



UNSW

UNSW Course Outline

TELE9781 Special Topics in Telecommunications 1 - 2024

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General Course Information

Course Code : TELE9781

Year : 2024

Term : Term 2

Teaching Period : T2

Is a multi-term course? : No

Faculty : Faculty of Engineering

Academic Unit : School of Electrical Engineering & Telecommunications

Delivery Mode : In Person

Delivery Format : Standard

Delivery Location : Kensington

Campus : Sydney

Study Level : Postgraduate

Units of Credit : 6

Useful Links

[Handbook Class Timetable](#)

Course Details & Outcomes

Course Description

This is an elective course at the graduate level, covering some special or advanced topics in telecommunications of particular interests or needs at the time. The course content varies with the changing topics.

Course Aims

The course aims to expose students to some selected topics of special interest such as new emerging areas of technological advances or industry practices in the field of telecommunications.

Relationship to Other Courses

This is a postgraduate elective course in the School of Electrical Engineering and Telecommunications. It is an elective course for students who have a BE in Electrical, or Telecommunications or Computer and other combined degree programs

Course Learning Outcomes

Course Learning Outcomes
CLO1 : After successful completion of this course, students will gain a sound technical knowledge of the specific advanced telecommunications topics covered in this course.

Course Learning Outcomes	Assessment Item
CLO1 : After successful completion of this course, students will gain a sound technical knowledge of the specific advanced telecommunications topics covered in this course.	• Final Result

Learning and Teaching Technologies

Moodle - Learning Management System

Other Professional Outcomes

Course Learning Outcomes (CLO)

1. Understand networking fundamentals, design and implement functional networks for small and medium-sized businesses to include IP addressing, IP routing, switching, DHCP, NAT, and so on.
2. Understand storage fundamentals, design and implement storage solutions for small and medium-sized businesses to include RAID, storage networking, software-defined storage, and so on.
3. Understand virtualisation fundamentals, design and implement virtualisation solutions for small and medium-sized businesses to include virtual computing, virtual networking and

virtual storage.

Engineers Australia (EA), Professional Engineer Stage 1 Competencies

The Course Learning Outcomes (CLOs) contribute to your development of the following EA competencies

PE1: Knowledge and Skill Base:

- PE1.1 Comprehensive, theory-based understanding of underpinning fundamentals: CLO 1, 2, 3
- PE1.2 Conceptual understanding of underpinning maths, analysis, statistics, computing: CLO 1, 2
- PE1.3 In-depth understanding of specialist bodies of knowledge: CLO 2, 3
- PE1.4 Discernment of knowledge development and research directions: CLO 2, 3
- PE1.5 Knowledge of engineering design practice: N/A
- PE1.6 Understanding of scope, principles, norms, accountabilities of sustainable engineering practice: N/A

PE2: Engineering Application Ability:

- PE2.1 Application of established engineering methods to complex problem solving: CLO 1, 3
- PE2.2 Fluent application of engineering techniques, tools and resources: CLO 1, 2, 3
- PE2.3 Application of systematic engineering synthesis and design processes: CLO 1, 3
- PE2.4 Application of systematic approaches to the conduct and management of engineering projects: N/A

PE3: Professional and Personal Attributes:

- PE3.1 Ethical conduct and professional accountability: N/A
- PE3.2 Effective oral and written communication (professional and lay domains): CLO 1, 2, 3
- PE3.3 Creative, innovative and pro-active demeanour: N/A
- PE3.4 Professional use and management of information: CLO 2, 3
- PE3.5 Orderly management of self, and professional conduct: N/A
- PE3.6 Effective team membership and team leadership: CLO 2, 3

Additional Course Information

Context and Aims

A solid IT infrastructure is a vital part of any modern business, allowing an organisation to effectively communicate both internally and externally. Having the right infrastructure in place for business connectivity should be seen as a non-negotiable for any company. Nowadays,

virtualization and cloud computing are no longer an option for enterprises but an imperative for survival. The cloud has dramatically changed the way IT infrastructure is built, utilised and managed. It has created new roles such as the cloud engineer and the cloud architect to lead this trend. This course will start with networking and storage as fundamentals, then focus on the technologies and skills required today to design, implement and manage cloud infrastructures to optimise business performance.

COURSE DETAILS

Credits

This is a 6 UoC course and the expected workload is 15 hours per week throughout the 10-week term.

Pre-requisites and Assumed Knowledge

There are no pre-requisites for this course but it would be very helpful to have basic understanding of networking technologies, for example: TCP/IP model, IP addressing, routing and switching.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Final Result Assessment Format: Individual	100%	Start Date: Not Applicable Due Date: Not Applicable

Assessment Details

Final Result

Assessment Overview

The assessment will be divided into sub-assessment items that will vary with the special topic that is covered in the course in a particular term. The sub-assessments aim to evaluate a student's level of understanding and mastery of the course materials. The sub-assessments may include group research and presentation. Marks for sub-assessment items will be awarded based on the correctness of the response and against specific criteria in a marking guide. Formal individual feedback on submitted sub-assessment items, excluding any final exam component, will be provided within two weeks of their submission.

Course Learning Outcomes

- CLO1 : After successful completion of this course, students will gain a sound technical knowledge of the specific advanced telecommunications topics covered in this course.

Detailed Assessment Description

component 1:

There are three quizzes mainly based on multiple choice questions, short answer questions, and calculation questions. The weights are 15% (quiz 1), 15% (quiz 2), 15% (quiz 3). Quiz 1 is scheduled in week 4; quiz 2 is scheduled in week 7; and quiz 3 is scheduled in week 10.

component 2:

The final exam in this course is a standard closed-book 2 hours written examination. Questions may be drawn from any aspect of the course, unless specifically indicated otherwise by the lecturer. Marks will be assigned according to the correctness of the responses.

Assessment Length

quiz (each): 1 hour, final exam: 2 hours

Assignment submission Turnitin type

This is not a Turnitin assignment

General Assessment Information

Assessment criteria

Objective test questions (multiple choice questions, calculation questions etc.): The answers must be consistent with the standard answers. Otherwise there is no score for that question.

Short answer questions

The answer includes all the keywords and proper explanations required. All the key points are described logically. The solutions are complete and highly feasible. The students demonstrate their understanding of the question and the conceptual model at a very high standard.
(90%-100% marks of the question)

The answer is complete and clear, but some minor typos appear in the explanation and 1-2 keywords are missing. The solutions are technically accurate and feasible. The students demonstrate their understanding of the question and the conceptual model at a satisfactory standard. (70%-80% marks of the question)

The answer is not enough to address the issue. Some of the proposed solutions are not technically feasible. The students demonstrate their understanding of the question and the conceptual model at a basic standard; however, the explanation is somehow incomplete. (40%-60% marks of the question)

Some parts of the question are not answered. Only 1-2 key points are included in the explanation. The solutions provided are limited and not technically feasible. The students demonstrate their understanding of the question and the conceptual model at a basic standard. (20%-30% marks of the question)

The answer is incorrect. The solutions and explanations are not feasible and logical. The students demonstrate their understanding of the question and the conceptual model at an unsatisfactory standard. (0-10% marks of the question)

Grading Basis

Standard

Requirements to pass course

Item	Time	Weight
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Quiz 1:	1 hour	15%
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Quiz 2	1 hour	15%
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Quiz 3	1 hour	15%
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Final Exam	2 hours	55%
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Final result= quiz 1+ quiz 2+ quiz 3+final exam.

Pass>=50%

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 27 May - 2 June	Lecture	Introduction to enterprise IT infrastructure Networking fundamentals Lab for network fundamentals
Week 2 : 3 June - 9 June	Lecture	IP addressing and subnetting IP routing Lab for IP address and subnetting, and IP routing
Week 3 : 10 June - 16 June	Lecture	Switching technologies IP services Lab for switching technologies and IP services
Week 4 : 17 June - 23 June	Lecture	Storage fundamentals Quiz 1 based on the studies of Week 1-Week3
Week 5 : 24 June - 30 June	Lecture	Storage networking Lab for storage networking
Week 6 : 1 July - 7 July	Lecture	Software-defined storage Lab for software defined storage
Week 7 : 8 July - 14 July	Lecture	Virtualisation and cloud fundamentals Quiz 2 based on the studies of Week 4-Week 6
Week 8 : 15 July - 21 July	Lecture	Virtual networking in the cloud Lab for virtual networking in the cloud
Week 9 : 22 July - 28 July	Lecture	Virtual storage in the cloud Lab for virtual storage in the cloud
Week 10 : 29 July - 4 August	Lecture	Technology trends in IT infrastructure industry and career prospect Quiz 3 based on the studies of Week 7-Week 9

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

General Schedule Information

Lectures	Day	Time	Location
Week 1-10	Wednesday	18:00-21:00	K-G17-G04 - EE Building

Course Resources

Prescribed Resources

The resources of course information (lecture and lab material) will be given on Moodle before the lecture time.

Recommended Resources

Textbooks

Prescribed textbook

- “Data Storage Networking”, Nigel Poulton, Sybex
- “CompTIA Cloud+ Certification Study Guide, Second Edition (Exam CV0-002)”, Scott Wilson, McGraw-Hill

On-line resources

Moodle

As a part of the teaching component, Moodle will be used to disseminate teaching materials, host forums and occasionally, quizzes. Assessment marks will also be made available via Moodle: <https://moodle.telt.unsw.edu.au/login/index.php>.

Course Evaluation and Development

Consultations: You are encouraged to ask questions on the course material, after the lecture class times in the first instance, rather than via email. All email enquiries should be made from your student email address with TELE9781 in the subject line; otherwise they will not be answered.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Guo Chen		EE306		Monday-Friday	No	Yes

Other Useful Information

Academic Information

I. Special consideration and supplementary assessment

If you have experienced an illness or misadventure beyond your control that will interfere with your assessment performance, you are eligible to apply for Special Consideration prior to, or

within 3 working days of, submitting an assessment or sitting an exam.

Please note that UNSW has a Fit to Sit rule, which means that if you sit an exam, you are declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's [Special Consideration page](#).

II. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and polices. In particular, students should be familiar with the following:

- [Attendance](#)
- [UNSW Email Address](#)
- [Special Consideration](#)
- [Exams](#)
- [Approved Calculators](#)
- [Academic Honesty and Plagiarism](#)
- [Equitable Learning Services](#)

III. Equity and diversity

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equitable Learning Services. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

IV. Professional Outcomes and Program Design

Students are able to review the relevant professional outcomes and program designs for their streams by going to the following link: <https://www.unsw.edu.au/engineering/student-life/student-resources/program-design>.

Note: This course outline sets out the description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle or your primary learning management system (LMS) should be consulted for the up-to-date class descriptions. If there is any inconsistency in the description of activities between the

University timetable and the Course Outline/Moodle/LMS, the description in the Course Outline/Moodle/LMS applies.

Academic Honesty and Plagiarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.*

Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. UNSW has produced a website with a wealth of resources to support students to understand and avoid plagiarism, visit: student.unsw.edu.au/plagiarism. The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one.

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in an honours thesis or contract cheating) even suspension from the university. The Student Misconduct Procedures are available here:

www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Submission of Assessment Tasks

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of five percent (5%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way

through a day. This is for all assessments where a penalty applies.

Work submitted after five days (120 hours) will not be accepted and a mark of zero will be awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These will be clearly indicated in the course outline, and such assessments will receive a mark of zero if not completed by the specified date. Examples include:

- Weekly online tests or laboratory work worth a small proportion of the subject mark;
- Exams, peer feedback and team evaluation surveys;
- Online quizzes where answers are released to students on completion;
- Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date; and,
- Pass/Fail assessment tasks.

Faculty-specific Information

[Engineering Student Support Services](#) – The Nucleus - enrolment, progression checks, clash requests, course issues or program-related queries

[Engineering Industrial Training](#) – Industrial training questions

[UNSW Study Abroad](#) – study abroad student enquiries (for inbound students)

[UNSW Exchange](#) – student exchange enquiries (for inbound students)

[UNSW Future Students](#) – potential student enquiries e.g. admissions, fees, programs, credit transfer

Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

School-specific Information

General Conduct and Behaviour

Consideration and respect for the needs of your fellow students and teaching staff is an expectation. Conduct which unduly disrupts or interferes with a class is not acceptable and students may be asked to leave the class.

Use of AI for assessments

Your work must be your own. If you use AI in the writing of your assessment, you must acknowledge this and your submission must be substantially your own work. More information can be found on this [website](#).

Workplace Health & Safety (WHS)

WHS for students and staff is of utmost priority. Most courses involve laboratory work. You must follow the [rules about conduct in the laboratory](#). About COVID-19, advice can be found on this [website](#).

School Contact Information

Consultations: Lecturer consultation times will be advised during the first lecture. You are welcome to email the tutor or laboratory demonstrator, who can answer your questions on this course and can also provide you with consultation times. ALL email enquiries should be made from your student email address with ELEC/TELEXXXX in the subject line; otherwise they will not be answered.

Keeping Informed: Announcements may be made during classes, via email (to your student email address) and/or via online learning and teaching platforms – in this course, we will use Moodle <https://moodle.telt.unsw.edu.au/login/index.php>. Please note that you will be deemed to have received this information, so you should take careful note of all announcements.

Student Support Enquiries

[For enrolment and progression enquiries please contact Student Services](#)

Web

[Electrical Engineering Homepage](#)