



# Careers in manufacturing: electrical and electronics

## Electrical/electronic specialisations

This information sheet covers the following specialisations within the electrical and electronics sector:

- **Mechatronics/robotics technician**
- **Mechatronic engineer**
- **Engineering designer**
- **Computer numerically controlled (CNC) setters and programmers.**

### Mechatronics/robotics technician

Mechatronics and robotics technicians are specialist advanced trade-technician workers. Mechatronics combines mechanical, electronic and computer technologies to create automated 'intelligent' machinery and robotics that improve the efficiency, safety and productivity of manufacturing (and other) processes.

Mechatronics and robotics technicians will usually assist design, development and engineering staff, as well as working closely with tradespersons to install, maintain, modify and repair process control systems, equipment and component parts.

Mechatronics and robotics technicians may:

- examine detailed drawings or specifications to find out job, material and equipment requirements
- set up and adjust machines and equipment
- operate machines to produce parts and components

- fit and assemble metal parts, tools or sub-assemblies, including the welding or brazing of parts
- cut, thread, bend and install hydraulic and pneumatic pipes and lines
- install and test a range of sensors, solenoids, actuators, programmable logic controllers (PLC) and numerous other control devices
- dismantle faulty tools and assemblies and repair or replace defective parts
- set up and/or operate hand and machine tools, welding equipment or CNC machines
- check accuracy and quality of finished parts, tools or sub-assemblies.

### Relevant qualification:

- Certificate III in Manufacturing Technology
- Certificate IV in Manufacturing Technology
- Diploma of Engineering (Technical)
- Advanced Diploma of Engineering.

### Mechatronics engineer

Mechatronics engineers design and maintain machinery with electronic and computer control systems, such as robots, materials, component and goods handling systems, and plant machinery.

- design, develop, maintain and manage high-technology engineering systems for the automation of industrial tasks
- apply mechatronic or automated solutions to the transfer of material, components or finished goods
- apply advanced electronic control systems, which are usually computer-driven
- apply electronic and mechanical processes and computers to tasks where the use of human labour may be dangerous (e.g. in some manufacturing environments, underwater exploration, mining or forestry).

## **Relevant qualifications:**

- Vocational Graduate Diploma of Engineering
- Degree

## **Design engineer**

A design engineer creates the initial blueprints and schematics for various structures, systems, machines or equipment. They are part of a design team that includes drafters and lead civil or mechanical engineers. Most people who do this job use advanced computer technology and applications, such as computer-aided design (CAD) software, to help them create and test virtual models. Depending on the type of structure or machine that is being built, an engineer may be asked to construct a physical model or prototype to test in realistic situations.

## **Relevant qualifications:**

- Vocational Graduate Diploma of Engineering
- Degree

## **CNC setters and programmers**

CNC setters and programmers work with existing CNC programs and create new ones for newly developed products.

Tasks include:

- editing or writing programs to run CNC and robotic equipment
- monitoring tool wear, adjusting offsets and replacing inserts when necessary, ensuring correct operation of the machine
- producing components accurate to drawing.

## **Relevant qualification:**

- Certificate III in Engineering - Production Systems.

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