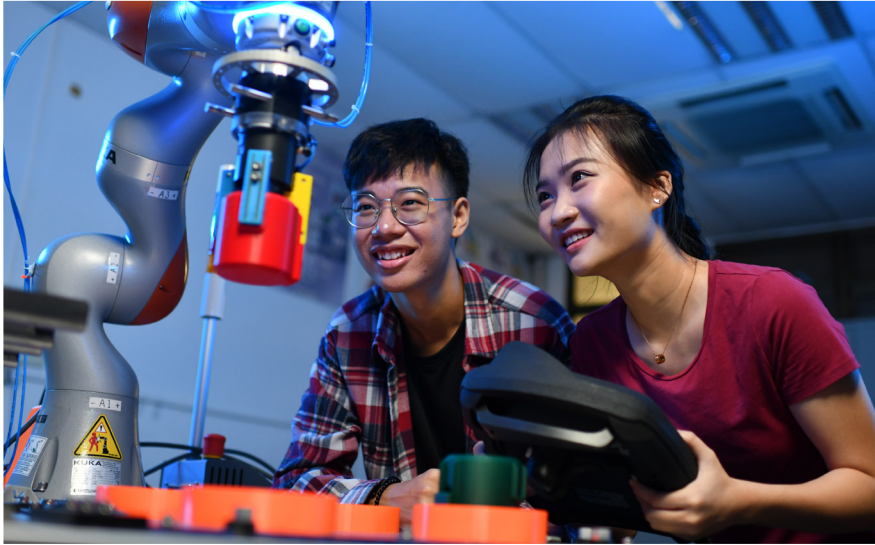# MECHATRONICS & ROBOTICS
## DMRO – S73

## Blending Mechanical, Electronics and Programming, Robotising the Future



Dive into the realm of cutting-edge intelligent systems that can move, interact, and even think independently. At the Diploma in Mechatronics & Robotics (DMRO), you will be equipped with mechanical engineering, electronics, and programming knowledge to design and build intelligent systems.

At DMRO, we believe in inspiring minds, igniting passion, and innovating solutions. Our teaching methods emphasise active and collaborative learning experiences, incorporating the Conceive-Design-Implement-Operate (CDIO) framework that combines engineering fundamentals with real-world systems and products. Moreover, our curriculum infuses intrinsic motivation methods to inspire you to build skills that will take you further in life.

If you're captivated by engineering, electronics, and programming, join DMRO and discover a world of technological possibilities.

### WHAT YOU CAN EXPECT

- Gain practical industry experience that will prepare you to be future-ready.
- Hone your engineering skills at the dedicated DMRO Learning Space.
- Discover your intrinsic motivation and unlock your potential.
- Check out the multiple pathways to established local and overseas universities.
- Choose from diverse career options in emerging fields such as robotics, automation, and advanced manufacturing.

### FURTHER STUDIES

You can gain an advanced standing in Mechanical, Mechatronics, Robotics Systems, Electrical & Electronics, Computer Science or Computer Engineering degree courses in both local (NUS, NTU, SIT, SMU, SUSS, SUTD) and international universities. Selective module exemptions or direct entry to second year are based on merit and subjected to the approval of the respective faculties/ universities.

### CAREER OPTIONS

- Assistant Automation Engineer
- Assistant Design Engineer
- Assistant Electromechanical Engineer
- Assistant Mechanical Engineer
- Assistant Mechatronics Engineer
- Assistant Robotics Engineer
- Assistant System Development Engineer

### ENTRY REQUIREMENTS
**Range of Net 2023 JAE ELR2B2: 5 – 15**
**Aggregate Type: ELR2B2-C**

| SUBJECT | GRADE |
| --- | --- |
| English Language | 1 – 7 |
| Mathematics (Elementary/Additional) | 1 – 6 |
| Any one of the following subjects: | 1 – 6 |

- Biology
- Biotechnology
- Chemistry
- Computing/Computer Studies
- Design & Technology
- Electronics/Fundamentals of Electronics
- Physics
- Science (Chemistry, Biology)
- Science (Physics, Biology)
- Science (Physics, Chemistry)

*Applicants should not be suffering from severe vision deficiency, acute hearing impairment or uncontrolled epilepsy. Interested applicants with any of these conditions are advised to contact Singapore Polytechnic for more information.*



During my internship at a local SME company called Pocket Technology Pte. Ltd., I primarily collaborated with my supervisor on tasks such as designing components using 3D software, assembling these components, and operating a variety of equipment. While I was able to apply the knowledge I had gained in school, the internship also exposed me to the realization that there is a wealth of additional essential knowledge and skills specific to the job that I had yet to acquire. This experience was a valuable opportunity for me to learn and grow in my field.

**Chanakyan Kannan**
*DMRO Gold Medallist*
*Internship at Pocket Technology*

# WHAT YOU'LL STUDY

The Diploma in Mechatronics & Robotics is a three-year full-time programme.

## FIRST YEAR

- Basic Mathematics
- Common Core Modules
- Computer Programming
- Computer-Aided Drafting
- Digital Electronics 1
- Engineering Materials 1
- Engineering Mathematics 1
- Introduction to Engineering
- Mechanics 1
- Principles of Electrical & Electronic Engineering 1
- Thermofluids 1

## SECOND YEAR

- Common Core Modules
- Computer-Aided Machining
- Design & Fabrication Project
- Digital Electronics 2
- Engineering Mathematics 2
- Elective 1
- Elective 2
- Industrial Automation
- Mechanics 2
- Principles of Electrical and Electronic Engineering 2
- Statistics and Analytics for Engineers
- Thermofluids 2

## THIRD YEAR

- Common Core Modules
- Elective 3
- Mechanics 3
- Mobile Robot Application
- Internship Programme/ Internship Equivalent - FYP
- Programmable Logic Controllers
- Robotic Integration & Programming
- Systems & Control
- Workplace Safety & Health Management

## ELECTIVES

The SP elective framework offers students options to pursue their passion and / or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today's volatile and changing societal as well as occupational landscape.

Students who are interested to explore additional new skills and abilities will have the opportunity to take up to five electives. Certificates and minors will be awarded when students complete a suite of related elective modules. Please visit https://www.sp.edu.sg/sp/education/elective-modules for details of this elective scheme and the full list of electives.

## COMMON CORE CURRICULUM

The Common Core Curriculum is designed to prepare students for a disruptive world that is ever-changing. Comprising critical human and emerging digital skills, the common core modules offer students an integral and inter-disciplinary learning experience to address the wicked problems of the world (framed by the United Nations' Sustainable Development Goals).

Through the Common Core modules, students will think critically about real-world problems, empathise with local and global communities and be challenged to effect change. For more information on the Common Core Curriculum, please visit https://www.sp.edu.sg/sp/education/common-core-curriculum.

*All full-time diploma students are required to take a compulsory Education and Career Guidance module in SP. Students will take Education and Career Guidance – Personal Development (30 hours) in their first year.*

*All students are required to take one compulsory Wellness for Life (WFL) module for one semester in their first year in SP. In their second and third year, students may sign up for WFL module as an optional module.*