

Samrat Ashok Technological Institute, Vidisha			
<u>Department of Mechanical Engineering</u>			
Lecture Plan			
Course Code:	ME-1873 (E-VI) (B	Year/Semester :	VII
Course Name:	Non ConventionalEnergy Sources	Academic Year :	2023
L – P:	3	Credit :	3
Course Detail :	Elective	Term Start Date :	24 July 2023
Course Coordinator:	Prof .Neeraj Sen	Term End Date :	

Academic Year: 2023					
Name of Teacher: Prof.Neeraj Sen					
Subject: Non ConventionalEnergy Sources					
Theory/Tutorial: Theory					
Sr. No.	Name Of Unit/Topics	Hrs. Allotted	Actual Date	Teaching Aid Code	Remarks
01	<i>Unit: 1:-</i> Introduction				
	Overview of the course; Global warming	2 hrs			
	Introduction to Renewable Energy Technologies	2hrs			
	Energy Storage: Introduction; Necessity of Energy Storage; Energy Storage Methods.	2hrs			
	others	1hrs			
02	<i>Unit: 2:-</i> Solar Energy				
	Fundamentals;Solar Radiation; Estimation of solar radiation on horizontal and inclined surfaces ,Measurement of solar radiation data	3hrs			
	Solar Thermal systems: Introduction; Basics of thermodynamics and heat transfer;	1hrs			
	Evacuated Tubular Collector; Solar air collector; Solar concentrator; Solar distillation;Solar cooker;	2hrs			
	Solar refrigeration and air conditioning; Thermal energy storage systems	1hrs			
03	<i>Unit: 3:-</i> Solar Photovoltaic systems				

	Solar Photovoltaic systems: Introduction	1hrs			
	Solar cell Fundamentals; Characteristics and classification	2hrs			
	Solar cell: Module, panel and Array construction; Photovoltaic thermal systems	3hrs			
	Unit: 4:- Wind Energy				
04	Wind Energy: Introduction; Origin and nature of winds;	1hrs			
	Wind turbine siting; Basics of fluid mechanics	1hrs			
	Wind turbine aerodynamics; wind turbine types and their construction	2hrs			
	Wind energy conversion systems	2hrs			
	Fuel cells: Overview; Classification of fuel cells; Operating principles; Fuel cell thermodynamics	2hrs			
	Unit: 5:- Biomass Energy				
05	Photosynthesis Process; Biofuels; Biomass Resources Biomass conversion technologies; Urban waste to energy conversion; Biomass gasification	3hrs			
	Other forms of Energy: Introduction: Nuclear, ocean and geothermal energy applications; Origin and their types; Working principles	2hrs			
	Pl add rows as required				
Teaching Aid Code:		Sign of Teacher: _____			
1	White board				
2	L.C.D/overhead PROJECTOR				
3	MODEL & CHART				
4	PPT & VIDEO				
LESSON PLANNING, Rev. no. :00					

Reference Books:

1. Sukhatme S.P. and J.K.Nayak, Solar Energy - Principles of Thermal Collection and Storage, TataMcGraw Hill, New Delhi, 2008.
2. Khan B.H., Non-Conventional Energy Resources, Tata McGraw Hill, New Delhi, 2006.
3. J.A. Duffie and W.A. Beckman, Solar Energy - Thermal Processes, John Wiley, 2001.