UCLA
Electrical and Computer Engineering Department
ECE102: Systems and Signals – Spring 2019

The course covers the fundamentals of Signals and Systems. Among the topics are:

- Systems: Description, classification, linearity, time-invariance, causality; Signals: Definition, classification, periodicity, orthogonality.

- Time-domain analysis of linear systems: unit step functions, impulse functions, input-output relation, superposition integral, convolution integral, etc.

- Laplace transform: Applications to differential equations, analysis of linear time-invariant systems.

- Fourier analysis: Periodic signals, amplitude and phase spectra, responses of linear time-invariant systems to periodic signals.

- Fourier transform: Analysis of linear time-invariant systems in the frequency domain; sampling theorem, etc.

Prerequisites:
Complex numbers, first and second order differential equations with constant coefficients, integration by parts, trigonometry.

Textbook:
No textbooks are required. Notes will be posted on CCLE.

Suggested texts:

- *Signals and Systems Using MATLAB*, by Chaparro.

- *Systems and Signals*, by N. Levan, 4th ed., the first five chapters.

- *Signals, Systems and Transforms*, by Phillips and Parr.

- *Signals and Systems*, by Oppenheim and Willsky.

Homework:
Homework assignments are due one week after being handed out. Homework assignments constitute a vital aspect of the course and must be handed in

by the due date. No late homework submissions will be accepted.

Grades:
Grades will be determined based on homework sets (15%), a midterm exam (35%), and a final exam (50%).

Exams:
Midterm exam: Wednesday May 1, 2019, 4pm-5:50pm, Final exam: Tuesday June 11, 2019, 3:00-6:00pm.