



# TELE8089

## Wireless Sensor Network Applications

Session 2, Special circumstance, North Ryde 2020

*School of Engineering*

### Contents

<u>General Information</u>	2
<u>Learning Outcomes</u>	2
<u>General Assessment Information</u>	3
<u>Assessment Tasks</u>	3
<u>Delivery and Resources</u>	7
<u>Unit Schedule</u>	7
<u>Policies and Procedures</u>	7
<u>Changes from Previous Offering</u>	9

#### Disclaimer

Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.

#### Notice

As part of Phase 3 of our return to campus plan, most units will now run tutorials, seminars and other small group learning activities on campus for the second half-year, while keeping an online version available for those students unable to return or those who choose to continue their studies online.

To check the availability of face-to-face and online activities for your unit, please go to timetable viewer. To check detailed information on unit assessments visit your unit's iLearn space or consult your unit convenor.

## General Information

Unit convenor and teaching staff

Subhas Mukhopadhyay

[subhas.mukhopadhyay@mq.edu.au](mailto:subhas.mukhopadhyay@mq.edu.au)

9WW 313

via email or phone (0421474818)

Tutor

Alice James

[alice.james@students.mq.edu.au](mailto:alice.james@students.mq.edu.au)

via email

Avishkar Seth

[avishkar.seth@mq.edu.au](mailto:avishkar.seth@mq.edu.au)

via email

Credit points

10

Prerequisites

Admission to MEngNetTeleEng or MEngElecEng

Corequisites

Co-badged status

Unit description

This unit will explore the underlying technologies and applications for wireless sensor networks. Beginning with foundation knowledge in sensors, embedded processing and wireless concepts for ad hoc radios and network solutions, concepts will built towards notions of latency, performance, and Quality of Service in the support and consideration of a wide range of applications, from wireless body area networks (WBAN) to fixed monitoring to emergency services.

## 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:** Demonstrate understanding of fundamental components to implement wireless

sensor network system such as sensors, embedded processors, interfacing electronics and wireless communicating devices

**ULO3:** Select proper hardware to design and implement wireless sensor network systems for remote monitoring

**ULO2:** Demonstrate understanding on wireless protocols, security and implementation

**ULO4:** Manage data, implement security and design software in the context of wireless sensor networks

## 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).

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

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#"><u>Report on the practical project implementation#2</u></a>	10%	No	Week#8
<a href="#"><u>Report on the practical project implementation#1</u></a>	10%	No	Week#3
<a href="#"><u>Report on the practical project implementation#3</u></a>	10%	No	Week#13
<a href="#"><u>Test#2</u></a>	20%	No	Week#8
<a href="#"><u>Test#3</u></a>	30%	No	Week#14
<a href="#"><u>Test#1</u></a>	10%	No	Week#4
<a href="#"><u>Report on a project</u></a>	10%	No	Week#3

## Report on the practical project implementation#2

Assessment Type <sup>1</sup>: Design Implementation

Indicative Time on Task <sup>2</sup>: 8 hours

Due: **Week#8**

Weighting: **10%**

Report on the practical project implementation and demonstration

On successful completion you will be able to:

- Demonstrate understanding of fundamental components to implement wireless sensor network system such as sensors, embedded processors, interfacing electronics and wireless communicating devices
- Select proper hardware to design and implement wireless sensor network systems for remote monitoring
- Demonstrate understanding on wireless protocols, security and implementation
- Manage data, implement security and design software in the context of wireless sensor networks

## Report on the practical project implementation#1

Assessment Type **1**: Design Implementation

Indicative Time on Task **2**: 8 hours

Due: **Week#3**

Weighting: **10%**

The students will work in group and will present the design problem in the form of presentation and a short report

On successful completion you will be able to:

- Demonstrate understanding of fundamental components to implement wireless sensor network system such as sensors, embedded processors, interfacing electronics and wireless communicating devices
- Select proper hardware to design and implement wireless sensor network systems for remote monitoring
- Demonstrate understanding on wireless protocols, security and implementation
- Manage data, implement security and design software in the context of wireless sensor networks

## Report on the practical project implementation#3

Assessment Type **1**: Demonstration

Indicative Time on Task **2**: 8 hours

Due: **Week#13**

Weighting: **10%**

Report on the practical project implementation and demonstration

On successful completion you will be able to:

- Demonstrate understanding of fundamental components to implement wireless sensor network system such as sensors, embedded processors, interfacing electronics and wireless communicating devices
- Select proper hardware to design and implement wireless sensor network systems for remote monitoring
- Demonstrate understanding on wireless protocols, security and implementation
- Manage data, implement security and design software in the context of wireless sensor networks

## Test#2

Assessment Type <sup>1</sup>: Quiz/Test

Indicative Time on Task <sup>2</sup>: 10 hours

Due: **Week#8**

Weighting: **20%**

The 2nd assessment in the form of a test will be held on Wee#8

On successful completion you will be able to:

- Demonstrate understanding of fundamental components to implement wireless sensor network system such as sensors, embedded processors, interfacing electronics and wireless communicating devices
- Select proper hardware to design and implement wireless sensor network systems for remote monitoring
- Demonstrate understanding on wireless protocols, security and implementation

## Test#3

Assessment Type <sup>1</sup>: Quiz/Test

Indicative Time on Task <sup>2</sup>: 20 hours

Due: **Week#14**

Weighting: **30%**

The third test will be very similar to the Final examination

On successful completion you will be able to:

- Demonstrate understanding of fundamental components to implement wireless sensor network system such as sensors, embedded processors, interfacing electronics and wireless communicating devices
- Select proper hardware to design and implement wireless sensor network systems for remote monitoring
- Demonstrate understanding on wireless protocols, security and implementation
- Manage data, implement security and design software in the context of wireless sensor networks

## Test#1

Assessment Type <sup>1</sup>: Quiz/Test

Indicative Time on Task <sup>2</sup>: 6 hours

Due: **Week#4**

Weighting: **10%**

The first assessment in the form of a test will be held on Week#4

On successful completion you will be able to:

- Demonstrate understanding of fundamental components to implement wireless sensor network system such as sensors, embedded processors, interfacing electronics and wireless communicating devices
- Demonstrate understanding on wireless protocols, security and implementation

## Report on a project

Assessment Type <sup>1</sup>: Report

Indicative Time on Task <sup>2</sup>: 15 hours

Due: **Week#3**

Weighting: **10%**

The students will be asked to study a few papers on their choice and write a report on a WSN system

On successful completion you will be able to:

- Demonstrate understanding of fundamental components to implement wireless sensor

network system such as sensors, embedded processors, interfacing electronics and wireless communicating devices

- Select proper hardware to design and implement wireless sensor network systems for remote monitoring
- Demonstrate understanding on wireless protocols, security and implementation
- Manage data, implement security and design software in the context of wireless sensor networks

---

<sup>1</sup> If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

<sup>2</sup> Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

## Delivery and Resources

All teaching materials will be available in iLearn

## Unit Schedule

Refer to iLearn and lecture notes for the unit schedule

## 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) (<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/unit_guides/129785/unit_guide/print) ([https://students.mq.edu.au/unit\\_guides/129785/unit\\_guide/print](https://students.mq.edu.au/unit_guides/129785/unit_guide/print))

[mq.edu.au/support/study/student-policy-gateway](http://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](http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<http://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](http://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto: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](http://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](http://ask.mq.edu.au)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto: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/](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.

## Changes from Previous Offering

The lectures will be delivered on line

The project activity will be IoT enabled sensor nodes