Module code	TG-1212			
Module Title	Engineering Design II			
Degree/Diploma	Bachelor of Engineering Degree			
Type of Module	**Major Core**			
Modular Credits	2	**Total student workload**	5	hours/week
		Contact hours	3	hours/week
Prerequisite	TG-1211 Engineering Design I			
Anti-requisite	None			

Aims

This module will continue the first semester's experience in design. The engineering method introduced in Engineering Design I 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 design for environment and aesthetics will be introduced.

Learning Outcomes:

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

Lower order :	10%	- formulate an approach to achieve experimental objectives using sound engineering judgment and a quantitatively based data collection and analysis procedure.
Middle order :	10%	- assess existing designs and their limitations and be able to identify alternative solutions with improved results.
Higher order:	80%	- use computer based computational tools to find graphical, numerical, and analytic solutions to problems. - use graphical programming languages to interface various sensors to a computer data acquisition system to collect and analyse sensor information - 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

Module Contents

- Analysis of a system based on sensors, using a fire alarm control panel and associated heat/smoke detectors. Identification of stakeholders and their system requirements.
- Continuation of the Total Design process, introducing Context Diagrams and Use Cases. Development of Context Diagrams and Use Cases for the fire alarm system.
- Introduction to interfacing software. Development of software for basic controls and indicators.
- Overview of analog and digital sensors, signal conditioning, Data Acquisition Devices (DAQ) including National Instruments USB DAQ and other DAQs.
- Self and peer team performance assessment.
- Introduction to the proposal process, including Requests for Proposals (RFP) and writing proposals.

Assessment	Formative assessment	Monthly Quizzes and MCQs
	Summative assessment	Examination: 0%
		Coursework: 100% - 6 reports (10% each) - 2 tests (10% each) - 1 competition (10%) - 1 final project report (10%)