

<b>Module Code</b>	TG-4301		
<b>Module Title</b>	Engineering Research Methodologies		
<b>Degree/Diploma</b>	Bachelor of Engineering Degree		
<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>			
The module exposes students to quantitative, qualitative and mixed-method research approaches. Students are required to use different research tools to critically review literature, collect and analyse data, structure research study with respect to their area of research work and interest.			
<b>Learning Outcomes</b>			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order:	10%	- evaluate and assess previous and current research papers, methods of assessment and tools for analysing data	
Middle order :	10%	- identify the research questions and apply the concepts of research methodology to investigate the approaches used - design and plan experiments for the given research project - organise and analyse data resulting from experimental or numerical studies	
Higher order:	80%	- compute and perform data analysis using simulation - interpret the results of data analyses - produce a technical report for effective communication - work independently or in a team effectively	
<b>Module Contents</b>			
<ul style="list-style-type: none"> <li>- Overview of engineering research</li> <li>- Application of quantitative, qualitative and mixed-method approaches to research, and application of a programming language for analysing data</li> <li>- Concepts and application of analytical and statistical methods: collecting and interpreting data; justifying research findings; mathematical modelling; experimental laboratory</li> <li>- Concepts and application of artificial intelligence methods</li> <li>- Literature search, review, citation practices, data management and research presentation</li> </ul>			
<b>Assessment</b>	Formative assessment	Progress assessment are arranged once every two weeks to review and to give feedback for their learning	
	Summative assessment	Examination: 0% Coursework: 100% <ul style="list-style-type: none"> <li>- 2 class tests (15% each)</li> <li>- 2 assignments (20% each)</li> <li>- 1 written report (20%)</li> <li>- 1 oral presentation (10%)</li> </ul>	