

# ELEC 2012 SIGNALS AND SYSTEMS (WSTC ASSOCD)

**Credit Points** 10

**Legacy Code** 700241

**Coordinator** Abbas Ranjbar ([https://directory.westernsydney.edu.au/search/name/Abbas Ranjbar/](https://directory.westernsydney.edu.au/search/name/Abbas%20Ranjbar/))

**Description** This subject aims to develop students understanding of continuous-time and discrete-time concepts and methods. It covers various signals and their analysis, as encountered in the fields of electrical, computer and telecommunication engineering. Offerings of alternate subjects are dependent on there being sufficient student enrolment numbers. If enrolments are low, the College may cancel delivery of the alternate subject.

**School** Eng, Design & Built Env

**Discipline** Communications Technologies

**Student Contribution Band** HECS Band 2 10cp

Check your fees via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 2 subject

**Pre-requisite(s)** MATH 1020 AND ELEC 1004

**Equivalent Subjects** ELEC 2011 - Signals and Systems

## Restrictions

Students must be enrolled at Western Sydney University, The College in 7022 Associate Degree in Engineering

## Learning Outcomes

On successful completion of this subject, students should be able to:

1. Explain common signal types and properties in electrical engineering
2. Explain continuous-time, discrete-time, linear and non-linear systems
3. Describe concepts of power, energy, power spectral density, energy spectral density of signals
4. Determine impulse response, frequency response and stability of a system
5. Apply the principle of convolution to solve problems in linear systems
6. Perform Fourier analysis and Laplace analysis
7. Apply Z-transforms to discrete-time systems
8. Utilise MATLAB for solving signals and systems related problems

## Subject Content

1. Classification of signals.
2. Time domain representations of linear-time invariant systems.
3. The Fourier series.
4. The Fourier transform and its applications.
5. The Laplace transform.
6. Discrete-time signals and systems and z-transforms.

## Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/Group Task
Online Quizzes x 5	30 minutes x 5	15	N	Individual
Lab reports x 5	2 hours each	20	N	Group/Individual
Intra-session Exam	1 hour	15	N	Individual
Final Exam	2 hours	50	N	Individual

Teaching Periods

## Quarter 2 (2024)

### Nirimba Education Precinct

#### Hybrid

**Subject Contact** Abbas Ranjbar ([https://directory.westernsydney.edu.au/search/name/Abbas Ranjbar/](https://directory.westernsydney.edu.au/search/name/Abbas%20Ranjbar/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=ELEC2012\\_24-Q2\\_BL\\_3#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC2012_24-Q2_BL_3#subjects))