



Yashoda Technical Campus, Satara

(Approved by AICTE, Delhi/Approved by Govt of Maharashtra DTE) Email: principalengg_ytc@yes.edu.in
Web : www.yes.edu.in NH-4, wadhe, Satara, Tele Fax-02162-271238/39/9172220775

Faculty of Engineering Department of Electrical Engineering

Academic Year 2023-24

Semester- EVEN

Unit	Smart Grid Technology BTEEPE604B	CO
1	<ol style="list-style-type: none"> 1) Draw and explain architecture of smart grid? 2) Write a note on- <ol style="list-style-type: none"> a) Smart Metering b) Real time pricing scheme 3) Discuss with necessary diagram outage management system in smart grid? 4) Draw and explain mechanism of vehicle to grid operation? 5) Write a note on- <ol style="list-style-type: none"> a) Smart sensors used in smart grid operation b) Home automation system in smart grid c) Substation automation system in smart grid d) Feeder automation system in smart grid e) Geographic information system [G.E.S] in smart grid f) Intelligent electronic devices [I.E.D] in smart grid 6) List smart storage devices required in smart grid. Explain any one in detail? 	BTEEPE 604B_1
2	<ol style="list-style-type: none"> 1) Explain with suitable diagram, components and architecture of smart grid design? 2) Write a note on- <ol style="list-style-type: none"> a) Fundamental components of smart grid design b) Transmission automation of smart grid design c) Distribution automation of smart grid design 3) Explain with neat diagram renewable energy integration tools and techniques for smart grid? 	BTEEPE 604B_2
3	<ol style="list-style-type: none"> 1) Discuss in detail integration of renewable energy sources in smart grid. 2) Draw and explain architecture of micro grid system? 3) Draw and explain A.C micro-grid system. 4) Draw and explain D.C micro grid system. 5) Explain with neat diagram integration of electric vehicles in micro- grid? 6) Explain role of micro- grid for E.V charging infrastructure. 7) Write a note on Reduction in impact on the environment due to micro grid. 	BTEEPE 604B_3
4	<ol style="list-style-type: none"> 1) Draw and explain Advanced Metering Infrastructure (AMI). 2) Draw and explain Home Area Network (HAN). 3) Draw and explain Neighborhood Area Network (NAN) 4) Draw and explain Wide Area Network (WAN) 5) Write a note on <ol style="list-style-type: none"> a) Bluetooth b) ZigBee c) GPS d) Wi-Fi e) Wi-Max based communication 6) Draw and explain Synchro Phasor Measurement Units (PMUs) 7) Draw and explain Wide Area Measurement Systems (WAMS). 8) Draw and explain Two-way Digital Communications Paradigm 9) Draw and explain Network Architectures. 10) Draw and explain IP- based Systems Power Line Communications. 	BTEEPE 604B_4
5	<ol style="list-style-type: none"> 1. Discuss in detail load Frequency Control (LFC) in Micro Grid System 	BTEEPE 604B_5



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	<p>2. Discuss in detail Voltage Control in Micro Grid System 3. Discuss in detail Reactive Power Control in Smart Grid. 4. Write a note on a) Cyber Security Challenges in Smart Grid b) Load Altering Attacks c) False Data Injection Attacks d) Defense Mechanisms</p>	
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