TELE4026

Advanced Telecommunications Engineering

Session 1, Weekday attendance, North Ryde 2020

School of Engineering

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General Information

Unit convenor and teaching staff Stephen Hanly stephen.hanly@mq.edu.au 44 Waterloo Road room 108 appointment via email
Credit points 10
Prerequisites (TELE3021 or ELEC321) and (TELE3350 or ELEC345)
Corequisites
Co-badged status
Unit description This is an advanced level unit in Telecommunications Engineering integrating prior learning in a specialist area of engineering with problem solving, emerging technology and aspects of engineering application, technical reporting and self-management to prepare students to work at a professional capacity. The unit aims to address the application of fundamental principles and methods at an advanced level in the context of standards and practices, modelling, analysis, design and practical implementation. The unit also develops skills in the critical evaluation of information, software, simulation and experimental methods. Learning will be achieved using a variety of modes including laboratories, group work and traditional lecture format. The specific topics will focus on current advances in the area such as resource allocation, performance analysis, link and network design, physical layer wireless communications analysis and simulation techniques in various types of wireless networks.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

> **ULO1:** Describe and apply advanced concepts and techniques in telecommunications, cellular and wireless networks, resource allocation, network design and wireless communication theory.

ULO2: Apply mathematical and optimisation methods to the analysis of advanced telecommunications and wireless systems and networks.

ULO3: Describe, explain and critique research literature related to telecommunications and wireless communications.

ULO4: Conduct simulation experiments using software simulation tools and report on output for telecommunications and wireless systems.

Assessment Tasks

Coronavirus (COVID-19) Update

Assessment details are no longer provided here as a result of changes due to the Coronavirus (COVID-19) pandemic.

Students should consult iLearn for revised unit information.

Find out more about the Coronavirus (COVID-19) and potential impacts on staff and students

General Assessment Information

In order to pass this unit a student must obtain a mark of 50 or more for the unit (i.e. obtain a passing grade P/ CR/ D/ HD).

If you receive special consideration for the final exam, a supplementary exam will be scheduled by the faculty during a supplementary exam period, typically about 3 to 4 weeks after the normal exam period. By making a special consideration application for the final exam you are declaring yourself available for a resit during the supplementary examination period and will not be eligible for a second special consideration approval based on pre-existing commitments. Please ensure you are familiar with the policy prior to submitting an application. Approved applicants will receive an individual notification one week prior to the exam with the exact date and time of their supplementary examination.

Late submissions of assignments will attract a penalty of 10% of the marks per day. Extenuating circumstances will be considered upon lodgement of an application for special consideration.Resubmissions are not allowed.

The in-class participation will be based on a short 5 minute presentation given by each student in the unit to the class.

Delivery and Resources

Coronavirus (COVID-19) Update

Any references to on-campus delivery below may no longer be relevant due to COVID-19.

Please check here for updated delivery information: https://ask.mq.edu.au/account/pub/display/unit_status

There will be a sequence of lectures and tutorials each week. These lectures will include new material as well as problem solving practice. Lecture notes, problem sheets, including problems for assessment, will be posted to ilearn.

Reference material will be made available on closed reserve in the library. References are:

"Wireless Communications: Principles and Practice", by Theodore Rappaport (Prentice Hall)

"Wireless Communications" by Andrea Goldsmith (Cambridge University Press)

"LTE-The UMTS Long Term Evolution: From Theory to Practice" (2nd Edition) by Stefania Sesia, Issam Toufik and Matthew Baker

"Millimeter Wave Wireless Communications" by Theodore Rappaport, Robert Heath, Robert Daniels and James Murdock (Prentice Hall)

"Computer Networks: A Top-Down Approach" by James Kurose and Keith Ross (Addison Wesley)

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Grade Appeal Policy
- Complaint Management Procedure for Students and Members of the Public
- Special Consideration Policy *(**Note:** The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)*

Students seeking more policy resources can visit the Student Policy Gateway (https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/study/getting-started/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- Getting help with your assignment
- Workshops
- StudyWise
- Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy.

The policy applies to all who connect to the MQ network including students.