EE374-2: Signal processing

Course code and name	EE374-2: Signal processing
Credits units	2 Credit units
Contact hours	4 Contact hours: 1 lecture, 1 tutorial and 2 practical
Instructor name	Dr. Sabeur Masmoudi
Textbook	Bob Meddins, "Introduction to Digital Signal Processing" Bob Meddins, Textbook 1st. Ed. 2000.
Other supplemental materials	B. P. Lathi, "Signal Processing and linear systems" perkeley Cambridge Press, 1998.
	Specific course information
a. Course description	The students will be able to explain the representation of continuous and discrete time systems and recognize the signal and system properties. Systems Modeling. Convolution and Time Domain Response of Systems. Transfer functions applied to Laplace Transform. Introduction to Z Transform. Fourier series, and Fourier transform, frequency response.
b. Prerequisite	EE272-2
c. Required / Elective	Required
	Course Learning Outcomes

CLO of the Lecture Activities:

CLO1: Explain the classification of signals.

CLO2: Apply the convolution theorem for signals in time domain.

CLO3: Examine the Fourier series and Fourier Transform of signals.

CLO4: Analyze the discrete-time signals and systems in z domain.

CLO5: Compare the structures of FIR and IIR discrete-time filters.

CLO of the Laboratory Activities:

CLO1: Verify theory and to improve knowledge learned in class.

CLO2: Formulate and solve problems related to theory.

CLO3: Design and safety conducts an experimental procedure.

CLO4: Independently perform accurate quantitative measurements, interpret experimental results, perform calculations on these results and draw a reasonable, accurate conclusion.

CLO5: Communicate critical analysis of scientific information through written reports.

CLO6: Be integrated inside a group of work and respect the team working.

Brief list of topics to be covered

- Classifications of signals

- Periodic and non-periodic signals, power and energy signals

- Conjugate symmetric and non-conjugate asymmetric signals

- Period of complex signals

- Different special functions

- Convolution between signals, convolution properties

- Fourier Series.

- Infinite coefficient terms of cosine and sine terms of Fourier series

- Fourier series on continuous time signals.

- Fourier Transform

- Anti-aliasing filters (with sketch), sample and hold devices.

- Difference between ADC and DAC

- Form of discrete time signals.

- Discrete time signals used Z domain

- Design the transfer function of FIR, IIR, and GIR filters by transfer functions.

Mapping Course Learning Outcomes to Student Outcomes

	Lecture Activities						
	SO1	SO2	SO3	SO4	SO5	SO6	SO7

CLO1							
CLO2							
CLO3							
CLO4							
CLO5							
	Laboratory Activities						
	SO1	SO2	SO3	SO4	SO5	SO6	SO7
CLO1							
CLO2							
CLO3							
CLO4							
CLO5							
CLO6							