



Bhoj Reddy Engineering College for Women

(Sponsored by Sangam Laxmibai Vidyapeet, , Accredited by NAAC with A Grade, Approved by AICTE and affiliated to JNTUH,
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Department of Electrical and Electronics Engineering

Lesson Plan

Name of the Subject : POWER ELECTRONIC APPLICATIONS TO RENEWABLE ENERGY SYSTEMS
Academic Year : 2026-27
Subject Code : EE701PC Semester : I
Name of the Faculty Member : K Uma Rani
Class & section : IV EEE

S. No.	Date	Name of the Topic	No. of Classes required	Cumulative number of periods	Teaching AID
UNIT-I					
1	06-07-2026	Introduction	01	01	C&T, S/P
2	08-07-2026	Solar cell characteristics and their measurement,	01	02	C&T, S/P
3	08-07-2026	T: Basics of RES	01	03	RTCS
4	09-07-2026	PV Module	01	04	C&T, S/P
5	13-07-2026	PV array	01	05	C&T, S/P
6	15-07-2026	T:Power Converter Basics	01	06	SEM
7	15-07-2026	Partial shading of a solar cell and a module, the diode	01	07	C&T, S/P
8	16-07-2026	Power conditioning unit	01	08	C&T, S/P
9	20-07-2026	Maximum power point tracker	01	09	C&T, S/P
10	22-07-2026	T: Programming for MPPT	01	10	SIM
11	22-07-2026	SLIP TEST	01	11	Test/Quiz
12	23-07-2026	Implementation of Perturb and Observe Method	01	12	C&T, S/P
13	27-07-2026	Incremental Conductance Method	01	13	C&T, S/P

14	29-07-2026	Battery charger /discharge controller	01	14	C&T, S/P
	UNIT-II				
15	29-07-2026	T:Review of CSI and VSI	01	15	SEM
16	30-07-2026	Centralized Inverters	01	16	C&T, S/P
17	03-08-2026	String Inverters	01	17	C&T, S/P
18	05-08-2026	Multi-string Inverters	01	18	C&T, S/P
19	05-08-2026	T:New topologies in inverters	01	19	JAR
20	06-08-2026	Module Integrated Inverter/Micro-inverters	01	20	C&T, S/P
21	12-08-2026	Inverter Topology, Model of Inverter	01	21	C&T, S/P
22	12-08-2026	T:Assignment Test -I	01	22	ASG
23	13-08-2026	Sizing Batteries and Inverters for a Solar PV System	01	23	C&T, S/P
24	17-08-2026	Types of PV Systems: Grid-Connected Solar PV System	01	24	C&T, S/P
25	19-08-2026	Stand-Alone Solar PV System	01	25	C&T, S/P
	UNIT-III				
26	19-08-2026	T:Introduction to wind: Characteristics	01	26	C&T, S/P
27	20-08-2026	Wind energy conversion	01	27	C&T, S/P
28	24-08-2026	Wind Turbine	01	28	C&T, S/P
29	27-08-2026	Fixed and Variable-Speed Wind Turbines	01	29	C&T, S/P
30	07-09-2026	Components of WECS	01	30	C&T, S/P
31	09-09-2026	T:Class Test	01	31	Q
32	09-09-2026	Description of Components	01	32	C&T, S/P
33	10-09-2026	Types of Wind Turbine Generators	01	33	C&T, S/P
34	16-09-2026	Economics of Wind Energy Conversion Systems	01	34	C&T, S/P
35	16-09-2026	T:Micro Grid basics	01	35	JAR

36	17-09-2026	Linking Wind Turbines onto the Grid	01	36	C&T, S/P
37	21-09-2026	Power Converter Topologies for Wind Turbine	01	37	C&T, S/P
UNIT-IV					
38	23-09-2026	Modeling of Permanent Magnet Synchronous Generators	01	38	C&T, S/P
39	23-09-2026	T:Review on Alternators	01	39	SEM
40	24-09-2026	Doubly Fed Induction Generators	01	40	C&T, S/P
41	28-09-2026	Squirrel cage Induction Generators wind turbine	01	41	C&T, S/P
42	30-09-2026	T:Concepts of Induction Machines	01	42	SEM
43	30-09-2026	Control of Power converters for WECS	01	43	C&T, S/P
44	01-10-2026	<i>Sensor less Vector Control</i>	01	44	Video
45	05-10-2026	Revision	01	45	C&T, S/P
UNIT-V					
46	07-10-2026	Hybrid Energy Systems	01	46	C&T, S/P
47	07-10-2026	T:Advantages and Applications of HES	01	47	SEM
48	08-10-2026	Need for Hybrid Energy Systems	01	48	C&T, S/P
49	12-10-2026	Range and types of Hybrid systems	01	49	C&T, S/P
50	14-10-2026	Hybrid Solar PV/Wind Energy System	01	50	C&T, S/P
51	14-10-2026	Architecture of Solar-Wind Hybrid System	01	51	C&T, S/P,
52	15-10-2026	T:Types of Hybrid systems	01	52	JAR
53	19-10-2026	Grid connected issues	01	53	C&T, S/P
54	22-10-2026	Assignment Test	01	54	ASG
55	26-10-2026	<i>Wireless Charging of Electric Vehicles using Solar Energy</i>	01	55	C&T
56	28-10-2026	Revision of Unit -V	01	56	C&T, S/P
57	28-10-2026	Revision Units –I & II	01	57	C&T, S/P
58	29-10-2026	Revision Units –III&IV	01	58	C&T, S/P
Number of Tutorial classes				13	
Total Number of Classes				58	

TEACHING METHODS:

C&T:-Chalk & Talk; S/P:-Slides/PPT; Videos; SEM: Seminar; Demo; CHART; ET/GL: Expert Talk/Guest Lecture; QUIZ; CPS: Class room problem solving;GD:-Group discussion; RTCS: Real time case studies; JAR:-Journal article review; PD:-Poster design; OL:-Online lecture/Google class room; Industrial Visit (IV), Assignment (ASG), Quiz/Puzzle (Q), Brain storming (BS), Think-Pair-Share (TPS), Certification(CERT), SIM: Simulation, P/G: Pledge/Greeting, Q/R: Quotes, references, LS: Literature Survey, RW: Report Writing, MM: Model making,PED: Professional/ethical dilemma, Coding, Activity/Event, FV: Filed Visit etc.

TEXT / REFERENCE BOOKS:

S. No.	TEXT / REFERENCE BOOKS	BOOK TITLE/AUTHORS/PUBLICATION
1	Text Book	S. N. Bhadra, D. Kastha, S. Banerjee, "Wind Electrical Systems", Oxford University Press, 2005
2	Text Book	Rashid. M. H, "Power Electronics Hand book", Academic Press, 2001
3	Reference Book	Rai. G. D, "Non-conventional energy sources", Khanna Publishers, 1993
4	Reference Book	Gray, L. Johnson, "Wind energy system", Prentice Hall of India, 1995.
5	Reference Book	B.H.Khan "Non-conventional Energy sources", Mc Graw-hill, 2nd Edition, 2009

Web Source References:

S. No.	Web Resource	Link
1	Renewable Energy Sources	https://nptel.ac.in/courses/127107001?utm_source
2	Solar Energy Engineering and Technology	https://nptel.ac.in/courses/115103123?utm_source
3	Non-conventional Energy Resources	https://www.nptel.ac.in/courses/121106014?utm_source=chatgpt.com

Signature of Faculty**HoD-EEE**