

Module code	SP-4307		
Module Title	Energy Generation, Storage and Distribution		
Degree/Diploma	Bachelor of Science (Applied Physics)		
Type of Module	Major Option		
Modular Credits	4	Total student Workload	10 hours/week
		Contact hours	4 hours/week
Prerequisite	None		
Anti-requisite	TE-3304 Electromechanical, Energy Conversion and Control		
Aims			
This module aims to provide the students an overview of the fundamental concepts in the energy generation process along with an understanding on various components of energy-generation, storage and distribution systems.			
Learning Outcomes			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	30%	- understand the basic principles of energy generation and distribution systems like generators, transmission systems and distribution networks.	
Middle order :	60%	- analyse various components in the power systems using the existing theories and models.	
Higher order:	10%	- Extend and employ the existing models for new applications - work independently in simulating the power system dynamics	
Module Contents			
<ul style="list-style-type: none"> - Electric Utility Industry Structure, Basics of Electric Circuits, Phasors, Complex Power, - Network Equations, Power Factor Correction, Single and 3-Phase Systems, Power Transformers, The Per-Unit System, Autotransformers, - Methods of Grid Energy Storage (such as Batteries, Compressed air, Flywheel, Hydrogen etc.), - Transmission Line Parameters, Transmission Line Steady State Operation, Power Flow Analysis, Symmetrical Faults, Power System Protection, - Transient Stability, Power System Control, and Power Distribution Methodology 			
Assessment	Formative assessment	Solving practical problems, discussions and feedback	
	Summative assessment	Examination: 60% Coursework: 40% - 2 class tests (20%) - 2 reports (20%)	