

Module Code	TE-4306		
Module Title	Energy Storage Systems		
Degree/Diploma	Bachelor of Engineering (Energy Systems)		
Type of Module	Major Option		
Modular Credits	2	Total student Workload	4 hours/week
		Contact hours	2 hours/week
Prerequisite	None		
Anti-requisite	None		
Aims			
This module aims to cover the context, principles of battery and other electrochemical energy storage systems, mechanical and thermal energy storage systems and their applications. It subsequently explores the main principles behind bio-energetics and energy storage in biological systems.			
Learning Outcomes			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	30%	- describe the fundamentals of energy storage systems and its applications such as principles of battery and other electrochemical storage systems (e.g. supercapacitors), mechanical and thermal energy systems	
Middle order :	40%	- analyse the energy storage system (energy and power rating, volume, mass, etc.) for a given application - review the different engineering technologies from various perspectives	
Higher order:	30%	- recommend novel and innovative engineering ideas in the application of energy storage systems	
Module Contents			
<ul style="list-style-type: none"> - Principles of battery and other electrochemical storage systems (e.g. supercapacitors) - Mechanical and thermal systems and their advantages and disadvantages - Battery engineering such as lithium-based batteries and nickel-based batteries - Principles of bio-energetics - Energy storage in biological systems using energy-rich molecules such as glycogen and triglycerides 			
Assessment	Formative assessment	Monthly online multiple choice questions will be used to test and to give feedback for their learning	
	Summative assessment	Examination: 50% Coursework: 50% - 3 class tests (10% each) - 2 individual assignments (10% each)	