



Sample Brief Course Description	
Course title	Energy Storage and Efficiency
Course code	ECE 431
College	Engineering
Department / Program	Electrical Engineering/Renewable Energy
Year/ Level	5/9
Course Type	A. <input type="checkbox"/> University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others B. <input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective
Credited Hours	3
Contact Hours	(LT:2, LB:2 ,TR:0)
Pre-requisites (if any)	ECE 230, ECE 333
Co-requisites (if any)	--
Course description	This course introduces students to energy storage systems and provides a broad understanding and appreciation of the scientific principles that underpin the operation of such systems. The emphasis is on grid-scale (or utility-scale) energy storage as a means of addressing the intermittency of renewable energy components (e.g. solar or wind power systems) of modern electricity networks.



	Smaller energy storage systems are also discussed for benchmarking and comparisons.
Course Main Objectives	<p>The main objective is to cover the topics include electrical, chemical, thermal, mechanical, electrochemical, thermochemical and thermomechanical energy storage systems as well as grid integration issues.</p> <p>Detailed Description of coverage;</p> <ul style="list-style-type: none"> · Electrical Energy Storage · Chemical Energy Storage · Thermal Energy Storage · Mechanical Energy Storage · Electrochemical Energy Storage · Thermochemical Energy Storage · Thermomechanical Energy Storage · Technology Status and Projected Demand and Cost · Grid Integration
Learning Outcomes	<p>Knowledge and Understanding On successful completion of the course students will be able to:</p> <p>Discuss the scientific principles underpinning the operation of energy storage systems.</p> <p>Skills:--- Resolve the intermittency of renewable energy sources such as solar and wind by utilising problem solving skills in energy storage engineering and grid integration.</p> <p>Values:--- Work with a team to apply energy storage knowledge to develop and conduct a project.</p>