DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

IV B.Tech, I Semester, Academic Year: 2026-27

Course Name	**:**	**ENERGY STORAGE SYSTEMS (23EE709)**
L – T – P	**:**	**3– 0– 0**
Course Instructor	**:**	**Mrs. P.ROJA**

Prerequisites: Antennas and Propagation

Course Objectives: to prepare the students to

- To introduce generalized storage techniques and analyze the different features of storage systems
- To know the management and applications of energy storage technologies
- To know about electrical energy storage market potential by different forecasting methods

Course Outcomes: At the end of this course, students will be able to:

1. To understand the Electrical Energy Storage Technologies.
2. To understand the need of Electrical Energy Storage.
3. To understand the features of energy storage systems.
4. To know the types of energy storage systems.
5. To understand the various applications of energy storage systems

UNIT WISE QUESTION BANK

Unit-1

S.No	Questions	BT	CO	PO
	Part – A (Short Answer Questions)			
1	What are the two main characteristics of electricity that create the need for Electrical Energy Storage (EES)?	L1	C01	PO1
2	Why is the cost of electricity higher during peak demand periods?	L1	C01	PO1
3	Define Time Shifting in Electrical Energy Storage systems.	L1	C01	PO1
4	What is the role of EES in frequency control?	L1	C01	PO1
5	What is a UPS and why is it used?	L2	C01	PO2
6	How does EES help in reducing transmission grid congestion?	L1	C01	PO1
7	Mention any two emerging market needs for Electrical Energy Storage.	L1	C01	PO1
8	What is meant by Vehicle-to-Grid (V2G)?	L1	C01	PO1
9	Why is EES important for renewable energy sources like solar and wind?	L1	C01	PO1

		Part – B (Long Answer Questions)			
11	a	Explain the characteristics of electricity and discuss the need for Electrical Energy Storage (EES).	L1	C01	PO1
	b	Discuss the role of EES in reducing electricity generation costs during peak demand periods.	L5	C01	PO3
12	a	Explain how EES helps in maintaining a continuous and flexible power supply.	L5	C01	PO3
	b	Describe the role of EES in improving power quality and reliability.	L5	C01	PO3
13	a	Explain how Electrical Energy Storage systems help in mitigating transmission and distribution congestion.	L1	C01	PO1
	b	Discuss the importance of EES in integrating renewable energy sources into the power grid.	L5	C01	PO3
14	a	Explain the emerging needs for Electrical Energy Storage in on-grid and off-grid applications.	L5	C01	PO3
	b	Discuss the role of EES in Smart Grid applications.	L5	C01	PO3
15	a	Explain the roles of Electrical Energy Storage from the viewpoint of utility companies and consumers.	L2	C01	PO2
	b	Discuss the future market potential and applications of Electrical Energy Storage technologies.	L5	C01	PO3