18PEE51	SMART GRID TECHNOLOGY	L	Т	Ρ	C
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Course Ob	pjectives:				
1. To ir	ntroduce the concepts of Smart Grid, architecture and Functions.				
2. To fa	amiliarize the role of communications technologies in Smart Grid.				
3. To fa	amiliarize control and automation technologies for Smart Grid.				
4. To s	tudy the green energy integration and energy storage systems.				
Unit I	INTRODUCTION TO SMART GRID	9		+	0
	and Need for Smart Grid, Today's Electric Grid versus Smart Grid, key aspects		Sma		
	ent, Smart Grid architecture, Functions of Smart Grid Components, challenges and b				
Unit II	COMMUNICATIONS TECHNOLOGIES	9		+	0
	ation infrastructure for the Smart Grid, IEEE 802 architecture and, communication		chn		
	nder IEEE 802, Wireless LANs, ZigBee and 6LoWPAN, ZigBee communication ne				
	Power line communication, Standards for smart metering, Modbus, DNP3, IEC 6185				
and usage.	· · · · · · · · · · · · · · · · · · ·				
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Unit III	CONTROL AND AUTOMATION TECHNOLOGIES	9		+	Ć
	tering: Benefits, Architecture, Key components and operation, communications				
	ering, Demand-side integration (DSI): Definitions and services provided by [				
	equipment: architecture, components and functions,Intelligent electronic devices (	IED),	Rei	ay ı	ΕL
and other t					
and other t	ypes, Bay controller.				
		9		+	0
Unit IV	ENERGY STORAGE SYSTEMS		and		_
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Unit IV Ne Flow batte	ENERGY STORAGE SYSTEMS  ded for energy storage in smart grid, Energy storage technologies: operation, featurery, Fuel cell, Superconducting magnetic energy storage systems, Super cap	ures pacit	ors;	use	e o
Unit IV Ne Flow batte	ENERGY STORAGE SYSTEMS  end for energy storage in smart grid, Energy storage technologies: operation, featurery, Fuel cell, Superconducting magnetic energy storage systems, Super cape configurations for energy storage integration, Energy storage system for solar and we	ures pacit	ors;	use	ve
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Unit IV  Ne Flow batte converter c case study  Unit V  Sustainable Power ele	ENERGY STORAGE SYSTEMS  end for energy storage in smart grid, Energy storage technologies: operation, featurery, Fuel cell, Superconducting magnetic energy storage systems, Super cap configurations for energy storage integration, Energy storage system for solar and with the superconducting magnetic energy storage systems, Super cap configurations for energy storage integration, Energy storage system for solar and with the superconduction of the smart grid-Solar PV System, Wind Energy and Fuel Cell: actronics technology for grid integration, Penetration and variability issues as the energy technology, PHEV technology, Impact of PHEV on the Smart Grid.	ures pacitoring participation	ors; owe ersi	use pov r pla + on a d v	o o o o o o o o o o o o o o o o o o o
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PQ CO	CO Statement	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	Understand the concepts of Smart Grid and its present developments.			1		1	1	2			3	
CO2	Get acquainted with the smart resources and other smart devices	1							2	1		
CO3	Acquire knowledge of automation and control infrastructure.		1									1
CO4	Select an energy storage system and its integration with Smart Grids	3	1		1							
CO5	Identify suitable communication networks for smart grid applications				1		1				2	