Module code	TG-2214			
Module Title	Engineering Design IV			
Degree/Diploma	Bachelor of Engineering Degree			
Type of Module	Degree Core			
Modular Credits	2	**Total student workload**	5	hours/week
		Contact hours	3	hours/week
Prerequisite	TG-2213 Engineering Design III			
Anti-requisite	None			

Aims

This module continues the experiential sequence in design that was developed in the previous Engineering Design modules. The design projects in this module link with the Electronics and Instrumentation module taught concurrently. A major design project will occupy the final six weeks of the module to include contributions from other modules.

Learning Outcomes:

On successful completion of this module, a student will be expected to be able to:

Lower order :	10%	- read and interpret data sheets and circuit diagrams
Middle order :	10%	- effectively and safely use common hand tools , and soldering tools to construct electronic circuits - use electronic instrumentation such as multi-meters and oscilloscopes to measure the performance of electronic circuits - use software to analyse and present data
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 - develop and deliver well-organised technical oral presentations appropriate to the audience

Module Contents

- Introduction to mathematical and interfacing software for instrumentation
- Operational Amplifiers and Use of Instruments
- Sensor Circuits I: Build and test differential amplifier. Apply to temperature sensor
- Sensor Circuits II: Review operation of additional sensors and apply amplifier to measure output with associated considerations
- A/D Conversion and Digital Signal Processing; Collect data using an instrumentation interfacing program from a sensor system previously constructed. Use mathematical software to analyse data
- Introduction to Design Project: Simulation software tutorial using appropriate examples
- Design Project: Phased with just-in-time modules on control, marketing, economics

Assessment	Formative assessment	Online multiple choice questions will be used to test and give feedback on their learning
	Summative assessment	Examination: 0%
		Coursework: 100% - 2 assignments (10% each) - 4 classwork reports (10% each) - 1 design project report (20%) - 1 design project presentation (20%)