ELEC 7005 ADVANCED SIGNAL PROCESSING

Credit Points 10

Legacy Code 300596

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

Description This subject covers the principles and techniques in signal processing. The subject matter includes advanced topics in discrete-time signals and systems, the z-transform and its applications in signal processing, advanced topics in the sampling of continuous-time signals, FIR and IIR filter design, filter structures, and the discrete Fourier transform and its computation. Students develop skills of analysing and designing digital signal processing systems.

School Eng, Design & Built Env

Discipline Electrical And Electronic Engineering And Technology

Student Contribution Band HECS Band 2 10cp

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

Level Postgraduate Coursework Level 7 subject

Equivalent Subjects LGYA 5840 - Signal Processing 1

Restrictions

Students must be enrolled in a postgraduate program

Assumed Knowledge

Engineering mathematics, circuit theory, signals and systems.

Learning Outcomes

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

1. Analyse discrete-time signals and systems mathematically;
2. Explain the z-transform and its applications in signal processing mathematically;
3. Explain the sampling of continuous-time signals mathematically;
4. Design FIR and IIR filters;
5. Analyse filter structures mathematically;
6. Explain the discrete Fourier transform mathematically and apply it to signal processing.

Subject Content

Advanced topics in discrete-time signals and systems
The z-transform and its applications in signal processing
Advanced topics in the sampling of continuous-time signals
FIR and IIR filter design
Filter structures
The discrete Fourier transform and its computation

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
Practical	5 pages each	20	N	Individual
Intra-session Exam	1.5 hours	30	N	Individual
Final Exam	2 hour	50	N	Individual

Prescribed Texts

- Oppenheim, AV & Schafer, RW 2010, Discrete-time signal processing, 3rd edn, Pearson, Upper Saddle River, NJ.

Teaching Periods

Spring (2023)
Parramatta City - Macquarie St
On-site
Subject Contact Jeffrey Zou (https://directory.westernsydney.edu.au/search/name/Jeffrey Zou/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ELEC7005_23-SPR_PC_1#subjects)

Spring (2024)
Parramatta City - Macquarie St
On-site
Subject Contact Jeffrey Zou (https://directory.westernsydney.edu.au/search/name/Jeffrey Zou/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC7005_24-SPR_PC_1#subjects)