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# Studying for the Jobs of the Future

## Civil and Structural Engineering

PRESENTED BY

**Dr Ana Evangelista** | Lecturer  
**Ms Sisipho Phakamisa** | Learning Support Officer



# Agenda

1	Welcome
2	Overview of EIT
3	Job Trends – Civil and Structural Engineering
4	EIT Programs, Unique Delivery Methodology & Student Support
5	Q & A



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



## 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.



## 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 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.



## 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.



## 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.



## **Dr Ana Evangelista**

*EIT Civil Engineer Lecturer*

Dr Evangelista's research in Australia has been focused on sustainability in construction and engineering materials. Her PhD research was mostly concentrated on non-destructive tests to evaluate concrete structures. She started her academic career teaching units at the School of Civil Engineering at Federal University of Rio de Janeiro. Additionally, she managed the Construction Materials Laboratory providing external consultancy to the Construction Engineering sector.

In 2008, she joined the Environmental Engineering Program at Federal University of Rio de Janeiro (Brazil) conducting research and supervising higher degree students investigating eco-friendly engineering materials. From 2016 to 2019 she worked as a visiting research fellow in the area of recycled concrete at Western Sydney University / School of Computing, Engineering and Mathematics.



## **Ms Sisipho Pakamisa**

*EIT Learning Support Officer*

Ms Sisipho Pakamisa has worked within the education industry for ten years. She is currently a Learning Support Officer at EIT, looking after students studying their Professional Certificate of Competency, Diploma, Advanced Diploma and Graduate Certificate courses.

She is passionate about helping people, and with her outstanding communication skills, provides our students the highest level of encouragement in anticipation of their success.

# What is Civil Engineering?

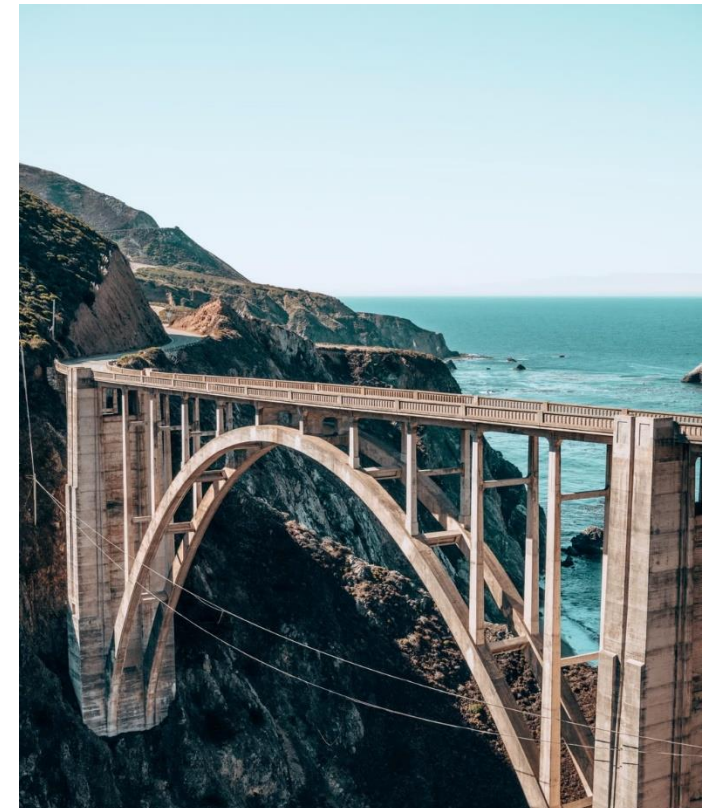
Civil engineering is a broad discipline and one of the oldest professions in the world.



**Construction**



**Transport**



**Structural**



**Geotechnical**



**Water resources**



**Environmental**

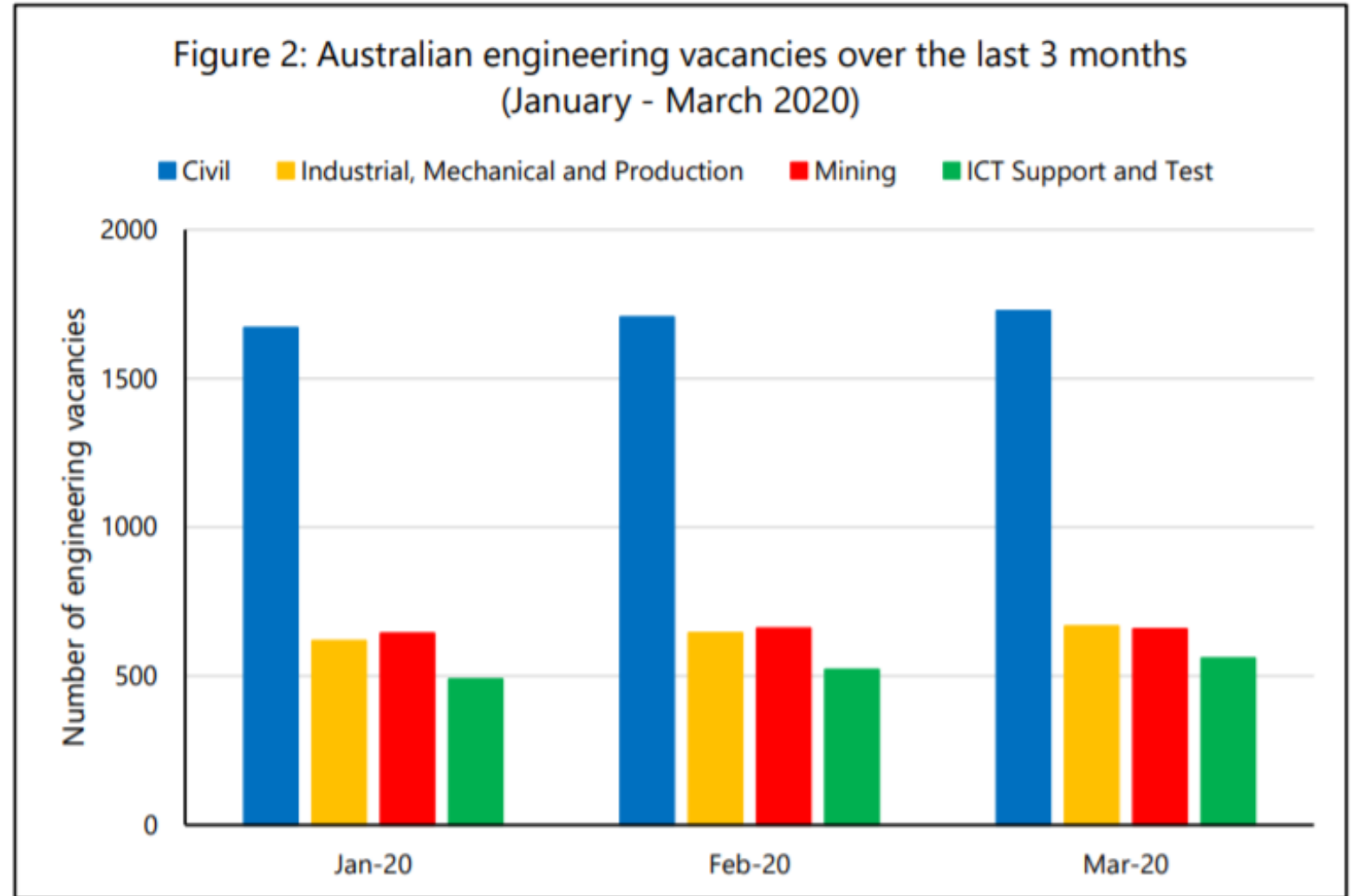
## **Preparing today for tomorrow's unknowns in the future of the construction and engineering industry.**

The Engineering and Construction industry was able to respond faster than other industries due to strong order books and demand from the residential segment. Connected construction presents a host of efficiency- and productivity-enhancing technologies that can enable new business models and strategies. There may be another disruptive event around the corner that could catch the world off guard. But E&C firms that embrace digital, form strategic alliances, and prepare for the future of work are most likely to be better prepared for whatever comes next.

<https://www2.deloitte.com/us/en/pages/energy-and-resources/articles/engineering-and-construction-industry-trends.html>

- › Civil engineering vacancies continue to dominate the Australian engineering employment landscape.
- › The awarding of major civil infrastructure projects has generated business for associated industries boosting the demand for civil engineers.
- › Government investment in the construction industry has aided job growth.

*Australian Engineering Vacancies –  
Engineers Australia*





# Job Trends: A Global Outlook

- › Some Engineering and Construction (E&C) companies were more exposed to COVID-19–affected segments (like retail and hospitality), while others were not able to capitalize on technology advancements.
- › Most E&C companies continue to face sustained cost and margin pressures.
- › companies are experiencing challenges such as project delays, cancellations and increases in the procurement costs of materials and equipment.



<https://www2.deloitte.com/us/en/pages/energy-and-resources/articles/engineering-and-construction-industry-trends.html>

A report by PSR Solutions who specialize in recruitment in the civil engineering sector, states that advances in technology are already influencing the construction process, paving the way for 'smart' building techniques. Building Information Modelling (BIM) is enabling engineers to create virtual models of their designs. Drones scan building sites meaning builders can analyze weak spots and collect high-resolution images to input into photogrammetry systems. And 3D printing allows civil engineers to tailor their designs to specific criteria and create custom designs and structures.

<https://www.ice.org.uk/news-and-insight/ice-community-blog/may-2020/what-future-skills-will-civil-engineers-need>

- › An increase in public and commercial spending could improve the outlook for 2021.
- › Connected construction and modularization can address long-term costs and margin issues.
- › Digital investment can enable E&C firms to differentiate themselves in 2021.
- › The industry is likely to witness strong activity in both traditional and nontraditional partnership approaches.
- › A shift towards going green and increasing sustainable practices.



When the pandemic ends, Engineering & Construction companies will face a new world. The marketplace will change, as some national governments will be eager to invest in infrastructure to jump-start their recovery, and others may face new resource limitations. Portfolios will also change, with both public and private sector project owners placing a new emphasis on sustainability and resilience.

*- PWC Global article*

# Civil and Structural Engineering Career Pathways

EIT offers a range of civil and structural engineering programs from professional development through to formal qualifications. EIT also offers its higher education programs on-campus in two campuses; *Perth, Western Australia and Melbourne, Victoria.*



## Rudy Botha

A graduate of EIT's [52724WA - Advanced Diploma of Civil and Structural Engineering](#).

"I am looking to study further in order to obtain a Bachelor of Science (Civil and Structural Engineering), which will once again diversify the job opportunities that are available to me and my company"



## Denis Tichagwa

A graduate of EIT's [52724WA - Advanced Diploma of Civil and Structural Engineering](#) and [Bachelor of Science \(Civil and Structural Engineering\)](#)

"Life at EIT was exceptional. My level of understanding in not only the construction field but the engineering domain in general has greatly improved."

## Professional Certificates, Diplomas and Advanced Diplomas

- › Gain credibility in your firm and improve career prospects and income.
- › Enhance competency and skills in a more specific field.

*“to qualify individuals who apply specialized knowledge in a range of contexts to undertake advanced skilled or paraprofessional (not fully qualified) work and as a **pathway for further learning**”*

### Professional Certificates

- › 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

### Advanced Diplomas

- › 52724WA – Advanced Diploma of Civil and Structural Engineering

## Undergraduate Certificates

## Bachelor of Science Degrees

- › To work as a Civil Engineer, most countries require you to have a Professional Engineer's License. Professional accreditation body for Australia is Engineers Australia.
- › There are opportunities to work on **public** and **private** infrastructure projects.

## Graduate Certificates

## Master of Engineering Degrees

- › Civil Engineers may undertake a Master of Engineering (Civil: Structural) degree in order to increase their chances of becoming a **consultant**, **manager** or **project leader**.

## Doctor of Engineering Degree

- › You must provide a **significant** and **original contribution** to knowledge in the context of professional practice.

- › Computer Aided Design and Drafting (CAD) – Designer
- › Civil and structural project management and business development
- › Estimator (Estimation, Tendering and securing contracts)
- › QC/QA - (Quality)
- › Site Supervisor
- › Production manager
- › Procurements
- › Technical Sales Engineer
- › Surveying Engineer
- › Town planning
- › Civil and structural planning, design and development
- › Building contracts, sales, commissioning and consultation
- › Building control and surveying
- › Site management
- › Water and waste management
- › Civil and structural operations and maintenance

**EIT has many of their qualifications recognized with Engineers Australia under the three accords: Dublin, Sydney and Washington.**





## Mr Alister Anderson

Mr Alister Anderson has been widely involved in the Civil Engineering Industry from contract and project management, civil structural and geotechnical consultancy and education as a secondary school mathematics teacher.

As a tertiary lecturer and academic programme leader he has worked with Engineering Degrees and Diplomas in New Zealand and more recently had a 2-year contract with the Cook Islands Ministry of Education where he was Head of Faculty in Trades Training.

He is a member of the New Zealand Institute of Professional Engineers (GIPENZ) and is actively involved with the South Canterbury branch of IPENZ.



## Ms Belo Ferreira

Ms Belo Ferreira has worked as a project engineer for a number of large mining projects, particularly those centered on gold and nickel production. This included working autonomously and as a part of the Engineering Projects and Asset Management teams.

Her work in these areas included: providing engineering and technical support; conducting inspections and undertaking NDT particularly in regard to the regulating devices – valves – of pressure vessels, mining equipment, and site infrastructure; and, managing projects with a focus of adhering to technical requirements, schedules, assigned budgets, and design and safety standards.



## Dr. Ahmad Firouzianhaji

Dr. Ahmad Firouzianhaji completed his PhD in Structural Engineering at the University of Technology, in 2016. He has extensive experience in research and development in both academia and industry.

He has also been working as a senior engineering consultant and RnD lead in industry and was involved in several engineering projects throughout Australia, New Zealand, South East Asia and North America.

His field of research and interests are cold formed steel structures, earthquake engineering and advanced engineering material.



## Mr Nabeel Ashraf

Mr Nabeel Ashraf has over 20 years' experience in the area of Civil Construction Design and Mechanical Engineering. He started his career as a Site Engineer in an air-conditioning firm where he was involved in planning, designing and execution of site plans for air-conditioning systems. Later he joined the construction industry as Maintenance Engineer where he was in charge of the maintenance work of heavy machinery.

Nabeel has a passion for teaching and worked as a part time lecturer in engineering in different universities in Australia and also overseas.

Find out more about EIT's lecturers and instructors: <https://www.eit.edu.au/our-instructors/>



Emily Levy | Higher Education LSO  
Based in Perth, Western Australia

- › 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 the student for the duration of either a professional certificate or VET program.
- › If a student is studying a degree, they will have a committed LSO for each unit of study.
- › EIT has LSOs based in: *South Africa, Switzerland, Zimbabwe, New Zealand and Australia.*



- › 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!**

Join Professor Akhtar Kalam to gain a greater insight into smart cities.

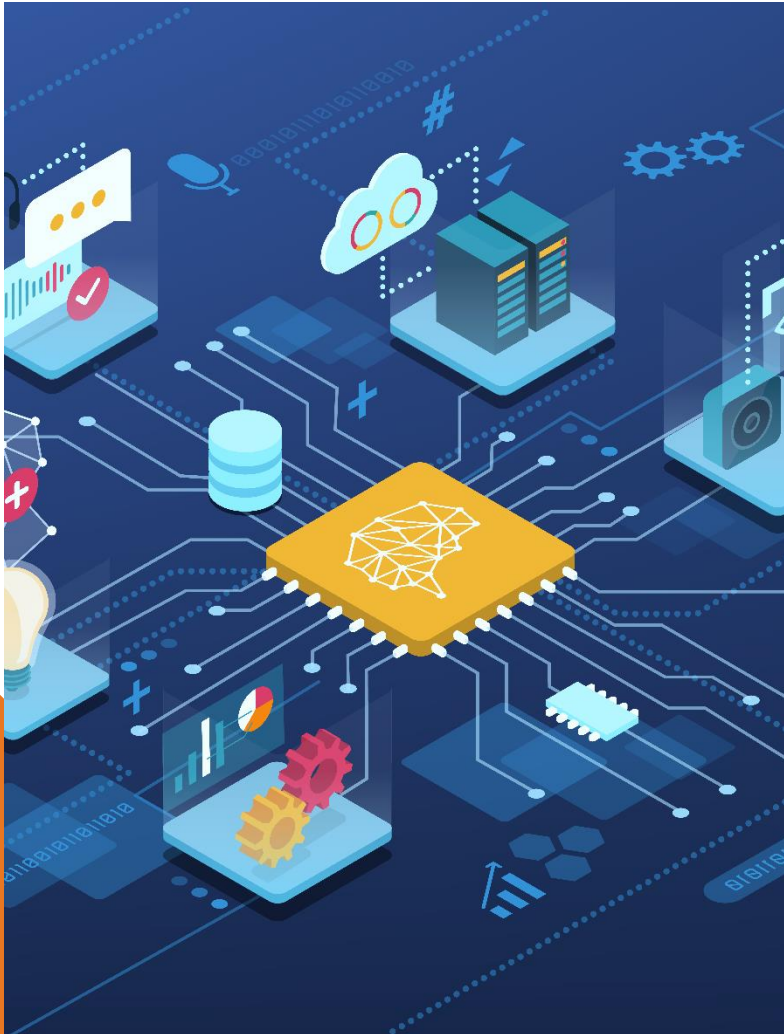
During the webinar, Dr Hadi will:

- › Define smart cities
- › Explain the importance and impact of smart cities
- › Provide potential strategies and challenges

*A certificate of participation can be provided to attendees who request it after the live webinar.*

Register today:

<https://www.eit.edu.au/event/smart-cities-2021-strategies-and-challenges/>



# Q&A





Engineering Institute of Technology.



### Website

[www.eit.edu.au](http://www.eit.edu.au)



### Head Office

1031 Wellington Street West Perth  
Perth, WA 6005



### Phone

Inside Australia: 1300 138 522  
Outside Australia: +61 8 9321 1702



### Email

[caroline.mackay@eit.edu.au](mailto:caroline.mackay@eit.edu.au)

