

<b>Module code</b>	TE-4305		
<b>Module Title</b>	Energy Audit		
<b>Degree/Diploma</b>	Bachelor of Engineering (Energy Systems)		
<b>Type of Module</b>	Major Option		
<b>Modular Credits</b>	2	<b>Total student Workload</b>	4 hours/week
		<b>Contact hours</b>	2 hours/week
<b>Prerequisite</b>	None		
<b>Anti-requisite</b>	None		
<b>Aims</b>			
<p>The module aims to expose students to current knowledge on energy audit for buildings, building fabric's heat loss, ventilation, heat gain in buildings, thermal comfort, refrigeration, heat pumps and the environment and heat exchanger. It provides the tools to measure process efficiency and sustainability accuracy in power, heating and cooling applications. This will help students to recognise why losses occur and how they can be reduced by utilising familiar thermodynamic principles.</p>			
<b>Learning Outcomes</b>			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	30%	<ul style="list-style-type: none"> <li>- describe the different types of engineering equipment and their pattern of energy consumption</li> <li>- comprehend energy consumption and current technologies used in engineering device and buildings</li> </ul>	
Middle order :	40%	<ul style="list-style-type: none"> <li>- apply the basic concept of energy audits for applications in selected engineering devices, buildings and thermal comfort</li> <li>- analyse the environmental impact of conventional energy technologies</li> </ul>	
Higher order:	30%	<ul style="list-style-type: none"> <li>- justify the need of implementation of energy audit in the buildings and/or country</li> <li>- evaluate complex energy engineering problems related to energy audits</li> <li>- recommend potential energy technologies for its potential benefit to the society based on the availability and economic perspectives</li> <li>- work cooperatively in groups when reviewing case studies</li> </ul>	
<b>Module Contents</b>			
<ul style="list-style-type: none"> <li>- Energy audit for buildings to determine energy efficiency</li> <li>- Building fabric's heat loss</li> <li>- Ventilation such as natural and forced ventilation of a building</li> <li>- Heat gain in buildings</li> <li>- Thermal comfort for the occupants</li> <li>- Refrigeration, heat pumps and the environment</li> <li>- Design of heat exchanger in terms of efficiency</li> </ul>			
<b>Assessment</b>	Formative assessment	Monthly online quizzes will be used to test and to give feedback for their learning	
	Summative assessment	Examination: 50% Coursework: 50% <ul style="list-style-type: none"> <li>- 1 class test (10%)</li> <li>- 2 individual assignments (10% each)</li> <li>- 2 individual laboratory reports (10% each)</li> </ul>	