Dr. Vasantraodada Patil Shetkari Shikshan Mandal's

Padmabhooshan Vasantraodada Patil Institute of Technology, Budhgaon

Department of Electrical Engineering (MTech)

M Tech Course Outcomes(COs)

Course Outcomes(COs)		CO-PO Mapping														
M.Tech																
Course Name:	**Distributed Generation and Microgrid**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	Understand exploration of renewable energy sources	1	2	3												
CO2	Understand philosophy of distributed generation	2		2		3	2					2	3		3	
CO3	Understand various issues of DG with grid integration	3	3	1												
CO4	Understand the concept of micro grid and various power quality issues.	4				4									4	
Course Name:	**Power system modelling**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	Develop power system components modelling and analyse their performance	2	3													
CO2	Perform steady state and dynamic analysis on simulation models		2		3	2					2	3		3		
CO3	Develop excitation system components modelling and analyse their performance.	3	2												2	

Course Name:	**Advanced Power Electronics**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	Discuss2 the behavior of power semiconductor devices operated as power switches.	3	2	1	1								1			
CO2	Analyze4 operation of various power converters	2	2	3	1								2			
CO3	Examine3 various advanced power conversion techniques	2	3	2	1								1			
Course Name:	**Modern Control System**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**

CO1	Analyze dynamics of a linear system using pole placement technique.	2	3													
CO2	Determination of stability of a linear system using pole-placement technique.		2		3	2					2	3		3		
CO3	Analysis and design of non linear , optimal and digital control system.	3	2												2	
Course Name:	**Renewable Energy Systems**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	Understand current energy scenario and their impact on environment.	1		2									3		1	
CO2	Understand the process of power generation by renewable energy sources.		1		3								2			
CO3	Understand various forms of energy storage and their importance.	3	2			1		2							2	
Course Name:	**Power Electronics for Renewable Energy System**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	Provide knowledge about the stand alone and grid connected renewable energy systems.	2	3								2			2		
CO2	Equip with required skills to derive the criteria for the design of power converters for renewable energy applications.		2	3							3	1		2		
CO3	Analyse and comprehend the various operating modes of wind electrical generators and solar	2	3	3								2		1		
CO4	Desgin different power converters name ac to dc and dc to dc , ac to ac converter for RES	3	2	3					3			2		3		
Course Name:	**Communication skills**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	communicate effectively in the activity and with the engineering community and for society	3	1										2	3		
CO2	in order to Comprehend and write effective reports design documentation	3	3		3								2	3		
CO3	to make a pic to presentation and give or receive clear instructions	3	2		2								2	2		
Course Name:	**AC/DC Drives**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	To examine3 the dynamics of Electrical Drives system.	3	2	1	1								1			

CO2	To apply3 various control techniques for controlling the speed of DC and IM motors.	2	2	3	1								2	3		
CO3	To discuss2 vector control of Induction Motor drive.	2	3	2	1								1		2	
Course Name:	**Advance Power System Protection**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	To understand various Optimization Techniques applicable in Power System	2	3													
CO2	To understand the concept of power System Security.		2		3	2					2	3		3		
CO3	To apply state estimation in power system.	3	2												2	
CO4	To understand optimal power flow solution methods	3										2				
Course Name:	**Energy Management and Auditing**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	Identify and describe the basic principles and methodologies adopted in energy audit of utility.	2	3													
CO2	Describe the energy performance evaluation of some common electrical and thermal installation and identify energy saving opportunities.		2		3	2					2	3		3		
CO3	Analyze the data collected during performance evaluation and recommend energy saving measures.	3	2												2	
Course Name:	**Electric and Hybrid Vehicle**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	Explain2 the architecture and performance parameters of Electric and Hybrid Vehicles.	3	2				2						2			
CO2	Illustrate2 electric propulsion and motor control strategies used in EV and HEV systems.	3	3										2			
CO3	Apply3 the knowledge of energy storage systems to identify suitable technologies for electric vehicles.	3	3				2						2			
CO4	Identify3 the key components and basic configuration of electric or hybrid vehicle systems using solar and fuel cell technologies.	2	2										2			