

1. **Energy resources and their utilization:** Conservation and forms of energy, Electric energy from conventional sources, Renewable energy sources
2. **Environmental aspects of electric energy generation:** Atmospheric pollution, Thermal pollution, Disposal of waste, Global environmental awareness, Impact of renewable energy generation on environment
3. **Solar thermal energy conversion systems:** Solarradiation and its measurement, Solar water heating, Solar thermal power plants, Solar ponds, Solar pumping systems, Solar air heaters, Solar crop drying, Solar cookers, Energy efficient buildings, Solar greenhouses
4. **Wind Energy:** Power in the Wind, Wind characteristics, Types of Wind Power Plants (WPPs), Components of WPPs, and Working of WPPs.

Learning Resources

Reference Books:

1.D.P.Kothari, K.C Singal, RakeshRanjan,"Renewable Energy Sources and EmergingTechnologies", PHI Learning Pvt.Ltd, New Delhi, 2013.
2. Joshua Earnest, Tore Wizeliu, "Wind Power Plants and Project Development", PHI LearningPvt.Ltd, New Delhi, 2011.
3. A.K.Mukerjee and Nivedita Thakur, "Photovoltaic Systems: Analysis and Design", PHI Learning Private Limited, New Delhi, 2011

@The CO-PO mapping table

PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	-	-	-	2	-	-	-	-	-
CO2	-	-	-	-	-	-	2	-	-	-	-	1
CO3	-	-	-	-	-	-	1	-	-	-	-	-
CO4	-	-	-	-	-	2	2	-	-	-	-	1