Module Code	TF-3302			
Module Title	Signals and Systems			
Degree/Diploma	Bachelor of Engineering Degree			
Type of Module	Major Option			
Modular Credits	4	**Total student Workload**	8	hours/week
		Contact hours	4	hours/week
Prerequisite	None			
Anti-requisite	None			

Aims

To introduce students to the fundamentals of continuous and discrete time signal and system analysis. This module deals with signals, systems, and their transforms, from their theoretical mathematical foundations to practical implementation in circuits and computer algorithms.

Learning Outcomes

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

Lower order:	30%	- describe the signals and their classification - understand the difference between signals and systems
Middle order :	30%	- identify hardware limitations for a given network configuration - investigate different problems and solutions that may be encountered for different microprocessor architectures
Higher order:	40%	- develop system requirements from a given user requirements - design, plan and justify suitable microprocessor to achieve a given objective - discuss the advantages/disadvantages of different options that are available

Module Contents

- The Fourier series of periodic signals
- The Fourier transform of energy signals
- Fourier transform properties
- Convolution theorem for continuous time signals
- The Dirac delta function $\delta(\cdot)$: properties & applications
- Linear Time Invariant (LTI) systems
- Spectral density and autocorrelation
- Sampling theorem for bandlimited signals
- Convert a continuous time signal to the discrete time domain and reconstruct using the sampling theorem

Assessment	Formative assessment	Monthly quizzes will be used to test and to give feedback for their learning
	Summative assessment	Examination: 50%
		Coursework: 50% - 2 laboratory reports (10% each) - 1 class test (15% each) - 1 assignment (15% each)