



MTRN4068

Wireless Mechatronics

Session 2, Weekday attendance, North Ryde 2021

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>Policies and Procedures</u> | 7 |
| <u>Changes from Previous Offering</u> | 8 |

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Session 2 Learning and Teaching Update

The decision has been made to conduct study online for the remainder of Session 2 for all units WITHOUT mandatory on-campus learning activities. Exams for Session 2 will also be online where possible to do so.

This is due to the extension of the lockdown orders and to provide certainty around arrangements for the remainder of Session 2. We hope to return to campus beyond Session 2 as soon as it is safe and appropriate to do so.

Some classes/teaching activities cannot be moved online and must be taught on campus. You should already know if you are in one of these classes/teaching activities and your unit convenor will provide you with more information via iLearn. If you want to confirm, see the list of [units with mandatory on-campus classes/teaching activities](#).

Visit the [MQ COVID-19 information page](#) for more detail.

General Information

Unit convenor and teaching staff

Subhas Mukhopadhyay

subhas.mukhopadhyay@mq.edu.au

Contact via Subhas.Mukhopadhyay@mq.edu.au

9WW 313

Monday 3:0pm to 5:0pm

Tutor

Alice James

alice.james@mq.edu.au

Tutor

Avishkar Seth

avishkar.seth@mq.edu.au

Credit points

10

Prerequisites

(MTRN3026 or ELEC326) and (ELEC3024 or ELEC324)

Corequisites

Co-badged status

Unit description

With the advancement of Internet of Things (IoT), microelectromechanical systems (MEMS), smart sensors and actuators, wireless mechatronic devices, services, and systems are experiencing fast growth in a variety of application fields, such as manufacturing, transportation, and healthcare. This unit deals on the theory and practice of designing wireless mechatronic systems using smart actuators, sensors, Interfacing, embedded controller, wireless protocols with adaptive intelligence.

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: Implement wireless mechatronics systems including smart sensors, actuators

and wireless communicating devices in the context of wireless mechatronics

ULO2: Demonstrate a good understanding of data storage, security and cloud computing in the context of wireless mechatronics

ULO3: Design and implement software for wireless mechatronics systems

ULO4: Design and implement systems for remote monitoring and control

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).

Test#3 is equivalent to Final Examination and is hurdle. You need to obtain 50% in Test#3 to pass the unit.

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.

Assessment Tasks

| Name | Weighting | Hurdle | Due |
|--|-----------|--------|--------------|
| Test#3 | 30% | No | Week 14 |
| Test#2 | 20% | No | Week 6 and 9 |
| Review of wireless mechatronics system | 10% | No | Week 8 |
| Practical project | 10% | No | Week 13 |
| Test#1 | 10% | No | Week 4 |
| Practical activity | 10% | No | Week 3 and 7 |
| Practical Project | 10% | No | Week 13 |

Test#3

Assessment Type [1](#): Quiz/Test

Indicative Time on Task [2](#): 20 hours

Due: **Week 14**

Weighting: **30%**

The Test#3 will be similar like the Final examination and will be held on Week#14

On successful completion you will be able to:

- Implement wireless mechatronics systems including smart sensors, actuators and wireless communicating devices in the context of wireless mechatronics
- Demonstrate a good understanding of data storage, security and cloud computing in the context of wireless mechatronics
- Design and implement software for wireless mechatronics systems
- Design and implement systems for remote monitoring and control

Test#2

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 10 hours

Due: **Week 6 and 9**

Weighting: **20%**

The 2nd test on taught topics, will be held on Week#8

On successful completion you will be able to:

- Implement wireless mechatronics systems including smart sensors, actuators and wireless communicating devices in the context of wireless mechatronics
- Demonstrate a good understanding of data storage, security and cloud computing in the context of wireless mechatronics

Review of wireless mechatronics system

Assessment Type ¹: Literature review

Indicative Time on Task ²: 12 hours

Due: **Week 8**

Weighting: **10%**

The students will study some wireless mechatronics systems and choose one paper to discuss about the strength, weaknesses, challenges and improvements

On successful completion you will be able to:

- Implement wireless mechatronics systems including smart sensors, actuators and wireless communicating devices in the context of wireless mechatronics
- Demonstrate a good understanding of data storage, security and cloud computing in the context of wireless mechatronics
- Design and implement software for wireless mechatronics systems
- Design and implement systems for remote monitoring and control

Practical project

Assessment Type ¹: Design Implementation

Indicative Time on Task ²: 8 hours

Due: **Week 13**

Weighting: **10%**

The design and implementation of the practical project

On successful completion you will be able to:

- Implement wireless mechatronics systems including smart sensors, actuators and wireless communicating devices in the context of wireless mechatronics
- Demonstrate a good understanding of data storage, security and cloud computing in the context of wireless mechatronics
- Design and implement software for wireless mechatronics systems
- Design and implement systems for remote monitoring and control

Test#1

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 6 hours

Due: **Week 4**

Weighting: **10%**

The first Test will be held on Week#4

On successful completion you will be able to:

- Implement wireless mechatronics systems including smart sensors, actuators and wireless communicating devices in the context of wireless mechatronics

- Demonstrate a good understanding of data storage, security and cloud computing in the context of wireless mechatronics

Practical activity

Assessment Type ¹: Practice-based task

Indicative Time on Task ²: 8 hours

Due: **Week 3 and 7**

Weighting: **10%**

The students will be involved in a practical activity. This will be due on Week#3.

On successful completion you will be able to:

- Implement wireless mechatronics systems including smart sensors, actuators and wireless communicating devices in the context of wireless mechatronics
- Demonstrate a good understanding of data storage, security and cloud computing in the context of wireless mechatronics
- Design and implement software for wireless mechatronics systems
- Design and implement systems for remote monitoring and control

Practical Project

Assessment Type ¹: Design Implementation

Indicative Time on Task ²: 8 hours

Due: **Week 13**

Weighting: **10%**

The final assessment of the project

On successful completion you will be able to:

- Implement wireless mechatronics systems including smart sensors, actuators and wireless communicating devices in the context of wireless mechatronics
- Demonstrate a good understanding of data storage, security and cloud computing in the context of wireless mechatronics
- Design and implement software for wireless mechatronics systems
- Design and implement systems for remote monitoring and control

¹ 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.

² 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

The supporting materials will be available in iLearn

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#) (<https://policies.mq.edu.au>). 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](#)

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

To find other policies relating to Teaching and Learning, visit [Policy Central](#) (<https://policies.mq.edu.au>) and use the [search tool](#).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/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.

Changes from Previous Offering

The pracs is a project based problem. The students will develop unmanned autonomous vehicle. The first 7 weeks will be taught all essential materials to make them ready for the project. The last 6 weeks will be used to implement the project.