



CAREERS SNAPSHOT

ENGINEERING AND
ELECTROTECHNOLOGY

Which occupations in this industry are likely to have the **largest employment growth** over the next three years?

Which **TAFE NSW courses** are popular for people looking to get into these job roles and how much can you **earn**?

NUMBER

CAREER

JOB ADS

AVERAGE SALARY AND COURSES

1



550

Job ads posted
in last 3 months
(NSW)

\$73,000

AVERAGE SALARY

CIII in Electrotechnology Electrician (UEE30811)
CIII in Electrical Fitting (UEE33011)
CIV in Electrical - Instrumentation (UEE40411)
Diploma of Electrical Engineering (UEE50411)

COURSES

2



100

Job ads posted
in last 3 months
(NSW)

\$78,210

AVERAGE SALARY

CIII in Air-Conditioning and Refrigeration (UEE32211)
**CIV in Air-Conditioning Systems Energy
Management and Control (UEE42811)**
**Diploma of Air-Conditioning and Refrigeration
Engineering (UEE51211)**

COURSES

3



40

Job ads posted
in last 3 months
(NSW)

\$109,600

AVERAGE SALARY

CIII in Surface Extraction Operations (RII30115)
CIV in Underground Coal Operations (RII40415)

COURSES

4



200

Job ads posted
in last 3 months
(NSW)

\$104,340*

AVERAGE SALARY

Diploma of Engineering - Technical (MEM50212)

COURSES

5. MINE DEPUTY

6. CIVIL ENGINEERING DRAFTSPERSON

7. FITTER (GENERAL)

8. METALLURGICAL OR
MATERIALS TECHNICIAN

9. SAFETY INSPECTOR

10. PRODUCTION OR PLANT ENGINEER

*Salary represents the Other Building and Engineering Technicians ANZSCO occupation category.

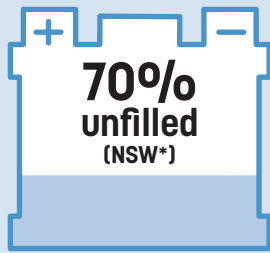
This career area includes engineering (including mechanical engineering, manufacturing engineering and electrical engineering), fabrication and welding, hydraulics and pneumatics, machining, manufacturing, data and voice communications, electrical, ESI and renewable energy, rail signalling and traction, airconditioning and refrigeration, water operations, and mining sectors.

SKILLS SHORTAGES

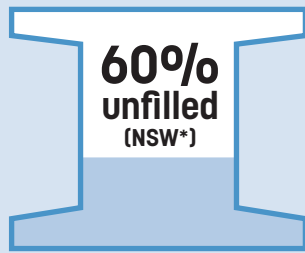
PORTION OF ADVERTISED JOBS UNFILLED



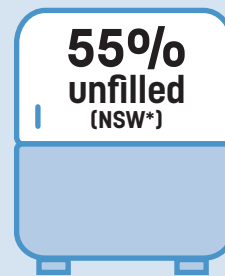
TAFENSW



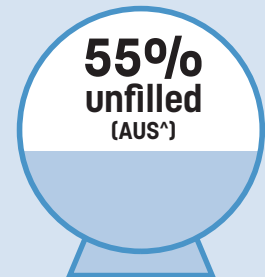
METAL FITTERS AND MACHINISTS



STRUCTURAL STEEL AND WELDING TRADES WORKERS



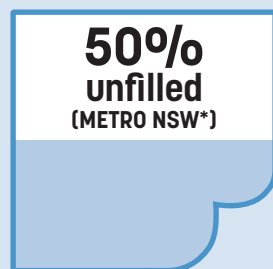
AIRCONDITIONING AND REFRIGERATION MECHANIC



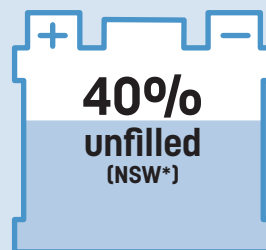
TELECOMMUNICATIONS TRADES WORKERS



MECHANICAL ENGINEER



SHEETMETAL TRADES WORKER



ELECTRICIAN (GENERAL)

This means that employers are unable to fill, or have considerable difficulty filling, vacancies in these job roles.

Examples of TAFE NSW courses aligned to:

- Sheetmetal trades worker: CIII in Engineering – Fabrication Trade (MEM30305)
- Electrician: CIII in Electrotechnology Electrician (UEE30811), CIV in Electrical – Instrumentation (UEE40411)
- Airconditioning and refrigeration mechanic: CIII in Air-Conditioning and Refrigeration (UEE32211), CIV in Air-Conditioning Systems Energy Management and Control (UEE42811)

Note: National and NSW skills shortages have also been identified for metal fabricators and welders (first class). Detailed job survey data not available for these occupations.

Note: Percentages represent the portion of job vacancies that remained unfilled four to six weeks after being advertised.

*Occupation also identified as national skills shortage.

^Skills shortage not measured at state level for this occupation.

WHAT BASELINE SKILLS ARE EMPLOYERS LOOKING FOR MOST IN THE ENGINEERING AND ELECTROTECHNOLOGY INDUSTRY?



COMMUNICATION



PLANNING



DETAIL-ORIENTED





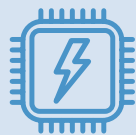


PROBLEM SOLVING



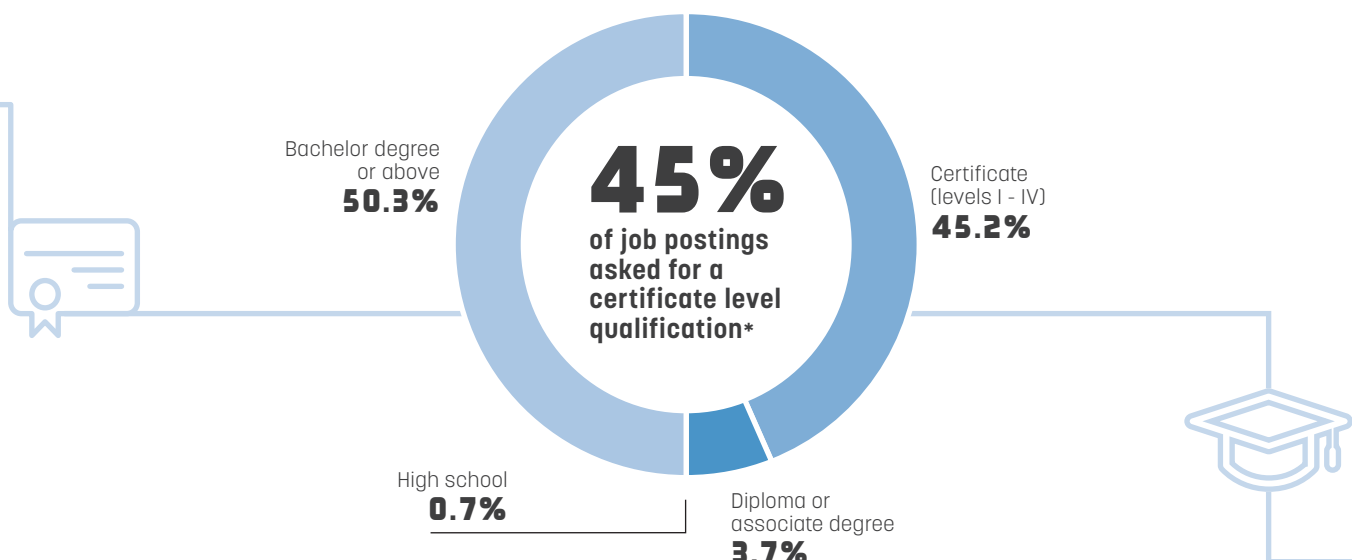
COMPUTER LITERACY

WHAT SPECIALISED SKILLS ARE EMPLOYERS LOOKING FOR MOST IN THESE SECTORS?

MANUFACTURING	MINING	ELECTRICITY, GAS, WATER AND WASTE SERVICES	ENGINEERING	ELECTROTECHNOLOGY
				
Teamwork / Collaboration	Teamwork / Collaboration	Project Management	Civil Engineering	Electrical Work
Sales	Scheduling	Stakeholder Management	Welding	Repair
Project Management	Forklift Operation	Teamwork / Collaboration	Project Management	Commissioning
Budgeting	SAP	Energy Services	Teamwork / Collaboration	Wiring
Customer Service	Budgeting	Budgeting	Mechanical Engineering	CPR

Note: Top skills based on online job posting over the three months to November 2018.

QUALIFICATIONS



*Percentage reflects portion of online job postings in the engineering and electrotechnology industry that listed a minimum qualification level (5,423 job postings) (includes high school level).

FITTER (GENERAL)

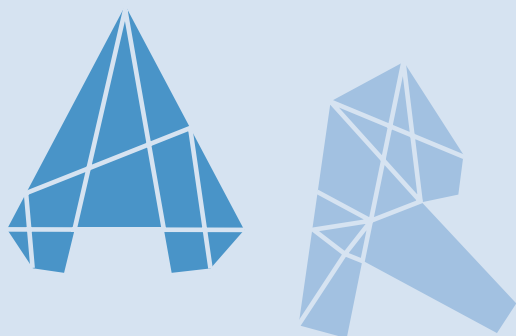


Over the three months to November 2018, there were more than 1,080 online job postings for fitters (general) in Australia, with around 320 of these in NSW.

Examples of TAFE NSW courses aligned to fitter (general):

- CII in Engineering - Production Technology (MEM20205)
- CIII in Engineering - Fabrication Trade (MEM30305)

COMPUTER-AIDED DESIGN



Examples of TAFE NSW courses aligned to mechanical engineering draftspersons and technicians:

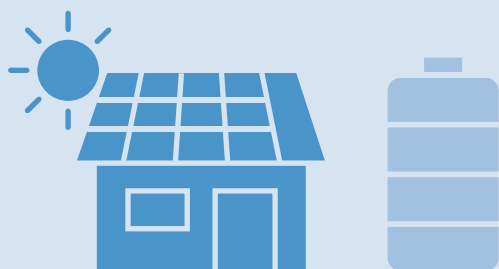
- CIII in Manufacturing Technology (CAD/drafting) (MSA30208)
- CIV in Engineering Drafting (MEM40412)

*Based on online job postings in Australia over the 12 months to November 2018.

AUTOCAD AND REVIT are the two top software / programming skills in demand for building and engineering technicians in Australia*. Used across a range of engineering and manufacturing sectors, **AUTOCAD** is used for 2D and 3D computer-aided design and drafting. It allows for improved accuracy of plans as well as greater efficiency compared to manual drawing. **REVIT**, the more advanced of the two programs, utilises building information modelling (BIM) that allows complex building structures to be virtually designed as well as documented.

In the engineering and electrotechnology industry, AutoCAD was listed as a requested skill in over 470 online job postings in the last three months in Australia. Revit was also a highly requested skill in the industry, appearing in almost 250 job postings.

RENEWABLE ENERGY



Example of TAFE NSW courses aligned to renewable energy technologies:

- Associate Degree of Applied Engineering (Renewable Energy Technologies) (HE20502)

Adoption of **ROOFTOP SOLAR PHOTOVOLTAIC SYSTEMS** and **BATTERY STORAGE** is increasing, as these renewable energy technologies continue to become more efficient and less expensive. Between 2016 and 2017, the residential solar market increased by 44%, with the total installed capacity reaching 779MW in 2017.

Increasing investment in renewable energy technologies will support employment growth in this sector.

In 2017, Australia invested \$8.5 billion in renewable energies, an increase of 147% from 2016.

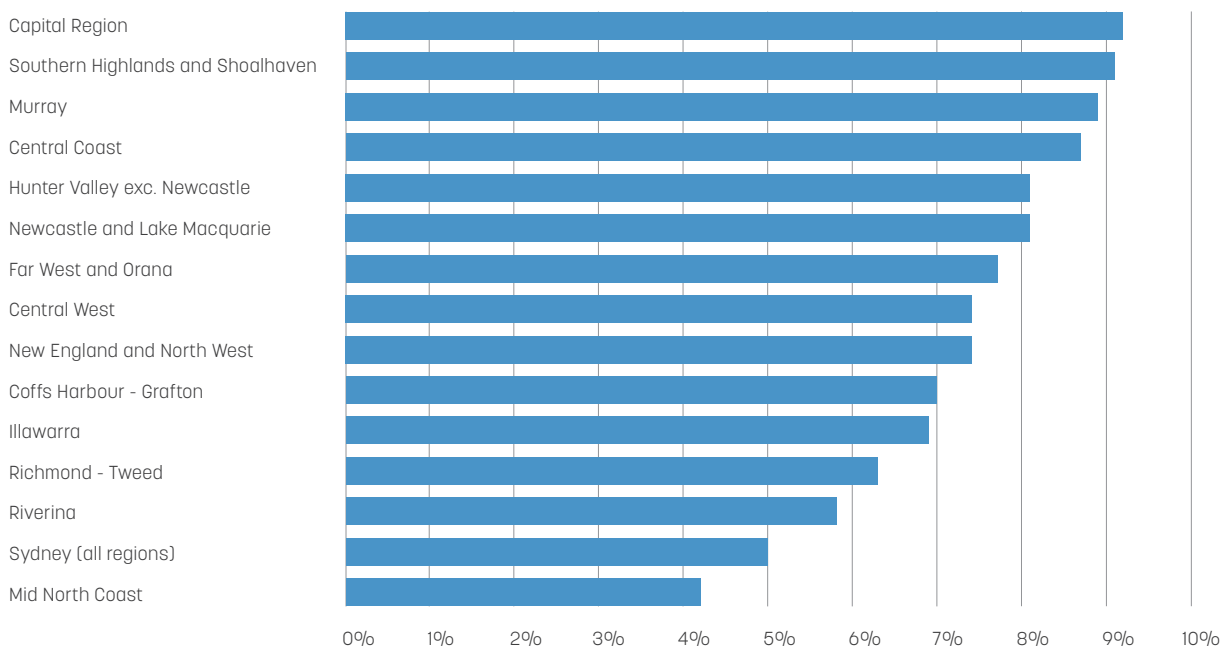
SELECT EMPLOYERS IN THE INDUSTRY*

BORAL BlueScope Steel **AUSTRALIAN GOVERNMENT** ResMed Limited
UGL LIMITED SMEC **Jacobs Associates** **JOHN HOLLAND**
STATE GOVERNMENT CARDNO
Downer **EDI WESTRAC** PYBAR Mining Services
 Lendlease Holcim **AECOM** GHD WSP *Glencore* *Essential Energy*

*These employers have been selected based on their job advertisement activity in Australia over a 12-month period to November 2018.

DO JOB ADS IN THE ENGINEERING AND ELECTROTECHNOLOGY INDUSTRY ACCOUNT FOR MANY OF THE JOBS ADVERTISED IN MY REGION?

Engineering and electrotechnology industry jobs as % of all job postings in region



CAPITAL REGION

In the CAPITAL REGION (the region with the highest proportion of job ads in this industry area), electrician, factory process worker, and miner were the three most advertised occupations in the engineering and electrotechnology industry in the last 12 months.



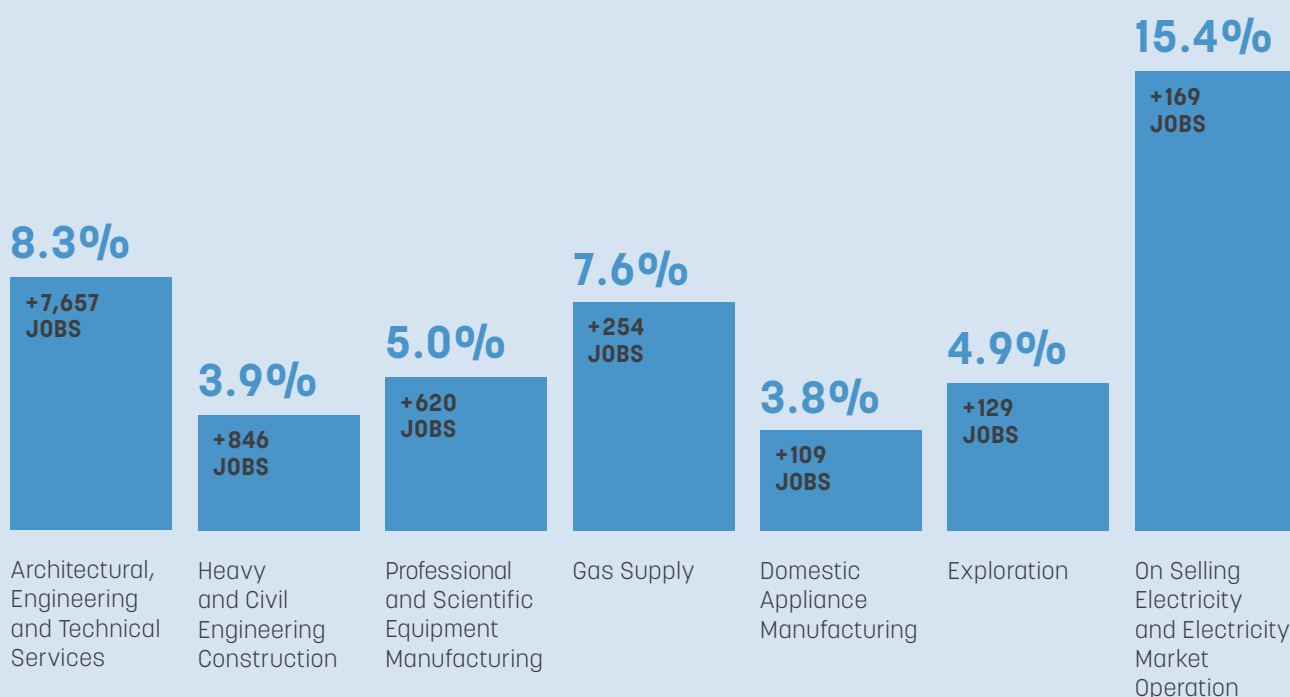
ELECTRICIAN

ELECTRICIAN was in the top three most advertised occupations in the engineering and electrotechnology industry in the last 12 months across all regions apart from the Richmond - Tweed.

This occupation is forecast to employ an additional 1,680 workers in NSW over the next three years.

Which sectors are likely to have the **fastest employment growth** in NSW over the next three years?

Forecast Employment Change for Growth Sectors [2018-2021]



Note: The chart above ranks the sectors based on the largest to smallest (left to right) employing sectors in 2018. Includes sectors with minimum forecast growth of 100 jobs over the three year period. Percentages reflect the forecast employment change between 2018 and 2021. The number of additional jobs forecast over this period has also been provided for each sector.

Sources: Industry employment forecast, job advertisement, qualifications, skills and employer data have been provided by TAFE Strategy. Employment forecast data was sourced from Deloitte Access Economics in February 2017. All job advertisement data was sourced from the Burning Glass Technologies' Labor Insight™ Real-time Labor Market Information tool and is based on online job postings over a 12-month period to November 2018 unless stated otherwise. Average salary data has been sourced from the Commonwealth Government's JobOutlook website. Skills shortage data has been sourced from the Commonwealth Department of Jobs and Small Business and represents 2017 survey results. Renewable energy sector data has been sourced from Australian PV Institute's *National Survey Report of Photovoltaic Applications in AUSTRALIA 2017* and Frankfurt School-United Nations Environment Programme Collaborating Centre's *Global Trends in Renewable Energy Investment 2018* report.