

CAMPUS

**DURBANVILLE
(CAPE TOWN)**

DESCRIPTION

Mechatronic Engineering is the perfect blend of mechanical, electronic, computer and control engineering to design and develop smart systems and technologies. Think robots, automated cars, drones, and even advanced manufacturing equipment – all brought to life by mechatronics. If you love solving problems, tinkering with tech, or dreaming about the future, Mechatronic Engineering is for you.

The Higher Certificate in Mechatronic Engineering programme aims to provide students with a strong mechanical and electronic engineering foundation, focusing on integrating these fields to design, build, and maintain advanced automation systems and robotic technologies. Mechatronics is an interdisciplinary field combining mechanical engineering, electronics, computer, and control engineering elements to develop smart machines and automated systems. The programme is an excellent way to start a career in the rapidly growing field of automation, robotics, and smart technologies. The skills learned during the programme are highly applicable in manufacturing, automotive, aerospace, and even healthcare industries, where advanced machinery and automation are becoming increasingly vital. With a blend of theoretical learning and practical application, this programme prepares students for an exciting career in the cutting-edge field of mechatronics.

The modules covered in this qualification will prepare students to produce a basic design and fundamental knowledge required to work within the Mechatronic Engineering field. This programme has received endorsement from the Engineering Council of South Africa (ECSA). ECSA will be invited to accredit this programme once offered to assist graduates with professional registration with ECSA.

ADMISSION REQUIREMENTS

- a Senior Certificate (SC); **OR**
- a National Senior Certificate (NSC) **with**;
 - English (Home language or first additional language) on at least level 3 (40-49%);
 - NSC Achievement rating of at least 4 (50-59%) for Mathematics or Technical Mathematics;
 - NSC Achievement rating of at least 4 (50-59%) for Physical Science or Technical Science; **OR**
- a National Senior Certificate – Vocational Level 4 (NC(V)) **with**;
 - NCV Achievement rating of at least 5 (60-69%) in English Language and Mathematics and Engineering Science;

If an applicant's final Grade 12 result for either Mathematics or Physical Sciences (but not both) is between 40% and 49%, and the result for the other subject meets the programme entry requirements, the applicant will be allowed to complete a dedicated bridging course for the subject where the result was below 50%. The applicant must achieve at least 60% in the bridging course to be accepted into the programme.



SPECIFIC REQUIREMENTS

EQUIPMENT REQUIREMENTS

Registered students will be required to have access to the following equipment before their studies can commence:

- Smart device suitable for online learning
- USB to transfer information between devices and locations
- Laptop compatible with software covered in the programme. Student Recruitment can provide minimum device specifications if required.

ADDITIONAL EXPENSES

The following costs may arise during the programme. These are not included in the tuition fees and should be budgeted for accordingly:

- Specialised stationery, textbooks, or equipment
- Printing and presentation costs
- Practical components
- Industry visits (petrol, entrance fees etc)

ACCESS TO TECHNOLOGY

STADIO provides students with materials, resources, assessments (including online tests and quizzes), discussion opportunities, and administrative services through its student administration and learning environments. Access to the online facilities is essential for efficient communication, learning and success. You will need continuous access to study, using the resources mentioned above, and accessing and submitting some assessments.

CURRICULUM OUTLINE

| SEMESTER 1 | 1st YEAR | |
|------------------|---------------------------------|----------------------|
| Compulsory (All) | Electromechanic Technology I | EMTH152 (20 credits) |
| | Engineering Mathematics I | EMAH152 (20 credits) |
| | Engineering Physics I | EPHH152 (10 credits) |
| | Engineering Professional Skills | EPSH152 (20 credits) |
| SEMESTER 2 | 1st YEAR | |
| Compulsory (All) | Mechanotechnology | MET152 (20 credits) |
| | Mechatronic Design Project | MDE152 (20 credits) |
| | Mechatronic Systems | MSY152 (20 credits) |
| | Smart Manufacturing | SMM152 (10 credits) |
| CREDITS PER YEAR | 140 | |

CAREER OPPORTUNITIES

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|---|--|
| ENGINEER SUPPORT STAFF IN MECHATRONIC ENGINEERING FIELD | MECHATRONIC ENGINEERING TECHNICAL ASSISTANT |
| ENGINEERING TECHNICAL ASSISTANT ON MECHATRONIC ESTABLISHMENTS | MECHATRONIC ENGINEERING TECHNICAL ASSISTANT TO ENGINEERING CONTRACTORS |

SYSTEM REQUIREMENTS

Students should also have access to the following resources/systems to ensure a seamless learning experience:

- Reliable broadband internet access (WI-FI is available at all our campuses, but you may prefer access from home as well)
- Firefox/Microsoft Edge/Chrome web browser
- Microsoft Word
- PDF Viewer
- Ability to scan and upload documents
- Email/cellphone for notification and communication

PRACTICAL COMPONENTS

STADIO will provide laboratories with all the equipment students need for the practical sessions. Students are also provided with a toolkit and multimeter to use in the laboratories. While the School will furnish specific essential consumables, every student must obtain the needed electronic components and wires to build small electronic circuits for practical experiments. The list of required items will be supplied to students at the start of the semester.