

# MECH 4003 MOBILE ROBOTICS

**Credit Points** 10

**Legacy Code** 300043

**Coordinator** Ming Zhao ([https://directory.westernsydney.edu.au/search/name/Ming\\_Zhao/](https://directory.westernsydney.edu.au/search/name/Ming_Zhao/))

**Description** To develop an understanding of the basic concepts involved in Mobile Robotics. The areas of mobile robot mechanics, localisation, map building and path planning of mobile robots will be introduced. Various sensors and their applications in mobile robotics are also to be introduced.

**School** Eng, Design & Built Env

**Discipline** Mechanical and Industrial Engineering and Technology, Not Elsewhere Classified.

**Student Contribution Band** HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 4 subject

**Pre-requisite(s)** ENGR 1018

## Restrictions

Successful completion of 160 credit points

## Learning Outcomes

On successful completion of this subject, students should be able to:

1. Describe and classify the different types of mechanical structures of mobile robots.
2. Examine the issues of localisation in mobile robots.
3. Examine and apply the map building and path planning techniques used in mobile robotics
4. Evaluate various sensors and assess their applications in mobile robots

## Subject Content

Mechanics of Mobile robots  
Localisation, map-building and path planning  
Sensors and sensing techniques.  
Actuators for mobile robots  
Recent development in mobile robots

## Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task
Applied Project	30 hours	60	N	Both (Individual & Group)

Practical	30 minutes for each lab session	16	N	Individual
Quiz	30 minutes each	24	N	Individual

Teaching Periods

## Sydney City Campus - Term 1 (2022)

### Sydney City

#### Day

**Subject Contact** Peter Lendrum ([https://directory.westernsydney.edu.au/search/name/Peter\\_Lendrum/](https://directory.westernsydney.edu.au/search/name/Peter_Lendrum/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=MECH4003\\_22-SC1\\_SC\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MECH4003_22-SC1_SC_D#subjects))

## Spring (2022)

### Penrith (Kingswood)

#### Day

**Subject Contact** Ming Zhao ([https://directory.westernsydney.edu.au/search/name/Ming\\_Zhao/](https://directory.westernsydney.edu.au/search/name/Ming_Zhao/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=MECH4003\\_22-SPR\\_KW\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MECH4003_22-SPR_KW_D#subjects))

## Parramatta - Victoria Rd

#### Day

**Subject Contact** Ming Zhao ([https://directory.westernsydney.edu.au/search/name/Ming\\_Zhao/](https://directory.westernsydney.edu.au/search/name/Ming_Zhao/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=MECH4003\\_22-SPR\\_PS\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MECH4003_22-SPR_PS_D#subjects))

## Sydney City Campus - Term 3 (2022)

### Sydney City

#### Day

**Subject Contact** Peter Lendrum ([https://directory.westernsydney.edu.au/search/name/Peter\\_Lendrum/](https://directory.westernsydney.edu.au/search/name/Peter_Lendrum/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=MECH4003\\_22-SC3\\_SC\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MECH4003_22-SC3_SC_D#subjects))

## Sydney City Campus - Term 2 (2023)

### Sydney City

#### On-site

**Subject Contact** Eileen An ([https://directory.westernsydney.edu.au/search/name/Eileen\\_An/](https://directory.westernsydney.edu.au/search/name/Eileen_An/))

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=MECH4003\\_23-SC2\\_SC\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MECH4003_23-SC2_SC_1#subjects))

## Spring (2023)

### Penrith (Kingswood)

#### On-site

**Subject Contact** Ming Zhao ([https://directory.westernsydney.edu.au/search/name/Ming\\_Zhao/](https://directory.westernsydney.edu.au/search/name/Ming_Zhao/))

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=MECH4003\\_23-SPR\\_KW\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MECH4003_23-SPR_KW_1#subjects))

## **Parramatta City - Macquarie St**

### **On-site**

**Subject Contact** Ming Zhao ([https://directory.westernsydney.edu.au/search/name/Ming Zhao/](https://directory.westernsydney.edu.au/search/name/Ming%20Zhao/))

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=MECH4003\\_23-SPR\\_PC\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MECH4003_23-SPR_PC_1#subjects))