SRM UNIVERSITY
FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF EEE
COURSE PLAN

Course Code : PE0508
Course Title : **POWER ELECTRONICS IN WIND &SOLAR ENERGY CONVERSION**
Semester : II MTech Power Electronics and Drives
Course Time : JANUARY – APRIL 2013
Location : S.R.M.E.C

Faculty Details

Class	Name	Office	Office hour	Mail id
II sem Mtech PED	Mrs.Divya Navamani.J	ESB 207 I floor	12:30-1:30PM	divyanavamani.j@ktr.srmuniv.ac.in

Reference Books:

- Rai G.D., "Non - Conventional Energy Sources", Khanna Publishers, 1993
- Rai G.D., "Solar Energy Utilisation", Khanna Publishers, 1993
- Daniel, Hunt. V, "Wind Power - A Handbook of WECS", Van Nostrend Co., New York, 1981
- Gary L. Johnson, "Wind Energy Systems", Prentice Hall Inc., 1985
- Freris L. L., "Wind Energy Conversion", Prentice Hall (UK) Ltd., 1990Prentice Hall (UK) Ltd., 1990

Objectives:

- To understand the concepts about solar radiation and measurements, Solar cells and their characteristics with some applications
- To acquire the aspects of recent trends in Wind energy conversion and self excited induction generator for isolated power generation

Assessment Details

- I Cycle Test - 25
- II Cycle Test - 25
- Surprise Test - 05
- Term paper - 10
- Attendance - 05
- **Total - 70**

Test Schedule

S.No.	DATE	TEST	DURATION
1	18.02.2013	Cycle Test-1	2 Periods
2	----------	Surprise test(Cross word)	1 Period
3	15.04.2013	Cycle Test-2	3hrs

SNO	TOPIC	No of hours
	UNIT-I	
1	Recent trends in energy consumption	**1**
2	World energy scenario	**1**
3	Energy sources and their availability	**2**
4	Solar radiation and measurement	**1**
5	Solar cells and their characteristics	**2**
	UNIT-II	
7	PV arrays – Electrical storage with batteries	**1**
8	Solar availability in India	**2**
9	Switching devices for solar energy conversion	**2**
10	Stand alone inverters – Charge controllers-Water pumping	**1**
11	Audio visual equipments, Street lighting	**2**
12	Analysis of PV systems	**2**
	UNIT-III	
13	DC Power conditioning converters	**2**
14	Maximum Power point tracking algorithms	**2**
15	AC power conditioners	**2**
16	Line commutated inverters	**2**
17	Synchronized operation with grid supply	**2**
18	Harmonic problem	**1**
	UNIT-IV	
19	Basic principle of wind energy conversion	**2**
20	Nature of wind - Wind survey in India	**2**
21	Power in the wind	**1**
22	Components of a wind energy conversion system	**2**
23	Performance of Induction Generators for WECS	**2**
24	Classification of WECS	**2**
	UNIT-IV	
25	Self excited Induction Generator for isolated Power Generators	**2**
26	Theory of self excitation	**2**
27	Capacitance requirements	**1**
28	Power conditioning schemes	**2**
29	Controllable DC Power from SEIGs Wind / Solar PV integrated systems	**2**
30	Selection of power conversion ratio	**1**
31	Optimization of system components - Storage	**2**
32	REVISION	**4**
	TOTAL HOURS	**55**

SIGNATURE OF STAFF **HOD/EEE**