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Studying for the Jobs of the Future in 2022

Thursday, 27th of January 2022 | Future Student Webinar

Presented By

Dr. Steve Mackay | EIT Dean of Engineering
Indumathi V. | EIT Deputy Dean



Copy of slides/video recording

Everyone registered for this webinar will receive a copy of the PDF slides and a link to the video recording within the next two business days via email. Please monitor your junk email folder.

Agenda

1	Welcome and Introduction
2	About EIT
3	Civil Engineering – trends, opportunities, courses
4	Industrial Automation Engineering – trends, opportunities, courses
5	Mechanical Engineering – trends, opportunities, courses
6	Electrical Engineering – trends, opportunities, courses
7	Conclusion and Q&A





Dr. Steve Mackay

EIT Dean of Engineering

- Founder of EIT
- His leadership has inspired EIT's unique and distinctive approach to engineering education.
- Since inception, three core objectives define the essence of the institute:
 1. *Collaborating comprehensively with industry to ensure graduates are job ready*
 2. *Employing online platforms of learning to facilitate student accessibility and engagement*
 3. *Keeping the business of education student-centric*

**“Education is the most powerful weapon
which we can use to change the world.”**

Nelson Mandela

Introduction - Presenter



Indumathi V.

EIT Deputy Dean

Indu is a Chartered Professional Engineer with over 18 years of experience in Engineering, Leadership and Engineering Education and is currently working on her PhD in Engineering Education.

As a passionate educator, her current PhD project focuses on using EEG brainwaves to empower student engagement and participation in the classroom.

"EIT has grown very strongly since I started at the beginning of 2019. Their innovative approach to accessible, flexible, and high-quality education is like no other in the world. The success is strongly attributed to the passionate team of lecturers and staff here at EIT."

We are dedicated to ensuring that you receive a world-class education and gain skills that you can immediately implement in the workforce.



Engineering Specialists

EIT is one of the only institutes in the world specializing in Engineering. We deliver professional certificates, diplomas, advanced diplomas, undergraduate and graduate certificates, bachelor's and master's degrees, and a Doctor of Engineering.



Industry Oriented Programs

Our programs are designed by industry experts, ensuring you graduate with cutting-edge skills that are valued by employers. Our program content remains current with rapidly changing technology and industry developments.



World-Class Australia Accredited Education

Our vocational programs and higher education degrees are registered and accredited by the Australian Government. We have programs that are also recognized under three international engineering accords.



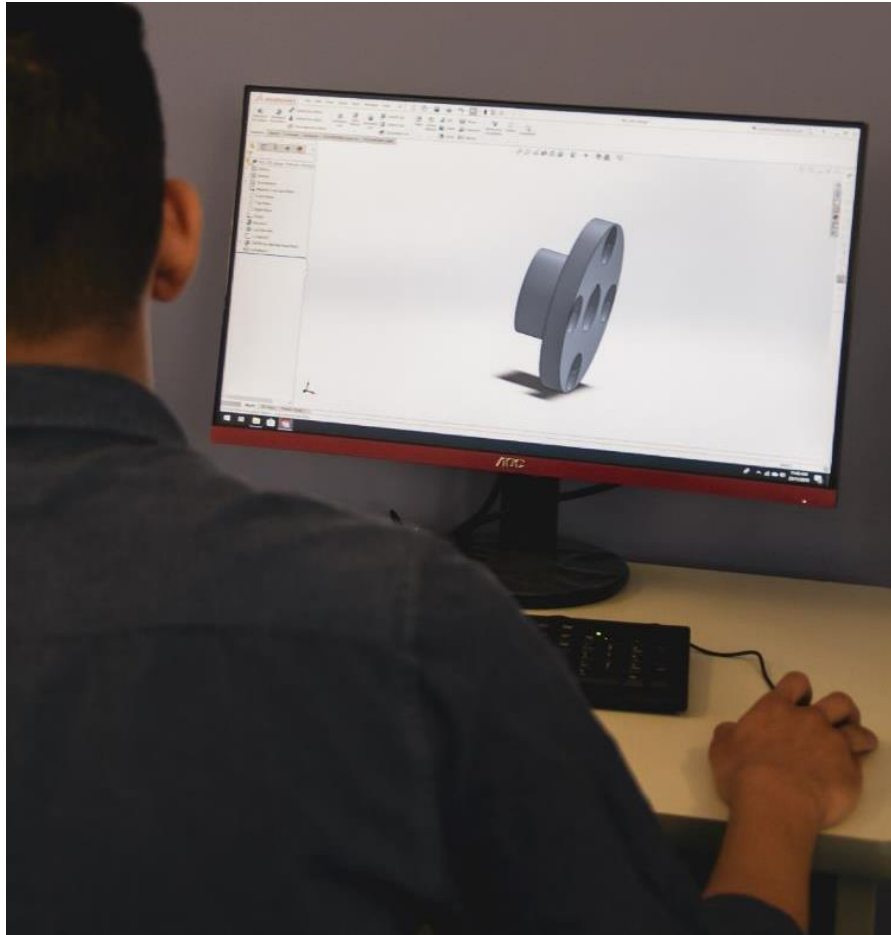
Industry Experienced Lecturers

Our lecturers are highly experienced engineers and subject specialists with applied knowledge. The technologies employed by EIT, both online and on-campus, enable us to source our lecturers from a large, global pool of expertise.



Unique Delivery Model

We deliver our programs via a unique methodology that makes use of live and interactive webinars, an international pool of expert lecturers, dedicated learning support officers, and state-of-the-art technologies such as hands-on workshops, remote laboratories, and simulation software.



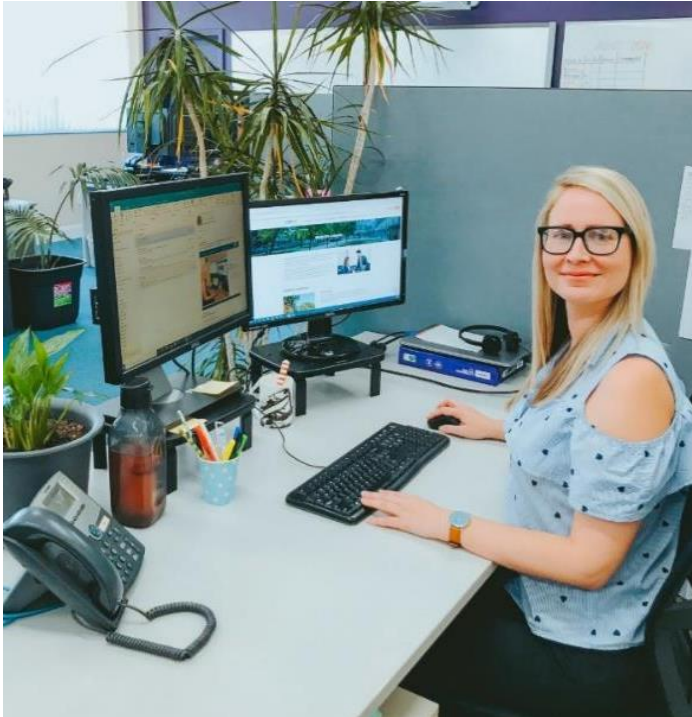
Our Online Learning Methodology

Our unique online delivery methodology makes use of:

- Live and interactive tutorials
- An international pool of expert lecturers
- Dedicated learning support officers, and
- State-of-the-art technologies such as hands-on workshops, remote and virtual laboratories, and simulation software

As an online student, you will benefit from EIT's unique personalized synchronous delivery methodology that encourages you to advance your technical and technological knowledge, while forming global networks and balancing life and work commitments.

Student Support

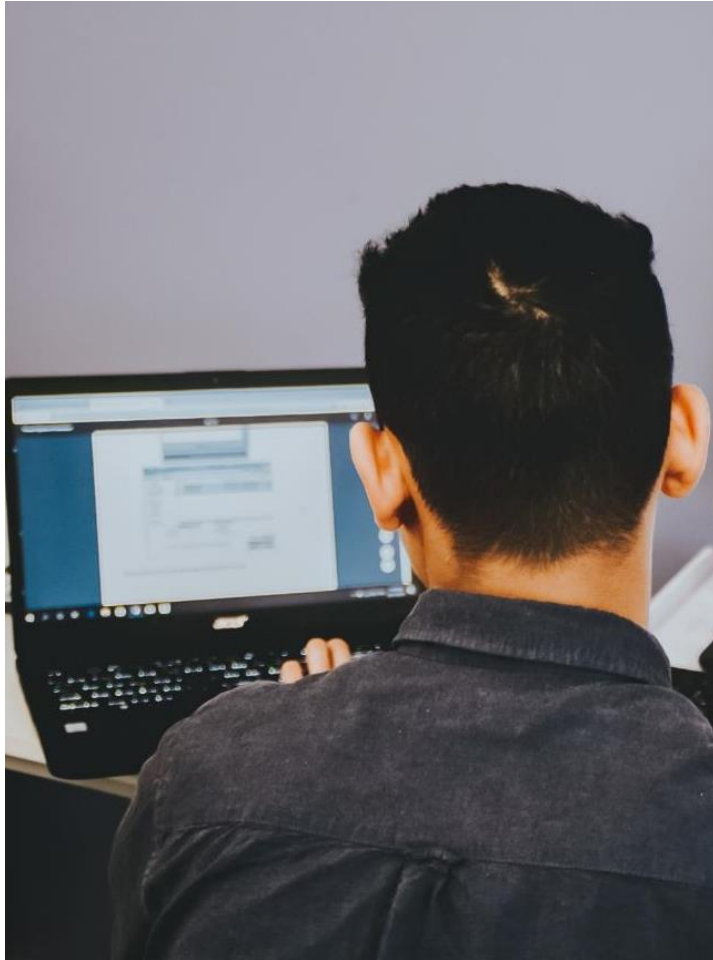


“As a LSO I love supporting our students on their learning journey and ensuring their experience with EIT is a positive and rewarding one”

Ms. Emily Levy - Higher Education LSO

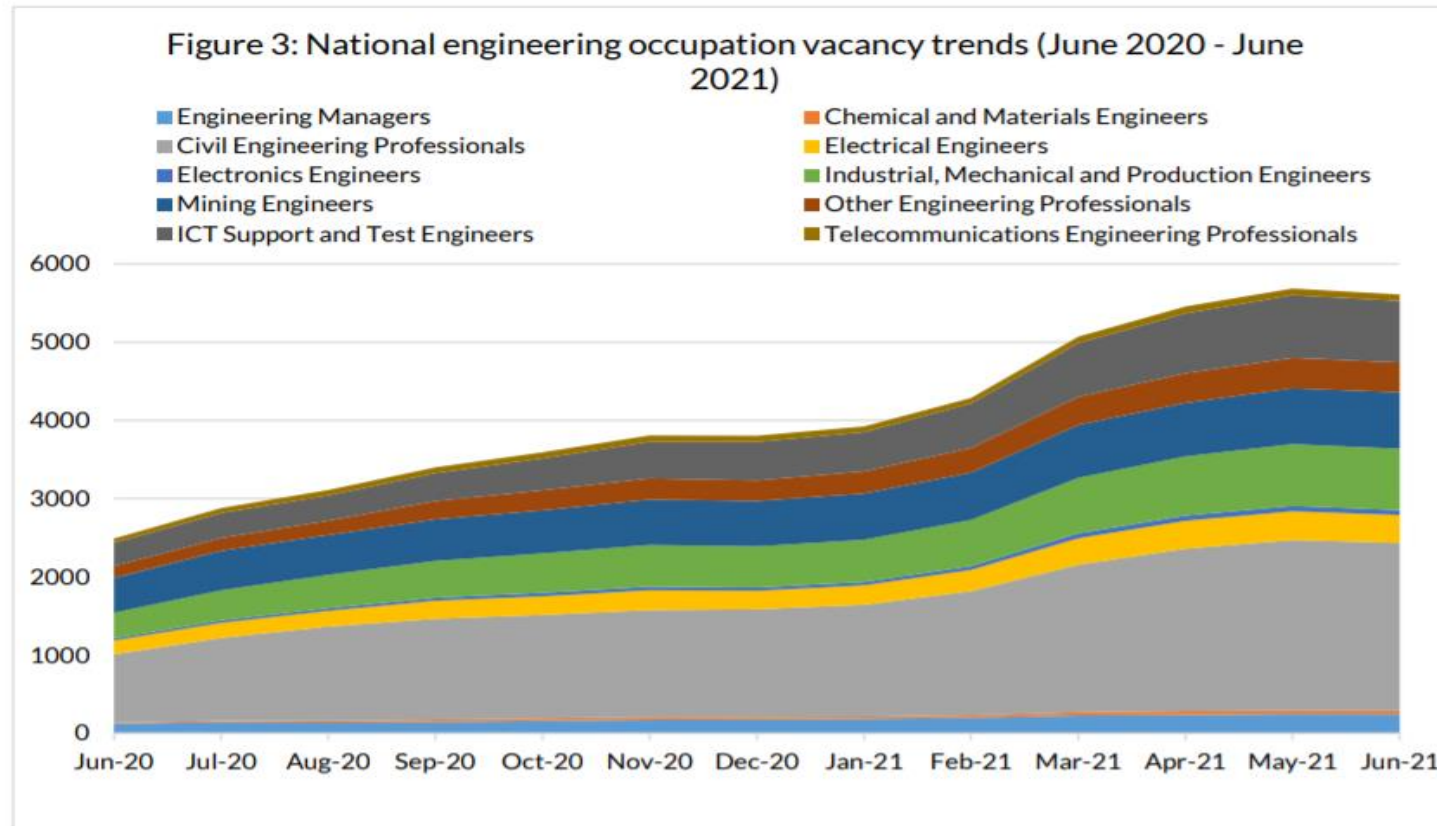
- › Learning Support Officers (LSOs) are in addition to the academic support (instructors/lecturers).
- › LSOs guide the students from the onboarding process through to graduation.
- › LSOs are the support, encouragement and go-to person for any question relating to a student’s studies.
- › One LSO is dedicated to each unit in Higher Education studies at EIT.
- › EIT has LSOs based in: *South Africa, Switzerland, Zimbabwe, New Zealand and Australia.*

Remote and Virtual Labs



- In the majority of our programs students complete practical exercises using a combination of remote and virtual laboratories (including simulation software).
- In these remote and virtual laboratories students can control physical equipment and sensors equivalent to the traditional university engineering lab.
- This means that even though you are studying online, you are not missing out on your hands-on, practical experience. For the on-campus students, workshops and work integrated learning via an internship is incorporated into the student journey.
- Through these hands-on exercises using simulation software, remote laboratories, practical based assignments and interactive discussion groups, students are able to grasp new knowledge and apply it successfully to the real world.
- **Each hosted engineering software and hardware can be controlled in real time; it's as simple as logging in and selecting an available lab and timeslot!**

Overall Australian Trends



⁵ 'Infrastructure investment response to COVID-19' Australian Government Department of Infrastructure, Transport, Regional Development and Communications <https://investment.infrastructure.gov.au/infrastructure_investment/infrastructure_investment_response_covid-19/>

⁶ 'Projects' Infrastructure Australia (accessed 20 July 2021) <<https://www.infrastructureaustralia.gov.au/projects>>

⁷ 'Make it Happen: The Australian Government's Modern Manufacturing Strategy' Australian Government Department of Industry, Science, Energy and Resources (accessed 20 July 2021) <<https://www.industry.gov.au/data-and-publications/make-it-happen-the-australian-governments-modern-manufacturing-strategy/our-modern-manufacturing-strategy>>

Table 4.1: The top ten 3-digit industries of employment for qualified engineers in Australia, 2006, 2011 and 2016

Rank	Qualified Engineers 2006		Qualified Engineers 2011		Qualified Engineers 2016	
	Industry	Number	Industry	Number	Industry	Number
1	Architectural, Engineering and Technical Services	25,499	Architectural, Engineering and Technical Services	38,985	Architectural, Engineering and Technical Services	34,994
2	Computer System Design and Related Services	9,031	Computer System Design and Related Services	12,071	Computer System Design and Related Services	16,358
3	Tertiary Education	5,565	Heavy and Civil Engineering Construction	6,971	Tertiary Education	9,103
4	Telecommunications Services	5,020	Tertiary Education	6,935	Heavy and Civil Engineering Construction	8,878
5	Defence	4,860	Telecommunications Services	6,265	Telecommunications Services	8,250
6	Other Machinery and Equipment Wholesaling	4,797	Other Machinery and Equipment Wholesaling	6,091	Metal Ore Mining	6,436
7	Motor Vehicle and Motor Vehicle Part Manufacturing	4,461	Defence	5,399	Other Machinery and Equipment Wholesaling	6,326
8	State Government Administration	4,459	Management and Related Consulting Services	4,735	Defence	6,177
9	Heavy and Civil Engineering Construction	3,800	Air and Space Transport	4,585	Cafes, Restaurants and Takeaway Food Services	5,914
10	Local Government Administration	3,592	Metal Ore Mining	4,467	Local Government Administration	5,481

Civil and Structural Engineering



Trends – Civil Engineering



Opportunities

Job opportunities

2,566

Jobs in AUS right
now

Job growth

▲ **15.2%***

Projected job
growth in 5 years

Salary

\$100k

Most common
salary

Job satisfaction

3.7



Skills and experience employers are looking for

| **Hi there**, have any of these? Add your skills directly to your SEEK Profile.

+ Civil Design

+ Land Development

+ Drainage

+ Civil Infrastructure

+ AutoCAD

+ Civil Projects

+ Stormwater

+ Subdivision

+ Earthworks

+ Design Software

Typical Job Description



Graduate Civil Engineer

pitt&sherry
Hobart

Apply

pitt&sherry is one of Australia's most dynamic consulting engineering companies. Formed in 1963, pitt&sherry has grown into a multi-discipline team of professional consultants servicing national transport, industrial, and community infrastructure markets. We provide expert design, analysis, modelling, planning and other consultancy services to a range of clients locally and interstate. We employ over 300 staff with offices in Launceston, Hobart, Devonport, Melbourne, Sydney, Newcastle and Brisbane. We are seeking a committed and talented Graduate Civil Engineer to be based in our friendly Hobart office.

The Role

Work in the Hobart Civil Team on a range of projects with a focus on:

- Civil and road project engineering
- Road pavement assessment and design
- Pavement geotechnical investigation and reporting
- Quality Assurance Verification and construction observation
- Contract Administration.

We are looking for:

- Tertiary qualification in Civil Engineering
- 0 - 4 years' experience
- Strong work ethic with a willingness to learn
- Strong computer literacy is essential
- Excellent communication skills
- Able to use their initiative, adapt to change, and work in a team as well as autonomously
- Embrace pitt&sherry's values
- Desire to learn and develop new skills.

What can I earn as a Civil Engineer?

All

NSW

VIC

WA

QLD

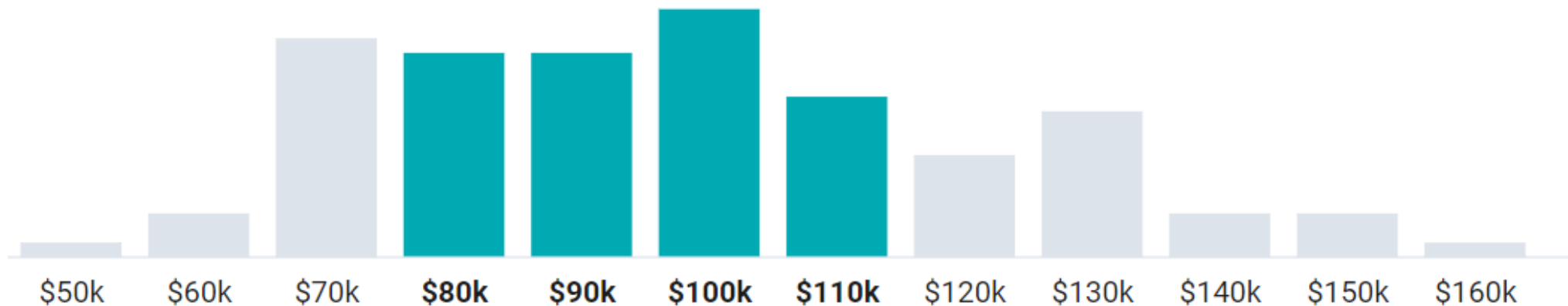
TAS

SA

NT

ACT

Civil Engineer roles in Australia were **typically advertised** between **\$70k** and **\$110k** in the last 3 months.



EIT Courses – Civil Engineering

- Online or On-Campus: **Doctor of Engineering**
- Online or On-Campus: **Master of Engineering** (Civil: Structural)
- **Graduate Certificate** in Civil Engineering: Structural
- **Graduate Certificate** in Civil Engineering: (Structural Analysis and Design)
- **Graduate Certificate** in Civil Engineering: (Structural Performance, Monitoring and Management)
- **Graduate Certificate** in Civil Transportation Engineering
- **Graduate Certificate** in Civil -Railways Infrastructure Engineering
- Online or On-Campus: **Bachelor of Science** (Civil & Structural Engineering)
- **Undergraduate Certificate** in Civil Engineering
- 52873WA **Advanced Diploma** of Civil and Structural Engineering
- **Professional Certificate of Competency** in Fundamentals of Road Construction
- **Professional Certificate of Competency** in Sewage & Effluent Treatment Technologies
- **Professional Certificate of Competency** in Structural Design for Non-Structural Engineers

Industrial Automation Engineering



Trends – Industrial Automation Engineering

- Digitalization
- Internet of Things (IoT and a super connected world)
- Artificial Intelligence (AI), increasing automation and the growing use of robots
- Big Data
- Machine learning
- Smart Phones becoming your primary tool for everything
- Renewable Energy (and battery storage)
- Virtual and Augmented Reality
- Blockchain
- Virtual Collaboration becoming common
- Drones (or UAVs) being applied to Business
- Cybersecurity and cybercrime

Opportunities

Job opportunities

528

Jobs in AUS right
now

Job growth

N/A*

Projected job
growth in 5 years

Salary

\$110k

Most common
salary

Job satisfaction

4.0



Skills and experience employers are looking for

| **Hi there**, have any of these? Add your skills directly to your SEEK Profile.

+ Plc Programming

+ Behaviour Driven Development

+ SCADA Programming

+ Electrical Engineering

+ Java Programming

+ Automation Framework

+ Python Programming

+ API

+ Test Automation

+ Ansible Configuration Management

Typical Job Description

Automation Engineer

AstraZeneca

What you'll do

As a qualified engineer, or technician with extensive relevant training and experience, you will be responsible for the maintenance and improvement of the electrical, control, vision systems and infrastructure in support of production requirements and site operations at the AstraZeneca North Ryde site.

Primary responsibilities for the role

- Plans, coordinates and undertakes electrical, control systems and infrastructure modifications, following relevant procedures to ensure that equipment is maintained in its validated state
- Provides expert electrical engineering advice to other departments, particularly PETs for resolving complex technical issues and driving continuous improvements
- Identify, plan and undertake capital improvement projects to time and budget, including preparing validation protocols and documentation, and completion of validation activities.
- Participates in functional safety design review, risk assessment, hazard identification, machine safety and process safety workshops.
- Design and implementation of automation safety systems (e.g. safety relays, safety PLC, generates safety software module specification

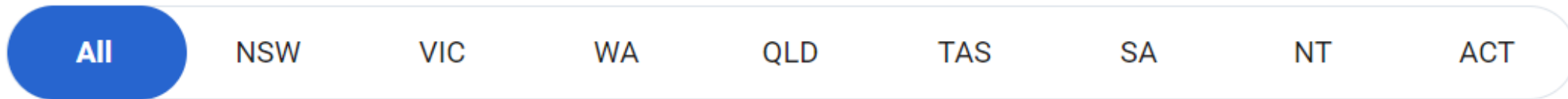
Essential for the Role

- Experience with PLCs (preferably Siemens) and SCADA systems (preferably WonderWare)
- Degree in engineering (Electrical, Electronic or Mechatronic) or suitable qualifications and demonstrated extensive relevant experience
- Demonstrated experience in the major development and maintenance of electrical and control systems for pharmaceutical or FMCG production plant and their associated building services.
- Knowledge of procedures and compliance with GMP (Good Manufacturing Practice) and GAMP (Good Automated Manufacturing Practice) & Safety, Health and Environment requirements
- Desirable for the Role

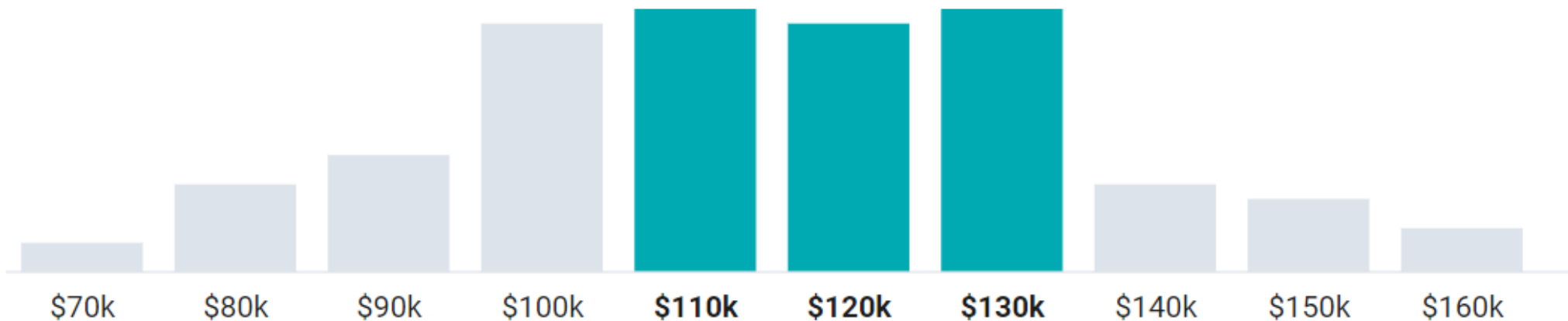
Experience with:

- Siemens PLCs (Step 7 + WinCC for HMIs)
- Wonderware SCADA and knowledge of SQL
- B&R PLCs
- Vision Systems (preferably Cognex)
- Robotic systems (preferably ABB)
- Networking Design
- Experience using SAP Maintenance Systems
- Knowledge of electrical standards and safety categories
- Experience working in a pharmaceutical manufacturing environment or within quality systems

What can I earn as an Automation Engineer?



Automation Engineer roles in Australia were **typically advertised** between **\$100k** and **\$130k** in the last 3 months.



EIT Courses – Industrial Automation Engineering

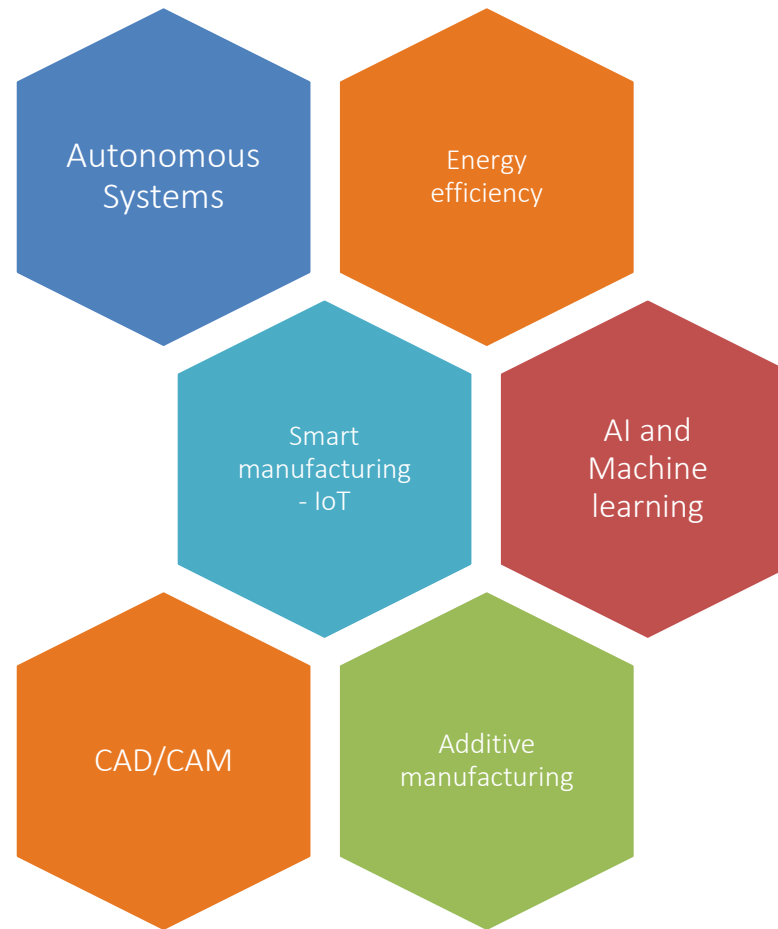


- Online and On-Campus: **Doctor of Engineering**
- Online or On Campus: **Master of Engineering** (Industrial Automation)
- **Graduate Certificate** in Industrial Automation Engineering
- **Graduate Certificate** in Industrial Instrumentation and Process Control
- **Graduate Certificate** in Industrial Instrumentation and Safety Systems
- **Graduate Certificate** in Programmable Logic Controllers and SCADA
- Online or On Campus: **Bachelor of Science** (Industrial Automation Engineering)
- **Undergraduate Certificate** in Industrial Automation Engineering
- 52886WA **Advanced Diploma** of Industrial Automation Engineering
- 52872WA **Advanced Diploma** of Robotics and Mechatronics Engineering
- **Professional Certificate of Competency** in Instrumentation, Automation & Process Control
- **Professional Certificate of Competency** in Programmable Logic Controllers (PLCs) & SCADA Systems
- **Professional Certificate of Competency** in Safety Instrumentation Systems for Process Industries
- **Professional Certificate of Competency** in Allen Bradley Controllogix / Logix5000 PLC Platforms
- **Professional Certificate of Competency** in Control Valve Sizing, Selection & Maintenance
- **Professional Certificate of Competency** in Hazardous Areas & Intrinsic Safety For Engineers & Technicians
- **Professional Certificate of Competency** in IEC 61850 Based Substation Automation

Mechanical Engineering

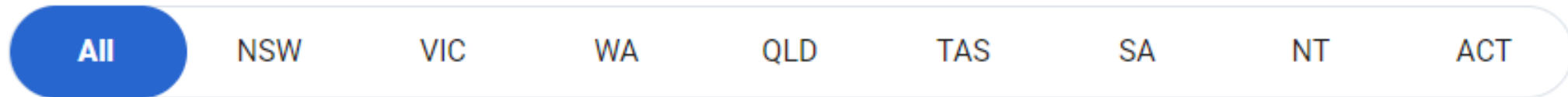


Trends – Mechanical Engineering

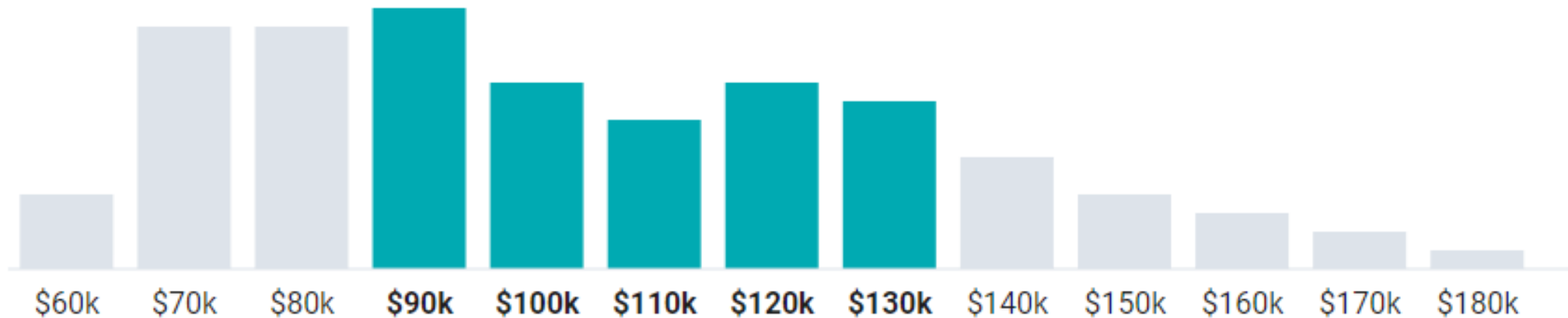


Career Opportunities – Mechanical Engineering

What can I earn as a Mechanical Engineer?



Mechanical Engineer roles in Australia were **typically advertised** between **\$80k** and **\$130k** in the last 3 months.



Career Opportunities – Mechanical Engineering

Job opportunities

3,438

Jobs in AUS right
now

Job growth

 **0.2%***

Projected job
growth in 5 years

Salary

\$90k

Most common
salary

Job satisfaction

4.0



Typical Job Description

About the role

We are seeking a dynamic and driven Mechanical HVAC Engineer to join our thriving Melbourne Mechanical team. The role is suitable for a qualified candidate who has experience designing commercial Heating, Ventilation and Air Conditioning (HVAC) building projects.

You will be able to work independently to deadlines, with an ability to work on several projects at different stages of completion. The role will enable the successful applicant to develop in a professional and personal sense and to forge a challenging and rewarding career path, in a successful firm. We are currently working on a wide range of health care, commercial office and retail, residential, industrial and institutional buildings.

Day to day tasks would involve:

- HVAC design and contract administration duties in accordance with code and company quality standards
- HVAC Engineering, heat load calculations, equipment and reticulation sizing and selection, coordination and documentation
- Assist Project Engineers in successfully completing projects, with focus on program, documentation, profitability, technical aspects, risk management and overall Client satisfaction

- Report and specification writing
- Site surveys and audits
- Representation at project meetings

To be successful for this role you'll need:

- Mechanical Engineering Degree or equivalent
- Previous experience in similar role required
- Diverse HVAC design experience
- Proficient in the use of industry standard software
- Proficient in producing project tender design packages and contract administration duties
- Experience of relevant Australian Standards and Codes
- Revit experience advantageous
- Excellent written and verbal communication skills.
- Ability to prioritise workloads to meet deadlines
- Previous experience in a similar role highly desirable
- Positive, can-do attitude.
- Adhere to professional standards, ethics and quality procedures
- Contribute to our team and company culture

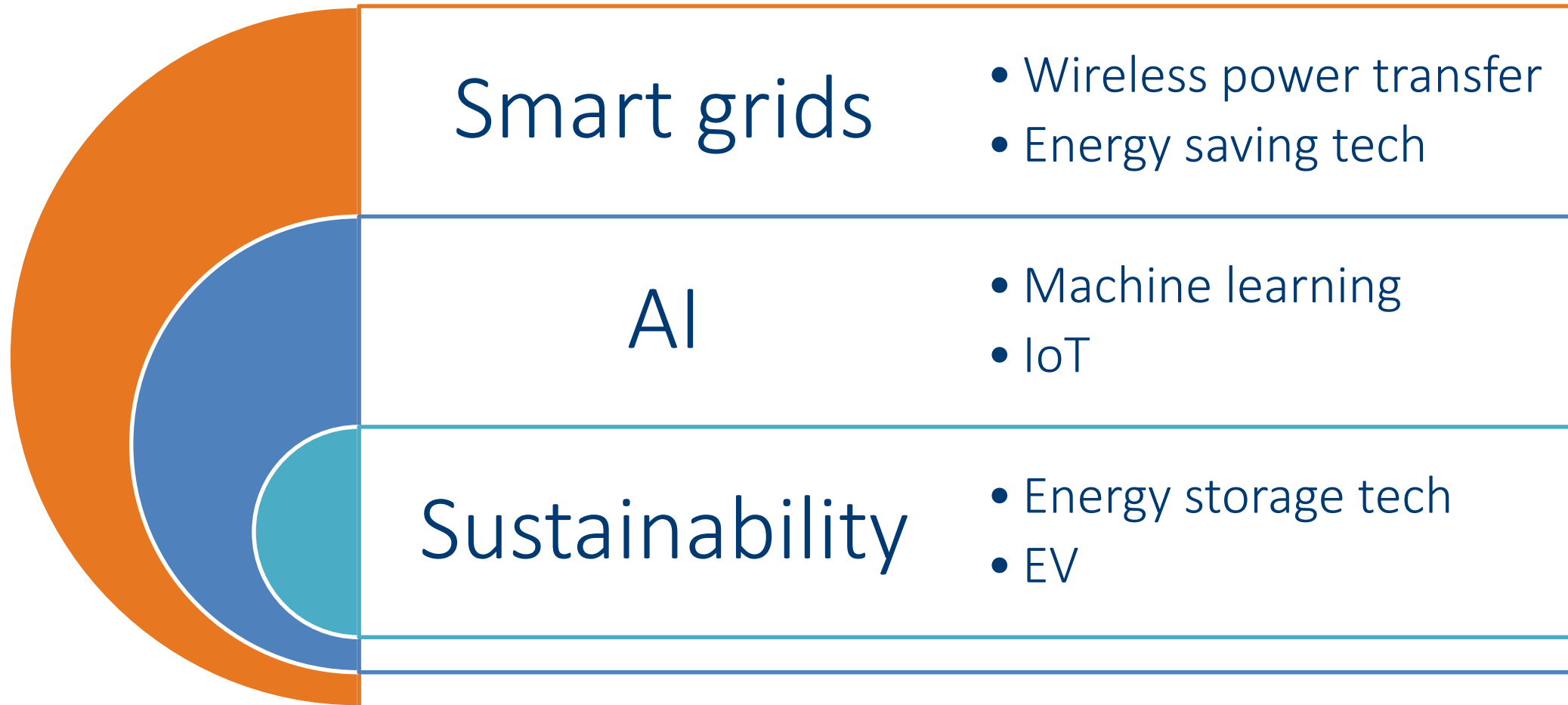
EIT Courses – Mechanical Engineering



- Online and On-Campus: **Doctor of Engineering**
- Online or On Campus: **Master of Engineering** (Mechanical)
- **Graduate Certificate** in Mechanical Engineering
- **Graduate Certificate** in CAD and Computational Techniques
- **Graduate Certificate** in Chemical and Process Engineering
- **Graduate Certificate** in Fluid Power Engineering
- **Graduate Certificate** in Process and Thermal Engineering
- Online or On Campus: **Bachelor of Science** (Mechanical Engineering)
- **Undergraduate Certificate** in Mechanical Engineering
- 52884WA **Advanced Diploma** of Mechanical Engineering Technology
- 52857WA **Advanced Diploma** of Plant Engineering
- **Professional Certificate of Competency** in Mechanical Engineering
- **Professional Certificate of Competency** in Chemical Engineering & Plant Design
- **Professional Certificate of Competency** in Gas Turbine Engineering
- **Professional Certificate of Competency** in Heating, Ventilation & Air-Conditioning
- **Professional Certificate of Competency** in Hydraulics and Pneumatics
- **Professional Certificate of Competency** in Onshore & Offshore Pipeline Systems
- **Professional Certificate of Competency** in Practical Mechanical Sealing
- **Professional Certificate of Competency** in the Fundamentals of Process Plant Layout & Piping Design

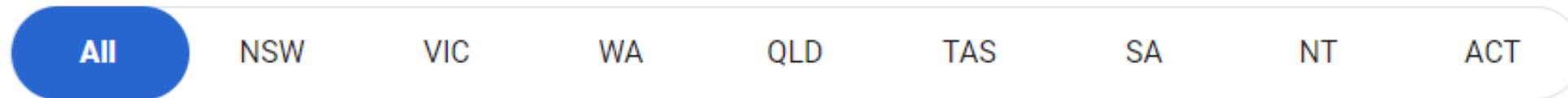
Electrical Engineering



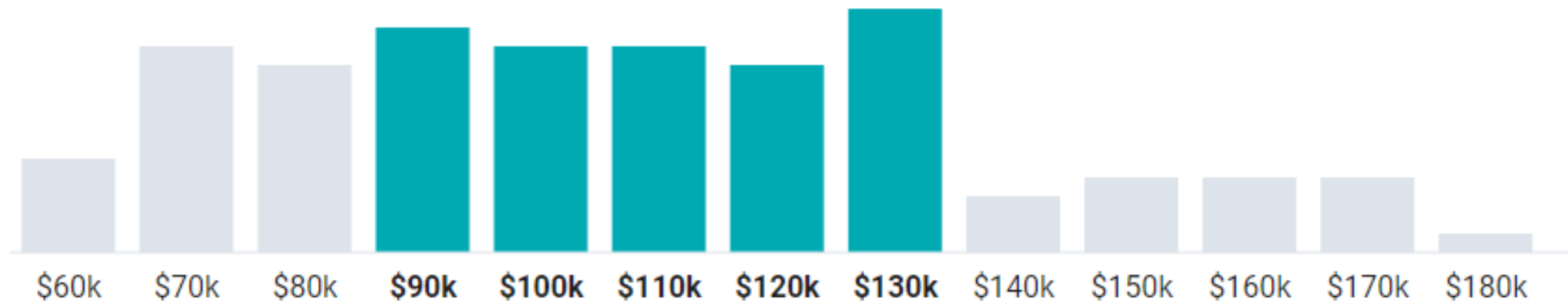


Career Opportunities – Electrical Engineering

What can I earn as an Electrical Engineer?



Electrical Engineer roles in Australia were **typically advertised** between **\$80k** and **\$130k** in the last 3 months.



Opportunities – Electrical Engineering

Job opportunities

2,715

Jobs in AUS right
now

Job growth

▲ **11.4%***

Projected job
growth in 5 years

Salary

\$130k

Most common
salary

Job satisfaction

4.2



Typical Job Description

About the role

You will manage Electrical projects across the Rolling Mill, with a focus on plant improvement, PLC and VSD upgrades and new equipment installation. Collaborating with the Electrical Leader, contractors and have input into the maintenance strategy.

Key duties:

- Managing PLC, VSD and Electrical projects from conception, through the design process to implementation
- Identify short to long-term improvement opportunities regarding the plant's reliability and asset management
- Technical support regarding electrical maintenance standards on day to day projects
- Working with a diverse range of stakeholders, from superintendents and managers through to tradesmen and suppliers
- Ensure Contractors comply with all safety standards and allocate

About your experience

You are an innovative and proactive Electrical Engineer, who is safety focused and collaborative in your approach.

Ideally you will have:

- Tertiary qualifications in Electrical Engineering
- Experience with PLC, VSD design and project management from the manufacturing industry
- Strong interpersonal skills with the ability to interact with a wide variety of people
- Practical experience with Electrical Design and contractor management
- Keen to join a major manufacturing plant which is investing heavily in their assets long-term.

EIT Courses – Electrical Engineering



- Online and On-Campus: **Doctor of Engineering**
- Online or On Campus: **Master of Engineering** (Electrical)
- **Graduate Certificate** in Power System Analysis and Design
- **Graduate Certificate** in Electrical and Instrumentation in Oil and Gas Engineering
- Online or On Campus: **Bachelor of Science** (Electrical Engineering)
- **Undergraduate Certificate** in Electrical Engineering
- 52883WA **Advanced Diploma** of Applied Electrical Engineering (Electrical Systems)
- 52888WA **Advanced Diploma** of Applied Electrical Engineering (Power Industry)
- 52882WA **Advanced Diploma** of Electrical and Instrumentation (E&I) Engineering for Oil and Gas Facilities
- 52727WA **Advanced Diploma** of Electrical and Instrumentation (E&I) Engineering in Mining
- 52856WA **Advanced Diploma** of Illumination Engineering and Lighting Design
- UET60219 **Advanced Diploma** of ESI – Power Systems (Australia & New Zealand Only)
- UET50219 **Diploma** of ESI – Power Systems (Australia & New Zealand Only)
- **Professional Certificate of Competency** in Electrical Power System Protection
- **Professional Certificate of Competency** in Power Distribution
- **Professional Certificate of Competency** in Arc Flash Protection
- **Professional Certificate of Competency** in Big Data and Analytics in Electricity Grids
- **Professional Certificate of Competency** in Circuit Breakers, Switchgear & Power Transformers
- **Professional Certificate of Competency** in Electrical Power System Fundamentals for Non-Electrical Engineers
- **Professional Certificate of Competency** in Electrical Wiring Standards: AS/NZS 3000:2018 (Australia & New Zealand Only)
- **Professional Certificate of Competency** in Fundamental E&I Engineering for Oil & Gas Facilities
- **Professional Certificate of Competency** in Substation Design (Control, Protection & Facility Planning)
- **Professional Certificate of Competency** in Substation Design (Main Equipment)

Upcoming EIT Courses



See our full course schedule here: www.eit.edu.au/schedule/

Q&A

Thank you for attending.

Contact Us:



Website

www.eit.edu.au



Email

webinars@eit.edu.au



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Courses

www.eit.edu.au/schedule/



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