

GANPAT UNIVERSITY

FACULTY OF U. V. PATEL COLLEGE OF ENGINEERING

Programme	Degree Engineering				Branch/Spec.	Automobile Engineering			
Semester	III				Version	1.0.0.0			
Effective from Academic Year		2018-19			Effective for the batch Admitted in			July 2017	
Subject code	2AE303		Subject Name		Non Conventional Energy Sources				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total	CE	SEE	Total	
	L	TU	P	TW					
Credit	2	0	0	0	2	Theory	40	60	100
Hours	2	0	0	0	2	Practical	0	0	0
Pre-requisites:									
None									
Learning Outcome:									
Learning Outcomes:									
After completion of this course, student will be able to									
<ul style="list-style-type: none"> • Understand difference way to produce energy by unconventional energy sources like solar energy • Understand Special methods of energy production: fuel cell • Understand Unconventional energy, transport ,accumulation and application 									
Theory syllabus									
Unit	Content								Hrs
1	Introduction Various non-conventional energy resources- availability, classification, relative merits and demerits								7
2	Solar cells and solar thermal energy Theory of solar cells. Solar cell materials, solar cell power plant, limitations. Solar radiation flat plate collectors and their materials, applications and performance, focusing of collectors and their materials, applications and performance; solar thermal power plants, Thermal energy storage for solar heating and cooling, limitations.								10
3	Fuel cells Principle of working of various types of fuel cells and their working, Performance and limitations.								5
4	Alternative fuels Availability of bio-mass and its conversion theory. Applications of biofuels i. Bio gas ii. Bio diesel , Hydrogen as fuel								7
Practical content									
Text Books									
1	Andra Gabel, "A Handbook for Engineers and Economists".								
2	A. Mani , "Handbook of Solar radiation Data for India".								
Reference Books									
1	Peter Auer, "Advances in Energy System and Technology". Vol. 1 & II Edited by Academic Press.								
2	F.R. the MITTRE, "Wind Machines" by Energy Resources and Environmental Series.								
3	Frank Kreith, "Solar Energy Hand Book"								
4	N. Chermisinogg and Thomes, C. Regin,"Principles and Application of Solar Energy".								