

Course Number and Name												
BEE048 & Renewable Energy Sources												
Credits and Contact Hours												
3 & 45												
Course Coordinator's Name												
Mr.Uma Mageshwaran												
Text Books and References												
Text Books:												
1. Rai.G.D, "Non-conventional resources of energy", Khanna publishers, Fourth edition, 2010.												
2. Khan.B.H, "Non-Conventional Energy Resources", The McGraw Hills, Second edition, 2009.												
References:												
1. S.P.Sukhatme, 'Solar Energy,(principles of thermal collection and storage), Tata McGraw-Hill Publishers, Fourth print-February 1989												
2. Ronald Shaw, 'Wave Energy – (A Design Challenge)',Ellis Horwood Limited publishers, first edition- 1982												
3. http://nptel.ac.in/courses/113104058/mme_pdf/Lecture1.pdf												
Course Description												
To create awareness among the students about the different types of non-conventional energy resources and emphasize its importance												
Prerequisites						Co-requisites						
Power Generation System						Nil						
required, elective, or selected elective (as per Table 5-1)												
Required												
Course Outcomes (COs)												
CO1: Able to understand the renewable energy sources available at present.												
CO2: Able to understand the solar energy operation and its characteristics.												
CO3: To educate the wind energy operation and its types.												
CO4: To educate the tidal and geothermal energy principles and its operation.												
CO5: Able to understand the biomass energy generation and its technologies.												
Student Outcomes (SOs) from Criterion 3 covered by this Course												
COs/SOs	a	b	c	d	e	f	g	h	i	j	k	l
CO1		H	M		M	M	H	H	M	H	H	M
CO2		M	M		H	H	M	M			L	M
CO3		H	H		H	H	H	H	M	M	H	M
CO4		M	H		H	H	H	H		M	H	M
CO5		M	M		L	M	M	M	M	L	L	M
List of Topics Covered												

UNIT I	INTRODUCTION ABOUT ENERGY RESOURCES	9
General primary and commercial energy resources- study of availability-energy consumption pattern and growth rath in India- non –commercial energy sources –availability, economics and efficiency		
UNIT II	SOLAR ENERGY AND APPLICATIONS OF SOLAR ENERGY	9
Solar energy and application; solar radiation-principles of solar energy collections- types of collectors-characteristics and principles of different types of collectors- their efficiencies-solar energy applications water heaters, air heaters, solar cooking, solar drying and power generation-tower concept (solar plant)-solar pump		
UNIT III	WIND ENERGY	9
Wind energy: energy from wind-general theory of wind mills - types of wind mills-performance of wind machines-wind power - efficiency		
UNIT IV	TIDAL AND GEOTHERMAL ENERGY	9
Tidal Energy from tides and waves- working principles of tidal plants-tidal power generations – geothermal energy-principle of working of geothermal power plants		
UNIT V	BIOMASS ENERGY	9
Bio energy: energy from bio mass-biogas plants-various types-industrial wastes-municipal wastes-burning plants-energy from the agricultural wastes- applications		