ELEC 3002 DATA COMMUNICATIONS

Credit Points 10

Legacy Code 300997

Coordinator Ranjith Liyanapathirana (https://directory.westernsydney.edu.au/search/name/Ranjith Liyanapathirana/)

Description This subject is concerned with the principles and topics of fundamental importance to digital data communication, computer communication networks and telecommunications. The lower layers of the protocol structure (physical layer, data link layer and some aspects of the network layer) and the physical medium (hardware and transmission lines) are emphasized. An engineering approach will be taken to provide an insight to transmission and transmission media, communication techniques and transmission efficiency.

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 Undergraduate Level 3 subject

Pre-requisite(s) ELEC 2011

Incompatible Subjects ELEC 4001 - Data Networks

Learning Outcomes

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

1. Outline common data transmission concepts and techniques.
2. Identify the concepts and physical mechanisms underlying data communication in telecommunication networks.
3. Analyse the telephone network to identify the concepts and physical mechanisms underlying data communication.
4. Evaluate the differences between circuit switching and packet switching, and explain how a data communication system can detect and correct channel errors in transmission.

Subject Content

1. Data transmission
2. Guided (including optical fibre) and unguided (wireless) transmission

3. Signal encoding
4. Interfacing
5. Data link control
6. Multiplexing (Synchronous, Asynchronous, Statistical)
7. Spread Spectrum Modulation (Frequency Hopping, Direct Sequence)
8. Error control and flow control techniques
9. Circuit switching and packet switching

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 x 3 hours (group) Written report max 10 pages (individual)	20	Y	Both (Individual & Group)
Intra-session Exam	1.5 hours	20	N	Individual
Final Exam	2 hours	60	Y	Individual

Prescribed Texts

- Stallings, W 2013 Data and Computer Communications, 10th edn, Boston: Pearson 2013

Teaching Periods

Spring (2024)

Penrith (Kingswood)

On-site

Subject Contact Ranjith Liyanapathirana (https://directory.westernsydney.edu.au/search/name/Ranjith Liyanapathirana/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC3002_24-SPR_KW_1#subjects)