

# ELEC 7002 ADVANCED DATA NETWORKS

**Credit Points** 10

**Legacy Code** 300173

**Coordinator** Ranjith Liyanapathirana (<https://directory.westernsydney.edu.au/search/name/RanjithLiyanapathirana/>)

**Description** This unit covers all major network technologies: asynchronous transfer mode (ATM), Internet, and telephony. Essential networking topics such as protocol layering, multiple access, switching, scheduling, routing, congestion control, error and flow control, and network security are covered in detail. An engineering approach is taken to provide insight into network design.

**School** Eng, Design & Built Env

**Discipline** Electrical and Electronic Engineering and Technology, Not Elsewhere Classified.

**Student Contribution Band** HECS Band 2 10cp

**Level** Postgraduate Coursework Level 7 subject

## Restrictions

Students must be enrolled in a postgraduate program

## Assumed Knowledge

Communication Systems / Digital Communication.

## Learning Outcomes

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

1. Explain network topologies and communication architectures
2. Explain and apply advanced level networking concepts and functions
3. Describe and analyze common protocols used in telephone networks, the Internet and ATM networks.

## Subject Content

Introductory concepts: network topologies, packet switching, datagram packet switching and virtual circuits.

Queuing Theory: M/M/1 and other queues, simple applications.

ATM Switching: Service categories, protocol formats, switch fabric architectures

High-speed LANs

Internetworking

Security: private and public key encryption, authentication and digital signatures.

## 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.

Item	Length	Percent	Threshold	Individual/ Group Task
Seminar and individual written report	No more than 20 15 pages		N	Individual

Practicals assessed as Satisfactory/Unsatisfactory	3 hours per week for 5 weeks	S/U	N	Individual
Mid-term Quiz (Closed Book)	1 hour	25	N	Individual
Final Exam (Closed Book)	2 hours	55	N	Individual

Teaching Periods

## Spring

### Parramatta City - Macquarie St

#### Day

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

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=ELEC7002\\_22-SPR\\_PC\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC7002_22-SPR_PC_D#subjects))