ELEC 2011 SIGNALS AND SYSTEMS

Credit Points 10

Legacy Code 300057

Coordinator Peter Lendrum (https://directory.westernsydney.edu.au/search/name/Peter Lendrum/)

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.

School Eng, Design & Built Env

Discipline Communications Technologies

Student Contribution Band HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 2 subject

Pre-requisite(s) MATH 1019 AND ELEC 1003

Equivalent Subjects ELEC 2012 - Signals and Systems (WSTC AssocD)

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

Classification of signals
Time Domain Representations of Linear-Time Invariant Systems
The Fourier series
The Fourier Transform and Its Applications
The Laplace Transform
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
Quiz	40 mins x 3	30	N	Individual
Practical	3 hours x 6	20	N	Individual
Final Exam	2 hours closed book	50	N	Individual

Teaching Periods

Autumn (2022)
Penrith (Kingswood)
Day

Subject Contact Upul Gunawardana (https://directory.westernsydney.edu.au/search/name/Upul Gunawardana/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC2011_22-AUT_KW_D#subjects)

Parramatta - Victoria Rd
Day

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View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC2011_22-AUT_PS_D#subjects)

Sydney City Campus - Term 2 (2022)
Sydney City
Day

Subject Contact Peter Lendrum (https://directory.westernsydney.edu.au/search/name/Peter Lendrum/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC2011_22-SC2_SC_D#subjects)

Autumn (2023)
Penrith (Kingswood)
On-site

Subject Contact Upul Gunawardana (https://directory.westernsydney.edu.au/search/name/Upul Gunawardana/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ELEC2011_23-AUT_KW_1#subjects)

Parramatta City - Macquarie St
On-site

Subject Contact Peter Lendrum (https://directory.westernsydney.edu.au/search/name/Peter Lendrum/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ELEC2011_23-AUT_PC_1#subjects)

Sydney City Campus - Term 1 (2023)
Sydney City
On-site

Subject Contact Peter Lendrum (https://directory.westernsydney.edu.au/search/name/Peter Lendrum/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ELEC2011_23-SC1_SC_1#subjects)

Sydney City Campus - Term 3 (2023)
Sydney City
On-site

Subject Contact Peter Lendrum (https://
directory.westernsydney.edu.au/search/name/Peter Lendrum/)

View timetable (https://classregistration.westernsydney.edu.au/odd/
timetable/?subject_code=ELEC2011_23-SC3_SC_1#subjects)

Sydney City Campus - Term 3 (2023)
Sydney City
On-site

Subject Contact Peter Lendrum (https://
directory.westernsydney.edu.au/search/name/Peter Lendrum/)