



Sample Brief Course Description

Course title	Signals and Systems in Biomedical Engineering
Course code	BME 240
College	Engineering
Department / Program	Biomedical Engineering
Year/ Level	3/7
Course Type	A. <input type="checkbox"/> University <input type="checkbox"/> College <input checked="" type="checkbox"/> Department <input type="checkbox"/> Others b. <input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective
Credited Hours	4
Contact Hours	(LT: 3, LB: 2, TR: 0)
Pre-requisites (if any)	ECE 212
Co-requisites (if any)	---
Course description	This course introduces concepts of signals and systems by studying the following main topics; Continuous-Time Signals. Discrete-Time Signals. Signal analysis and application to ECG Signal. Continuous and Discrete-Time Systems. Fourier Analysis for Continuous-Time Signals. Laplace Transform and Z-Transform.
Course Main Objectives	<ul style="list-style-type: none">• Familiarize the students with the fundamental concepts of continuous and discrete signals and systems and their properties.• Explain the notion of linear time-invariant systems and convolution.



	<ul style="list-style-type: none">• Explain the different transform-domain techniques and their applications.• Acquire skills to simulate and implement basic biomedical signal analysis.
Learning Outcomes	Knowledge and Skills:-- <ol style="list-style-type: none">1. Understand the concept of a signal and a system, plot continuous-time signals, and evaluate the periodicity of a signal.2. Identify properties of continuous-time systems such as linearity, time invariance, stability and causality.3. Understand the concept of the impulse response function of a linear system, and its use to describe the input/output relationship.
	Skills:--- <ol style="list-style-type: none">1. Compute the Fourier series representation of a periodic function.2. Evaluate the Fourier transform of a continuous function, and be familiar with its basic properties.3. Compute the Laplace transform of a continuous function, identify its domain of convergence, and be familiar with its basic properties.4. Compute the Z- transform of a discrete function, identify its domain of convergence, and be familiar with its basic properties.5. Simulate biomedical signals to perform signal analysis techniques and write report.
	Values:--- <ol style="list-style-type: none">1. Communicate effectively and write lab report.