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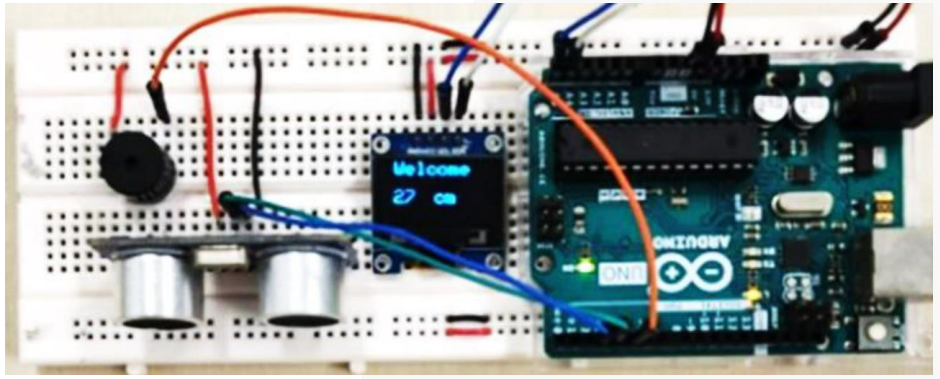
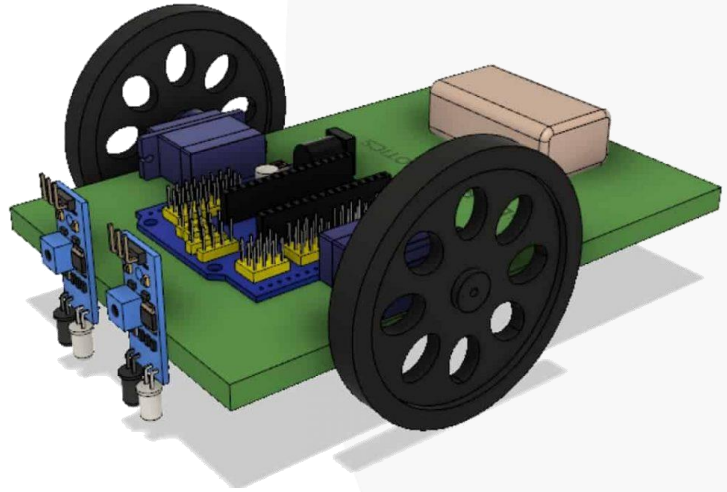
Mobile Robotics

MOE-ITE Applied Subject

Why Mobile Robotics?

Provides a rich and rewarding educational experience that combines theoretical knowledge with practical skills, fosters creativity and innovation, and prepares students for diverse career opportunities in a rapidly evolving technological landscape.





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	Mobile Robotics (MR)
CRITERIA, DESIRED DISPOSITIONS	Student taking MR should have: • a passion in automation through robotic systems • a proactive mindset towards problem-solving and finding creative solutions using robotics principles and techniques • the interest in hands-on learning experiences, experimentation, and exploration of robotics concepts through building and programming robots, conducting experiments, and troubleshooting issues.
SKILLS & COMPETENCIES TO BE DEVELOPED	Through the course of taking Mobile Robotics, students develop important 21st-century skills needed to thrive in an increasingly complex, interconnected, and rapidly changing world. Students will: • develop capabilities and skills for **problem-solving** and **critical thinking** • illicit **curiosity** and interest in technology through design and build activities • promote the **awareness** of the impact of technology and the changing and progressive nature of technology • acquire knowledge and skills to make an **informed decision** in preparation for post-secondary technical courses
POST-SECONDARY OPPORTUNITIES	Students are provided with a diverse set of skills and competencies that are valuable many fields such as, mechatronic engineering, mass rapid transit technology and electronics.

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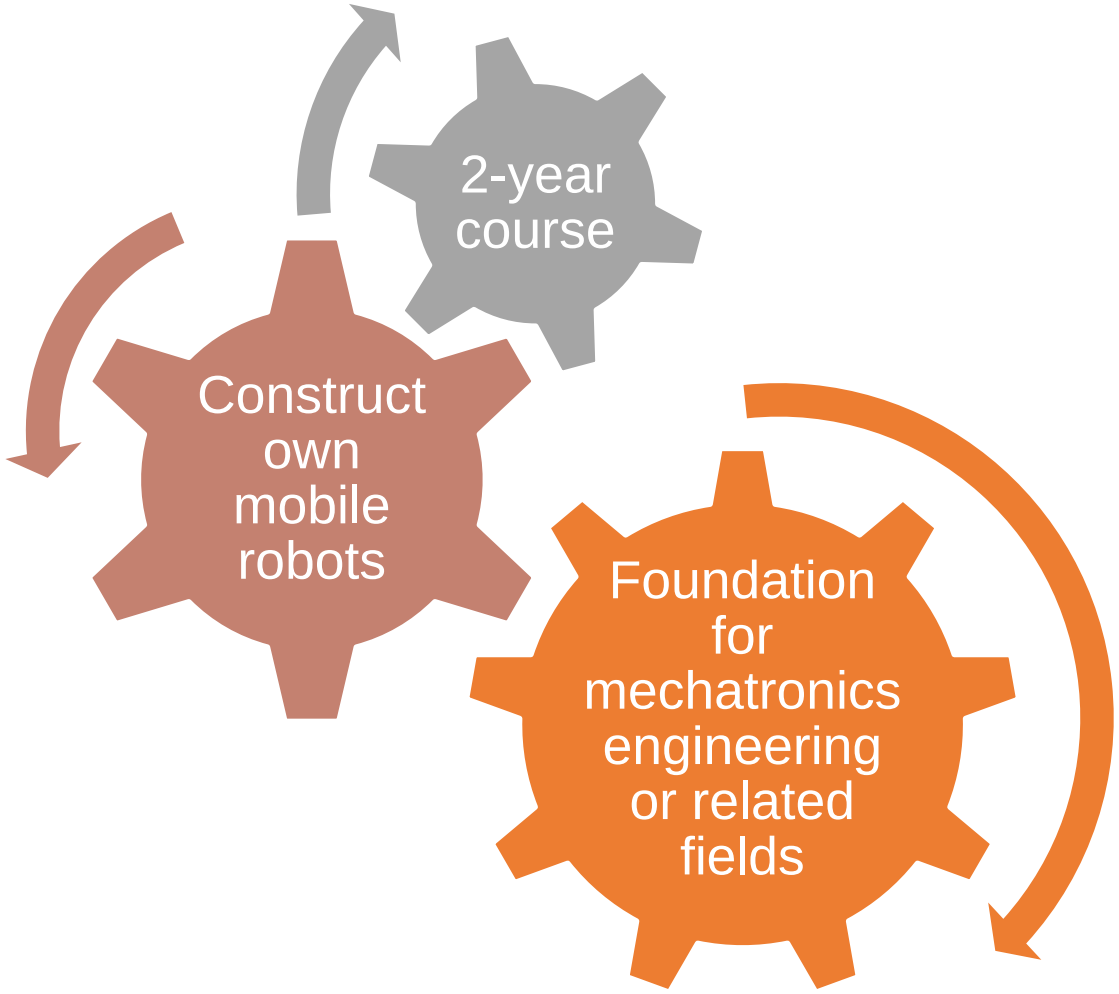
2024 SEC 2 MTP & SUBJECT OPTIONS TALK



MOE-ITE Applied Subject

Electricity and Electronics

- Basic Electricity
- Basic and Digital Electronics

Related Courses in ITE

- *basic knowledge and skills in electricity, electronics, mechanical design and intelligent control.*
- *apply the technical knowledge and skills to design and build mobile robots to do specific tasks.*
- *use mobile robot kits and logic trainers in the process.*

Nitec in Mechatronics
(College Central and West)

Nitec in Rapid Transit Technology
(College West)

Nitec in Mechanical Engineering
(College Central, East and West)

Nitec in Electronics (College Central,
East and West)

Mobile Robotics Curriculum

Chapter	Topics
1	Mobile Robots
2	Basic Electricity
3	Basic Electronics
4	Digital Electronics
5	Design
6	Input and Output Devices
7	Simple Mechanisms
8	Simple Robots
9	Integration

N(T)-Level Mobile Robotics Assessment

Paper	Type of Paper	Duration	Marks	Weighting
1	Written	1h	30	30%
2	*Practical (Connect a control circuit)	1h 30m	42	30%
3	Practical (Integrate & test a mobile robot)	2h	80	40%

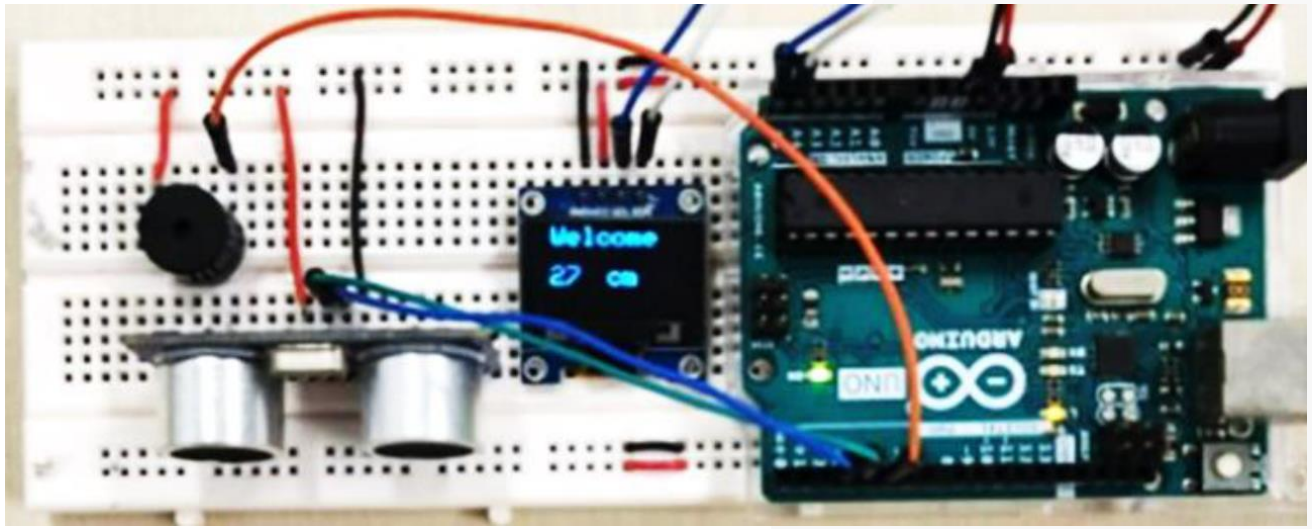
*Paper 2 is now assessed in Sec 4 from the 2024 cohort.

The Syllabus document can be downloaded from:
https://www.seab.gov.sg/docs/default-source/national-examinations/syllabus/nlevel/2025/a101_mr-exam-syllabus-2025.pdf?sfvrsn=cbcd40f9_2

Sec 4 Practical Paper 2

Students need to:

1. Interpret a circuit diagram
2. Connect a control circuit on a breadboard



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2024 SEC 2 MTP &
SUBJECT OPTIONS TALK

Sec 4 Practical Paper 3

Students need to:

1. Assemble a mobile robot
2. Test the robot to perform a specific set of actions

*Learn block coding but not tested during the practical exam

Special Note

MR can be used in **lieu of N(T) Maths or Science** for admission into selected *Nitec* courses that require a pre-requisite pass in these subjects

Mobile Robotics **can be offered concurrently** with Design & Technology.

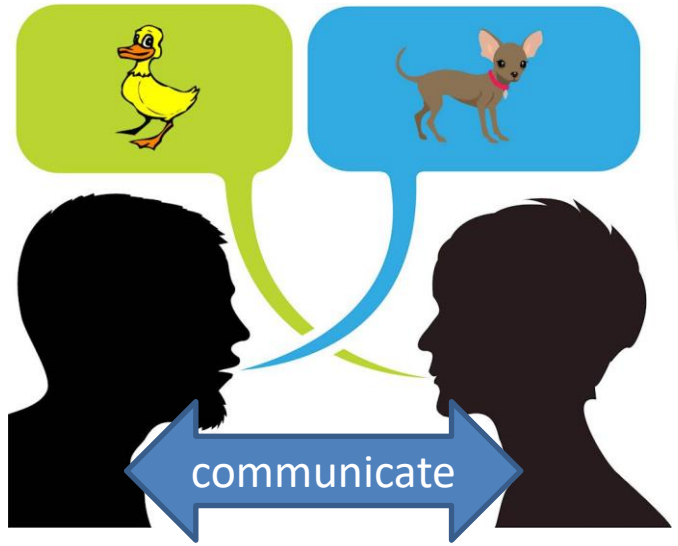
Key Considerations

What are my child's strengths?

Will my child be able to cope with the rigour?

Is my child eligible for the subject combination?

What are my child's aspirations?



Making an Informed Decision

- talk to seniors and/or FTs if they require additional clarification
- parents and students should discuss and come to an agreement if both parties have different aspirations
- work towards aspirations and desired subject combinations in Semester 2 (setting up positive routines and developing good habits, the importance of help seeking behaviours, etc)