

<b>Module code</b>	TG-2213		
<b>Module Title</b>	Engineering Design III		
<b>Degree/Diploma</b>	Bachelor of Engineering Degree		
<b>Type of Module</b>	Degree Core		
<b>Modular Credits</b>	2	<b>Total student workload</b>	5 hours/week
		<b>Contact hours</b>	3 hours/week
<b>Prerequisite</b>	TG-1212 Engineering Design II		
<b>Anti-requisite</b>	None		
<b>Aims</b>			
This module will continue the first year experience in design. The engineering method introduced in prior Engineering Design modules will be reinforced. Further introduction of professional practice topics will be linked to their application and testing in case studies and project work. Basic concepts of economics will be introduced.			
<b>Learning Outcomes:</b>			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	10%	- read and interpret data on basic engineering assembly and subassembly drawings	
Middle order :	10%	- evaluate and recommend alternative designs to improve function, cost and performance - effectively and safely use common hand tools , soldering tools and machine tools - assess team performance by means of team charters and peer review	
Higher order:	80%	- effectively engage in team building activities and cultivate interpersonal relations - function as part of a multi-disciplinary team, collectively adhering to project management schedules to achieve on-time completion of scheduled work - demonstrate effective communications by developing and writing well organised written technical reports appropriate to the audience and task	
<b>Module Contents</b>			
<ul style="list-style-type: none"> <li>- Disassembly and analysis of a bathroom scale to identify its design features; costing of parts and assembly cost savings</li> <li>- Introduction to materials and their properties and selection based on modulus/density and strength/density indices</li> <li>- Introduction to friction and friction data analysis using spreadsheets. Continuation of teamwork development</li> <li>- Quality Functional Development lecture. Construction and testing of the truss. Presentation of a report on this item. Self and peer team performance assessment</li> <li>- Beam deflection and stress concentration with data analysis using spreadsheets</li> <li>- Use of strain gauges and the design and selection of suitable instrumentation</li> <li>- Hoist design and construction project</li> <li>- Introduction to engineering economics such as: time value of money; net present value</li> <li>- Analysis of beams flexural and shear stresses. Evaluate alternative designs. Select group design for hoist</li> <li>- Discuss with instructors the factors leading to the final design</li> </ul>			
<b>Assessment</b>	Formative assessment	Online multiple choice questions will be used to test and give feedback on their learning	
	Summative assessment	Examination: 0% Coursework: 100% <ul style="list-style-type: none"> <li>- 4 assignments (15% each)</li> <li>- 2 online tests (10% each), and</li> <li>- 1 competition (20%)</li> </ul>	