ELEC883

Internet of Things

S1 Day 2019

School of Engineering

Contents

General Information

Unit convenor and teaching staff
Lecturer
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Contact via 1558
44 WR, Room 124
Wednesdays & Thursdays 3-4PM

Credit points
4

Prerequisites

Corequisites

Co-badged status

Unit description
This unit explores the Internet of Things (IoT) including fundamentals, standards, non-cellular IoT, low-power wide-area networks, cellular IoT, narrow-band IoT, ultra-reliable communications, massive IoT, cellular-to-vehicle, vehicle-to-vehicle and vehicle-to-everything, coverage and capacity requirements, network architecture, cloud radio access technology, IoT security, IoT application for transport and automotive , smart cites, industry, agriculture etc, network management and operations, IoT big data analytics. Learning includes theory and practice using real-time live networks using a project based learning approach.

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:

Able to describe IoT networks models and services

Demonstrate knowledge of IoT mobile networks fundamentals

Showing competency in IoT Coverage , Channel Model, Link Budget

Able to describe IoT Cloud implementation and IoT services

Working skills for IoT for smart infrastructure and IoT security

General Assessment Information

General Assessment Information

Notifications

Formal notification of assessment tasks, grading rubrics and due dates will be posted on iLearn. Although all reasonable measures are taken to ensure the information is accurate, The University reserves the right to make changes without notice. Each student is responsible for checking iLearn for changes and updates.

Report and Assignment Submissions

In Class Test solutions will be posted within a week after the the test date. Submissions will not be accepted once the solution is posted.

All reports and assignments must be submitted electronically through iLearn (in pdf format). Submissions will undergo plagiarism checkers using the turnitin software and any work deemed to have 20% or higher similarity score may incur academic penalty. For more details on the policies of academic penalties relating to academic honesty, please refer to the policies and procedures section below.

Submissions are expected to be typed set in a logical layout and sequence. The expected workload includes preparation of final copies and clear diagrams.

Late submissions

Late submissions will not be accepted without prior arrangement made at least one week before the submission date. Extenuating circumstances will be considered upon lodgement of a formal notice of disruption of studies.

Grading and passing requirement for unit

For further details about grading, please refer below in the policies and procedures section.

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).

Student Responsibilities

Be familiar with University policy, procedures and act in accordance with those policy and procedures.

It is the responsibility of the student to retain a copy of any work submitted. Students must produce these documents upon request. Copies should be retained until the end of the grade appeal period each term.

Student is to perform the required due diligent for their assessment grade and rectify as soon as possible upon finding any errors

Assessment Tasks

Name	Weighting	Hurdle	Due
In Class Test 1	20%	No	W6
In Class Test 2	30%	No	W13
Group Project	50%	No	W13

In Class Test 1

Due: **W6**
Weighting: **20%**

In class Test 1

On successful completion you will be able to:

- Able to describe IoT networks models and services
- Demonstrate knowledge of IoT mobile networks fundamentals
- Showing competency in IoT Coverage , Channel Model, Link Budget
- Able to describe IoT Cloud implementation and IoT services

In Class Test 2

Due: **W13**
Weighting: **30%**

In Class Test 2

On successful completion you will be able to:

- Showing competency in IoT Coverage , Channel Model, Link Budget
- Able to describe IoT Cloud implementation and IoT services
- Working skills for IoT for smart infrastructure and IoT security

Group Project

Due: **W13**
Weighting: **50%**

Project Progress assessment 1 W7   Weighting 20

Project Progress assessment 2 W7   Weighting 30

On successful completion you will be able to:

- Showing competency in IoT Coverage , Channel Model, Link Budget
- Able to describe IoT Cloud implementation and IoT services
- Working skills for IoT for smart infrastructure and IoT security

Delivery and Resources

The Unit delivery consists of interactive classes, Lectures, Brain storming sessions. IoT Group Projects It is the responsibility of the students to be active and focused regularly, attend the lectures, Proactively work on the project learn online engage the group project members on weekly basis, and answer the review questions .Students will Accumulate the knowledge through strategies such as Q&A, problem-solving, short presentations, discussion or debates. Work related to Io , is performed by students in groups to encourage collaborative learning.

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.)*

Undergraduate 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 improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

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.

Graduate Capabilities

PG - Capable of Professional and Personal Judgment and Initiative

Our postgraduates will demonstrate a high standard of discernment and common sense in their professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

Learning outcomes

- Demonstrate knowledge of IoT mobile networks fundamentals

- Showing competency in IoT Coverage , Channel Model, Link Budget
- Able to describe IoT Cloud implementation and IoT services
- Working skills for IoT for smart infrastructure and IoT security

Assessment tasks

- In Class Test 2
- Group Project

PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

Learning outcomes

- Able to describe IoT networks models and services
- Demonstrate knowledge of IoT mobile networks fundamentals
- Showing competency in IoT Coverage , Channel Model, Link Budget
- Able to describe IoT Cloud implementation and IoT services
- Working skills for IoT for smart infrastructure and IoT security

Assessment tasks

- In Class Test 1
- In Class Test 2
- Group Project

PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

Learning outcomes

- Able to describe IoT networks models and services
- Demonstrate knowledge of IoT mobile networks fundamentals
- Showing competency in IoT Coverage , Channel Model, Link Budget
- Able to describe IoT Cloud implementation and IoT services

- Working skills for IoT for smart infrastructure and IoT security

Assessment tasks

- In Class Test 1
- In Class Test 2
- Group Project

PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

Learning outcomes

- Demonstrate knowledge of IoT mobile networks fundamentals
- Showing competency in IoT Coverage , Channel Model, Link Budget
- Able to describe IoT Cloud implementation and IoT services
- Working skills for IoT for smart infrastructure and IoT security

Assessment tasks

- In Class Test 2
- Group Project

PG - Effective Communication

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

Learning outcomes

- Able to describe IoT networks models and services
- Demonstrate knowledge of IoT mobile networks fundamentals
- Showing competency in IoT Coverage , Channel Model, Link Budget
- Able to describe IoT Cloud implementation and IoT services
- Working skills for IoT for smart infrastructure and IoT security

Assessment tasks

- In Class Test 1

- In Class Test 2

- Group Project

PG - Engaged and Responsible, Active and Ethical Citizens

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of connectedness with others and country and have a sense of mutual obligation. They will be able to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues

This graduate capability is supported by:

Learning outcomes

- Demonstrate knowledge of IoT mobile networks fundamentals

- Able to describe IoT Cloud implementation and IoT services

- Working skills for IoT for smart infrastructure and IoT security

Assessment task

- Group Project