ELEC 3001 COMMUNICATION SYSTEMS

Credit Points 10

Legacy Code 300007

Coordinator Khoa Le (https://directory.westernsydney.edu.au/search/name/Khoa Le/)

Description This subject will provide a basic introduction to communication systems and techniques. Specific topics covered include energy and power spectral density, amplitude modulation, frequency modulation, pulse modulation, an overview of digital modulation techniques, noise in communication systems and an overview of current telecommunication systems; spread spectrum systems, optical communication systems, radio broadcasting and mobile communication systems.

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

Learning Outcomes

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

1. Analyse analogue modulation techniques such as amplitude and frequency modulation
2. Analyse pulse modulation techniques, quantisation methods, delta modulation, and pulse code modulation
3. Evaluate analogue communication systems performance in the presence of noise
4. Describe basic digital modulation techniques
5. Apply modulation and Fourier transform techniques to explain spread spectrum systems and other mobile communication systems

Subject Content

Review of Fourier Series and Fourier Transforms
Continuous-wave modulation (AM, DSBSC, SSB, FM)
Pulse Modulation (PAM, PPM, PWM)
Delta Modulation
Digital Data Transmission
Introduction to Digital Modulation techniques
Introduction to spread spectrum communication systems
Mobile Communication System basics

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	6 x lab reports including lab preparation and lab documentation	30	Y	Individual
Intra-session Exam	2 hrs, closed book	30	N	Individual
Final Exam	2 hrs, closed book	40	Y	Individual

Teaching Periods

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=ELEC3001_23-SC3_SC_1#subjects)

Autumn (2024)

Penrith (Kingswood)

On-site

Subject Contact Khoa Le (https://directory.westernsydney.edu.au/search/name/Khoa Le/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC3001_24-AUT_KW_1#subjects)

Parramatta City - Macquarie St

On-site

Subject Contact Khoa Le (https://directory.westernsydney.edu.au/search/name/Khoa Le/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC3001_24-AUT_PC_1#subjects)

Sydney City Campus - Term 2 (2024)

Sydney City

On-site

Subject Contact Khoa Le (https://directory.westernsydney.edu.au/search/name/Khoa Le/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC3001_24-SC2_SC_1#subjects)