ELEC 3003 DIGITAL SIGNAL PROCESSING

Credit Points 10

Legacy Code 300069

Coordinator Jeffrey Zou (https://directory.westernsydney.edu.au/search/name/Jeffrey Zou/)

Description Students will develop an understanding of the fundamental concepts and principles in digital signal processing by applying the theory learned in their classes to practical exercises. The subject matter includes discrete-time signals and systems, the z-transform, sampling of continuous-time signals, transform analysis of linear time-invariant systems, filter design techniques, structures for discrete-time systems, the discrete Fourier transform and computation of the discrete Fourier transform.

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/) page.

Level Undergraduate Level 3 subject

Pre-requisite(s) ELEC 2011 OR
ELEC 2013

Learning Outcomes

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

1. Analyse discrete-time signals and systems;
2. Apply the z-transform to signal processing;
3. Explain the sampling of continuous-time signals;
4. Apply filter design techniques to the design of discrete-time filters;
5. Analyse structures for discrete-time systems;
6. Apply the discrete Fourier transform to signal processing.

Subject Content

Discrete-time signals and systems
The z-transform
Sampling of continuous-time signals
Transform analysis of linear time-invariant systems
Filter design techniques
Structures for discrete-time systems
The discrete Fourier transform
Computation of the discrete Fourier transform

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	Mandatory
Practical	1600 words (per report)	20	N	Individual	N
Intra-session Exam	1.5 hours	30	N	Individual	N
Final Exam	2 hours	50	N	Individual	N

Prescribed Texts

- None

Teaching Periods

Sydney City Campus - Term 2 (2025)

Sydney City

On-site

Subject Contact Ehsan Gatavi (https://directory.westernsydney.edu.au/search/name/Ehsan Gatavi/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ELEC3003_25-SC2_SC_1#subjects)

Spring (2025)

Penrith (Kingswood)

Hybrid

Subject Contact Jeffrey Zou (https://directory.westernsydney.edu.au/search/name/Jeffrey Zou/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ELEC3003_25-SPR_KW_3#subjects)

Parramatta City - Macquarie St

Hybrid

Subject Contact Jeffrey Zou (https://directory.westernsydney.edu.au/search/name/Jeffrey Zou/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ELEC3003_25-SPR_PC_3#subjects)