



# STEM skills are crucial for Australia's changing future

Currently, 75% of jobs in the fastest growing industries require workers with STEM skills.<sup>1</sup>

## Overview

STEM refers not just to the disciplines of science, technology, engineering and mathematics but also to a cross disciplinary approach to them. There will also be a growing need for the broad skills that STEM fosters. Critical thinking and problem solving, analytic capabilities, curiosity and imagination have all been identified as critical 'survival skills' in the workplace of the future.<sup>2</sup>

North Metropolitan TAFE is committed to achieving the Western Australian Government's skills strategy in science, technology, engineering and mathematics (STEM). By providing a range of qualification in STEM related areas:

### Science and the Environment

- Conservation and Land Management
- Environmental Science
- Horticulture and Conservation
- Laboratory Operations

### Building and Construction

- Civil Construction
- Electrical and Electrotechnology
- Residential Building Drafting

### Engineering and Mining

- Engineering
- Fabrication
- Mining
- Surveying

### Information Technology, Library and Digital

- Information Technology (IT)
- Library
- Multimedia and Games
- Networking and Cyber Security
- Website Design and Software Development
- Telecommunications

## Our expertise

We were the first TAFE in WA to open a Cyber Security Training Centre, located at our Joondalup campus.

Our CUT Mine is a unique simulated underground mine which has been used by students in surveying, geological assistant skill sets, mining exploration to gain exposure to a real underground mine environment, prior to site mobilisation.

The Certificate II in Integrated Technologies (Robotics Control Systems) is WA's first entry level course in Robotics and Automation.

We offer a variety of skill sets to help gain employment in WA's mining industry.

We have a comprehensive 3D Printing Lab focussed on developing Engineering models for a variety of purposes e.g. limb prostheses.

We are only training provider in Perth to offer Surveying. We employ drones for photography, to gather data for Spatial Information Systems.

We teach Building Information Modelling (BIM), an intelligent 3D model-based process, for the architectural, engineering and drafting industry.

We offer the Diploma of Engineering- Technical [Mechanical] and Advanced Diploma of Engineering [Mechanical] anticipating a growth in this industry.

We were the 1st educational organisation in Australia and non-university member to have partnered with German group "VR First" to establish a Virtual Reality lab. This global initiative is designed to assist creators and educators interested in exploring the potential of virtual reality development.

<sup>1</sup> [education.wa.edu.au/what-is-stem](http://education.wa.edu.au/what-is-stem)

<sup>2</sup> [21stcenturyschools.com/21st-century-skills.html](http://21stcenturyschools.com/21st-century-skills.html)

## Our facilities

### A Joondalup – Kendrew campus

Cybersecurity Training Centre at the Joondalup campus which include dedicated hacker, defender and control rooms. Courses include Certificate III in Information and Technology (Cyber Security), Certificate IV in Cyber Security and Advanced Diploma of Network Security (Cyber Security).

Greenhouse – qualifications in Horticulture, conservation and land management and landscape construction.

### B East Perth - Greens Skills Building

The Green Skills building is the embodiment of sustainable technology demonstrating this within the architecture, construction, landscaping and engineering principles. The building and surrounds is to be a living laboratory with the ability to provide safe, stimulating, flexible learning spaces.

Mining Training Centre - This centre uses industry standard equipment and facilities to provide specialised training in mining exploration, mineral processing, geology, and gold assaying.

The centre has a core yard where up and coming Field Assistants or Pit Technicians can interpret the rock characteristics of drill core. It also has a Fire Assay Laboratory where students can learn how to analyse gold or any of the base metals from a mineral sample.

For those interested in careers in exploration or minerals drilling, there is a 4-wheel drive training and maintenance facility.

### C Midland campus

METRONET Trade Training Centre located at out Midland campus will become a specialist Trade Training Centre to support students gaining the critical skills required for this significant rail and civil infrastructure project.

The centre consists of a Workshop which includes a control room and workshop area to allow students to train on specialised equipment and rail Track including a section of track, complete with signals, switches and a boom gate.

This campus features a specialist metals and engineering centre, built to ensure a focus on new technologies and the integration of these technologies across traditional trade and industry sectors. Students learn high speed, high precision operations in a safe environment on a range of various programmable automated equipment. They're exposed to up-to-date computer controlled machining technology and they'll gain skills in industrial robotics and component design using current industry standard computer-aided design. We are also an industry leader in delivery of fluid power training.

### D Perth campus

Our CUT Mine is a unique simulated underground mine which has been used by students in Surveying, Geological Assistant Skill Sets, Mining exploration to gain exposure to a real underground mine environment, prior to site mobilisation. The CUT Mine has also been utilised by industry for Mine Induction Training and Mines Emergency Rescue competition.

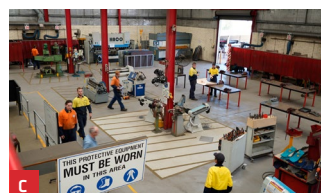
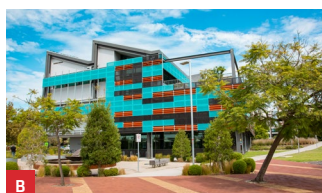
## What our clients say

**Partnered with Pilbara Minerals to deliver customised training for their operation staff working on lithium development project.**

“By working with NMTAFE, Pilbara Minerals was able to tailor the training program to make it relevant to the specific mineral processes used at the Pilgangoora Lithium- Tantalum Project; ensuring trainees were job ready prior to mobilisation to site.” Pilbara Minerals Chief Operating Officer | Dale Henderson.

**Partnered with Roy Hill to offer traineeships in Certificate III in Resource Processing and Certificate III in Surface Extraction Operations.**

“We appreciate the way North Metropolitan TAFE has built leadership and innovation development programs into our traineeships - key skills required for the future of mining.” Spokesperson | Roy Hill.



## Job role

NMTAFE programs - visit [northmetrotafe.wa.edu.au/courses](http://northmetrotafe.wa.edu.au/courses) for more details

### Science

#### Natural and Physical Science

Chemistry Technician	Certificate III in Laboratory Skills
Earth Science Technician	Certificate IV in Laboratory Techniques
Science Technician	Diploma of Laboratory Technology
Geological Assistant	Certificate II in Resource Processing (employer only)
Pit Technician	Certificate III in Resource Processing (employer only)
Field Assistant	Certificate II in Surface Extraction Operations   Certificate III in Surface Extraction Operations
Mining Plant Operator	Diploma of Surface Operations Management

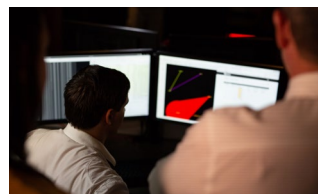
#### Agriculture, Environment & Related Studies

Horticultural Technical Officer	Certificate II in Conservation and Land Management
Agriculture Laboratory Technician	Certificate III in Conservation and Land Management
Field Crop Technical Officer	Certificate IV in Conservation and Land Management
Landcare Assistant	Diploma in Conservation and Land Management
Lands, Parks and Wildlife Officer	Certificate II in Horticulture
Indigenous Land Management Assistant	Certificate III in Horticulture
Pest Management Technician	Certificate IV in Horticulture
Revegetation Worker	Diploma of Horticulture
Land Rehabilitation Worker	Certificate III in Laboratory Skills
Indigenous Lands Worker	Certificate IV in Laboratory Techniques
Soil Conservation Specialist	Diploma of Laboratory Technology
National Parks Worker	
Conservation Officer	
Horticulturist	

### Technology

#### Computer Science (General IT/Networking/Security/Software Development)

Junior Web Assistant	Certificate II in Computer Assembly and Repair
Contact Centre Client Support Officer (ICT)	Certificate II in Data and Voice Communications
User Support Specialist	Certificate III in Security Equipment
Hardware Technician	Certificate IV in Integrated Technologies
Web Administrator	Certificate III in Information, Digital Media and Technology
Network Administrator	Certificate III in Information, Digital Media and Technology (Network Administration)
Computer Technical Support Security	Certificate III in Electronics and Communications
Information Security Officer	Certificate IV in Electronics and Communications
Audit Collection Officer	Certificate IV in Programming
Incident Response Team Member	Certificate IV Cyber Security
Security Systems Help Desk Support	Certificate IV in Information Technology Networking
Website   Network Security Officer	Diploma of Information Technology Networking
Telecommunications Technician	Advanced Diploma of Network Security (Cyber Security)
Electronic Trades Worker	Certificate III in Information, Digital Media and Technology (Web based Technologies)
Systems Administrator	Certificate IV in Web-Based Technologies
Integration Analyst	Diploma of Software Development
Systems Engineer	Diploma of Website Development
Independent ICT specialist	
Assistant Programmer	
Support Programmer	
Mobile and Desktop Applications Developer	
Games Developer   Programmer	
Business Programmer	
Applications Programmer   Digital Programmer	
Software Applications Specialist   Software Developer	
Intranet Engineer	
Web Usability Engineer	





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### Creative Industries - Web Design/Multimedia & Games/Graphic Design

Assistant Web Designer   Web Designer	Certificate III in Screen and Media (Digital)
Independent Web Developer	Certificate IV in Screen and Media (Animation & Games Design)
WAP Designer   WAP Developer	Advanced Diploma of Screen and Media (Animation & Visualisation)
Animation Assistant   Designer	Advanced Diploma of Screen and Media (Digital Art and Animation)
Storyboard Artist	Advanced Diploma in Screen and Media (Game Art and Design)
Digital Artist   Digital Designer	Diploma of Screen and Media (Animation & Games Design)
Special Effects Operator	Diploma of Screen and Media (Animation & Visualisation)
Graphic Designer   Graphic Artist	Certificate IV in Design (Graphic Design)
Technical Illustrator	Diploma of Graphic Design
Multimedia, Digital Media, or Interactive Media Designer	Advanced Diploma of Graphic Design
Desktop Publishing Operator	Certificate III in Print Communications
In-house Publishing Operator	Certificate IV in Printing and Graphic Arts
Print Finishing Artist	
Digital Production Controller	
2D/3D Animator	

### Technology-based Trades

Security System Installer	Certificate II in Electrotechnology (career start or pre-apprenticeships)
Gaming Electronics Tradesperson	Certificate II in Electronics
Business Equipment Technician	Certificate II Data and Voice Communications
Electronics Tradesperson (Entertainment and Servicing)	Certificate III in Electrotechnology Electrician
Electronics and Communications Tradesperson	Certificate III in Electronics and Communications
Electronic Equipment Tradesperson Electronics	Certificate III in Security Equipment
Custom Electronics Installations Technician	Certificate IV in Electrical - Instrumentation
	Certificate IV in Electronics and Communications

## Engineering

### Engineering & Related Technologies (Mechanical, Automotive & Manufacturing)

Mechanical Engineering Technician	Certificate II in Integrated Technologies (Robotics Control Systems)
Structural Engineering Drafting Officer	Certificate II in Automotive Air Conditioning Technology
Engineering Associate	Certificate II in Automotive Electrical Technology (Pre-apprenticeship)
Electronic Engineering Draftsperson	Certificate II in Engineering (Heavy Fabrication Pre-Apprenticeship)
Electronic Engineering Technician	Certificate II in Engineering (Light Fabrication Pre-Apprenticeship)
Higher Engineering Tradesperson	Certificate II in Engineering (Mechanical Fitter and Machinist Pre-Apprenticeship)
Special Class Engineering Tradesperson	Certificate III in Engineering - Mechanical Trade
	Certificate III in Engineering - Fabrication Trade
	Certificate III in Engineering - Technical

### Civil Engineering

Civil Engineering Design Draftsperson	Certificate IV in Building and Construction
Road Design Draftsperson	Diploma of Civil and Structural Engineering
Civil Engineering Assistant	Advanced Diploma of Civil and Structural Engineering
Senior Draftsperson	Certificate IV Residential Building Drafting
Design Draftsperson	Diploma of Building Design

## Mathematics

Technical Officer (Surveying and Spatial Information Services)	Certificate III in Surveying and Spatial Information Services
Surveying Assistant	Certificate IV in Surveying
Spatial Information Services Assistant	Diploma of Surveying
Senior Technical Officer	Advanced Diploma of Surveying
Mine   Engineering Surveyor	

### Business & Accounting

Accounts Clerk	Certificate III in Accounts Administration
Cost Clerk	Certificate IV in Accounting and Bookkeeping
Bookkeeper	Diploma of Accounting
Financial Administration Officer	Advanced Diploma of Accounting
Accounts Payable   Accounts Receivable	
Audit Clerk	
Payroll Officer	
Assistant Accountant	
Accounting Manager	
Senior Financial Clerk	
Financial Sector Supervisor	

We look forward to partnering with industry to deliver innovative, cost-effective training solutions for your business.