2021

FEMALE ENGINEERS AT MONASH

FEM

FEM Industry Guide

What's in the issue?

Get in touch:

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www.facebook.com/FEM.monash
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Introduction

Female Engineers at Monash aims to empower the next generation of female engineers as they begin to enter the workforce. The industry guide is designed as an educational resource for FEM members as they consider the next steps in their careers.

It provides valuable information on both highly pertinent industry topics such as company values and current opportunities, as well as social topics regarding ways to support women in engineering. Interviews with successful women engineers demonstrate the different career paths available for students, while spotlighting multiple inspiring female role models. I encourage the wider community to also take advantage of this publication to learn something new, or as a spark to foster meaningful discussion.

A special thanks to the 2021 Industry Team; ***Claire O'Brien***, ***Danica Mullin***, ***Julie Fitt***, ***Isuri Pinto*** and ***Raksha Ramprasad Venkata Suvarna***, who helped organise the guide and the launch.

Additionally, this beautiful publication would not have been possible without the exceptional talent of our designer, ***Frances Eddy***. Thank you for your creativity and the devotion you have invested.

Finally, I am extremely grateful for the generous support of our industry partner companies without whom this guide would not exist. We are fortunate to have built many strong relationships and are excited for future prospects. It has been a pleasure to work with you this year.

Khanh Le
Industry Liaison

> ***The industry guide provides valuable information on company values, current opportunities, and social topics regarding ways to support women in engineering.***

President's Address

Claudia Yuan
President

It is with great pleasure and pride to be leading a team of such enthusiastic, hardworking and brilliant individuals this year in FEM. It is our club's mission to empower women in engineering by equipping women-identifying engineering students with useful skills and opportunities, while educating the broader community on gender equity, diversity, and inclusion.

Gender equity in engineering is a topic that has seen an increase in attention and action from industry and education sectors over the recent years, however we are all aware that there is more work to be done.

2021 has been an exciting year of 'bigger and better' in ramping up our action following the challenges that COVID had posed last year. This year has seen a multitude of new events and initiatives, which has been key in the growth of our club. Our events this year have focused on celebrating and empowering our members including a *'Pancakes and Powerful Women'* BBQ to celebrate International Women's Day, and a power suits themed social event. We have also held many events to equip our members with important skills and knowledge that they may not have even been exposed to by default during their youth, including a power tools workshop and introduction to artificial intelligence workshop series.

A major highlight this year was shifting to a new angle for our virtual panel event on International Women in Engineering Day, featuring a variety of inspiring speakers including three women-identifying role models and leaders, and two men in positions of leadership in academia and industry who actively support our cause through their allyship.

I'd like to congratulate the incredible FEM committee on another successful year of providing our members with valuable events and resources, and hence making a positive social impact on our community. Also, a huge thank you to our industry team for their stellar efforts within our industry portfolio, and of course, for putting together this invaluable resource for our members.

Additionally, I extend my appreciation to all our fantastic sponsors featured in this Industry Guide for enabling our club to continue producing excellent events for women in engineering.

There is no doubt that the future is bright for FEM and the engineering industry as we strive for an inclusive and equitable future for women in engineering.

FEM's Industry Calendar
– Semester 1 –

Virtual Networking Night

FEM's Industry calendar for the year began with the Virtual Networking night held on zoom. During the event, students were able to learn about FEM's sponsoring companies. A round-robin structure with presentations and breakout sessions allowed students the opportunity to hear from all the representatives present.

High Tea Networking

High Tea Networking is FEM's premier industry event. The event is designed to remove the many barriers typically associated with networking. The intimate setting allows attendees to make meaningful industry connections with industry representatives that last beyond the event. The event starts off with students allocated to tables with sponsors during the main course. A casual networking session follows afterwards with some lovely desserts served on a buffet-style table.

Women in Engineering x MESS

International Women in Engineering was celebrated for the first time by a collaboration between FEM and MESS. The two clubs organised a range of speakers to present in a virtual event. Monash's own Dean of Engineering, Elizabeth Croft, opened the event and her colleague, Dr. Daniel Edgington-Mitchel also spoke - an esteemed experience. The night was enriched by hearing the experiences of Monash student Emily Qiao, Professor Melissa Tate and President of Invetech, Andreas Knaack. The diversity of panelists and opportunity for our members to ask questions created a unique and inspiring event.

FEM's Industry Calendar
– Semester 2 –

Industry Guide Launch

The Industry Guide Launch is held to officially release the annual industry guide. This is an opportunity for students to develop more meaningful conversations. The night commences with a presentation from FEM on zoom followed by icebreakers on kumospace to get familiarised with the platform. The final portion of the night will consist of a networking session. Kumospace will enable a more relaxed and natural environment to network in, reminiscent of in-person events.

Diversity in Engineering Panel

The Diversity in Engineering panel is an annual collaborative event held between MESS, FEM and GLEAM to explore prominent diversity issues. Attendees will hear from speakers with a variety of different cultures, experiences and careers. The event is typically held in person starting with a panel discussion followed by a networking session.

Sponsors

06 – 07
Relevant areas of study

08 – 09
Aurecon

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Accenture

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Materials Science & Engineering

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GHD

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S&C Electric Company

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McKinsey & Company

Relevant areas of study:

aurecon	accenture	MATERIALS SCIENCE & ENGINEERING	GHD	wood.	S&C	LOCKHEED MARTIN	Honeywell	Norman Disney & Young	ANSTO	Invetech	McKinsey & Company	
	✓			✓		✓					✓	Aerospace Engineering
	✓										✓	Biomedical Engineering
✓	✓		✓	✓			✓		✓		✓	Chemical Engineering
✓	✓		✓	✓				✓			✓	Civil Engineering
✓	✓		✓						✓		✓	Consulting
	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	Electrical & Computer Systems Engineering
✓	✓		✓					✓			✓	Environmental Engineering
	✓	✓	✓	✓					✓			Materials Engineering
✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	Mechanical Engineering
	✓			✓		✓	✓		✓	✓	✓	Robotics & Mechatronics Engineering
	✓	✓	✓						✓		✓	Research
			✓						✓			Resources Engineering
	✓					✓	✓		✓	✓	✓	Software Engineering
✓			✓ *						✓ *		✓ *	Hiring of international students
✓	✓		✓	✓		✓	✓	✓	✓		✓	Interstate opportunities
			✓	✓				✓			✓	International opportunities

* *Applicable for internship program only*

* *Valid work VISA required*

* *Excluding Business Analyst level in Australia/NZ offices*

Aurecon is more than an engineering, design and advisory company

At Aurecon, our purpose is bringing ideas to life, to imagine and co-create with our clients a better future for people and the planet. We believe humanity depends on engineering; and we recognise we have a broader stewardship role to play.

We have 31 offices that span 11 locations across Australia, New Zealand and Asia and are committed to building an organisation ready to capture future opportunities through innovation.

This year, we were recognised by AFR BOSS Magazine as one of ***Australia and New Zealand's Best Places to Work 2021***, and in 2020, Australasia's ***Most Innovative Company***, ***Most Innovative Professional Services Company*** and ***Best Social Impact Innovation.*** We were also honoured to win the AFR's Top 100 Graduate Employers '***Most Popular Engineering and Resources Employer Award***' for the second year in a row, and we made top 10 in the ***Top 100 Most Popular Graduate Employers*** list.

A Sustainable Future

A better future is a world that works for all of humanity and the planet.

As engineers, designers and advisors, we play a vital role in helping the communities and economies in which we operate transition to a more sustainable, liveable future.

We recognise climate change is one of the biggest challenges facing the world today. So we're strengthening our commitment to sustainability and have become a participant in the United Nations Global Compact.

Aurecon is set to achieve net zero carbon emissions by 2025, as part of its plan to decarbonise its business and transition its services.

www.aurecongroup.com/about/sustainability#approach

Workplace Diversity

Our innovation aspiration is dependent on our ability to recruit and inspire a diverse workforce. We are committed to maintaining a culture based on respect so that we can create an inclusive, high-performing culture where everyone can be their full authentic selves within a vibrant global community.

Our accolades include:

- *Employer of Choice for Gender Equality (EOCGE)* citation from the *Workplace Gender Equality Agency (WGEA)*
- Inclusive Employer for 2019-2020 by the *Diversity Council Australia*
- Silver Employer in the *Australian Workplace Equality Index (AWEI)* in May 2021
- Flex Able Certification from *WORK180*

To get more women into STEM, we need to lead by example which is why we continuously look to promote outstanding women into leadership roles. At an Executive level, our leadership team includes:

- Chief Operating Officer **Louise Adams**
- Chief Legal Officer **Emily Peters**
- Managing Director, Government and Aurecon Board Member **Aneetha de Silva**
- Managing Director for NSW/ACT **Rowenna Walker**
- Managing Director for SA/ VIC **Jennifer Smith**
- Managing Director for Queensland **Evelyn Storey**.

Current Projects

Aurecon is currently involved in projects such as the **West Gate Tunnel**, **Suburban Rail Loop (SRL)**, **Melbourne Airport Rail**, and **Metro Tunnel** projects, all in Melbourne.

We've also recently worked on the **NEXTDC M2 Data Centre**, which is Australia's largest constructed Tier IV data centre, which surpasses industry standards for energy efficiency, performance, security and reliability. Aurecon's role in this project covered mechanical, electrical, fire protection, hydraulic, acoustics, communications, security, diesel fuel and structural design.

Graduate Programme

As an Aurecon Graduate, you have the flexibility to pursue your passions, design your own pathway, and fast track your career. You will also work alongside industry leading professionals, mentors and peers as part of a diverse and inclusive team. Things to expect also include:

- Applying your skills to reimagine engineering and design a better future
- Collaborate with others across geographies and markets
- Learning through formal, interactive, and informal learning experiences
- Develop strong communication skills, build your personal brand, and broaden your network
- Understand the attributes of high-performing teams and develop your ability to collaborate with others for successful outcomes
- Use design thinking methodology to produce superior business and client outcomes
- Examine future career pathways & options, including becoming a registered/chartered professional

Paid Internship Programme

As an Aurecon Intern, you will be placed in a technical field of your choice (where possible) for approximately three months to gain practical work experience, apply the theory you've learnt at university, and build your network.

While open to all students, the programme has been designed for undergraduates ideally in their penultimate year of study. At the end of the experience, we give our interns structured feedback on their performance to assist in their professional development. This experience can also be your foot in the door to join our graduate programme.

Limelight – Aurecon's Emerging Professional Network

Emerging professionals make up almost 50% of our workforce, which is why we created Limelight, a network of proactive emerging professionals, who are the voice of the future thought-leaders of our company and within the wider industry.

Limelight actively promote a culture of innovation, involvement and improvement and through the feedback sessions with senior leadership, our emerging professionals have opened their eyes to new ways of thinking and no ideas.

Visit ***www.aurecongroup.com/graduates-interns*** to learn more about our graduate and internship programme, including our application process, and resume/ cover letter tips.

Stay Connected With Us

Email updates straight to your box: Subscribe to our news and be the first to know about application dates and positions by visiting our website ***www.aurecongroup.com/graduates-interns***

Instagram: Follow @aurecon to watch our Instagram (IG)TVs for FAQs & to meet some of our recruitment team

LinkedIn: Follow us for the latest news, events and thought leadership from our experts and recruiters.

We want everyone to have their voices heard, feel valued and connected. For when we celebrate the best of ourselves and others, we can transform great ideas into better outcomes. This is how we live our purpose of bringing ideas to life.

William Cox, CEO

Application dates

Applications to our internship & graduate programmes typically open in February each year – so keep an eye on our website in 2022.

To learn more visit www.aurecongroup.com/graduates-interns

accenture

"Across the globe, one thing is universally true of the people of Accenture: We care deeply about what we do and the impact we have with our clients and communities. It is personal to all of us."

Julie Sweet, Chief Executive Officer.

Accenture is a world-conquering professional services company, with leading capabilities in digital, cloud, and security. Servicing more than 40 different industries in over 120 countries with annual revenues of around US$44 billion, Accenture has office locations in 200 cities across 50 countries with a headquarters in Dublin, Ireland. Accenture employs 569K+ people including data scientists, software engineers, web developers, digital marketers, and big data specialists. They have operated in Australia for over three decades servicing Australia's iconic brands across the areas of Financial Services, Communications Media & Technology, Resources, Products and Health & Public Services.

Their unmatched global delivery capabilities allow them to bring the right talent at the right time to their clients from anywhere in the world. 8,000+ patents protect their innovation and serves as a differentiator against the competition. Their primary clients include the majority of Fortune Global 500, governments, and government agencies around the world, as well as relationships with more than 6,000 clients in 120+ countries.

Workplace diversity

Accenture's commitment to their people and accelerating equality for all has never been more relevant than it is today.

Their unwavering commitment to inclusion and diversity is fundamental to their culture and core values. It creates an environment that unleashes innovation, allows their people to perform at their very best, and underpins a culture in which everyone feels they have an equal opportunity to belong and build a career.

Their rich diversity makes them stronger, more competitive and more creative, which helps them better deliver on their purpose – to bring innovation to improve the way Australia and New Zealand lives, works, plays, protects and grows.

When you work with Accenture, no matter who you are, you can feel comfortable being 100% you.

Current Projects

Globally, we're a team of more than 569,000 innovators, driving business transformation in more than 40 industries. Locally, we work with many of Australia's most iconic brands to reinvent their organisations.

Here are some examples:

- We helped Telstra transform its marketing approach to unlock deeper business insights and improve customer experiences.
- When COVID-19 struck, we enabled nonprofit Beyond Blue to provide Australians with 24/7 access to mental wellbeing support service.
- We helped the Australian Taxation Office (ATO) launch its digital services, making it faster and easier for taxpayers to manage their tax obligations.
- We worked with BP in Australia to realize its vision of the future refinery workforce, creating solutions that enhance the safety and efficiency of field workers.

Graduate Program/Internships

Accenture offers both intern and graduate opportunities.

Attracting, developing and retaining exceptional talent is the key to our success. That's why we make sure that our people are recognised and rewarded for their unique skills, impact and career progression.

Successful candidates will have plenty of travel opportunities. Because we work with numerous clients across 40 industries, our teams can be assigned to deliver projects on client sites anywhere in Australia such as Sydney, Melbourne, Brisbane, Canberra, Perth and Adelaide.

Whatever path they choose, our graduates will have numerous learning opportunities to accelerate their career growth.

We provide classroom, online and on-the-job training, leadership and mentoring programs and industry certifications.

We look for:

- Strong aptitude & interest in technology
- Problem solving skills
- Eagerness to learn
- Teamwork & good interpersonal skills
- Strong communication skills.

Register your interest for our program at -

www.gradaustralia.com.au/graduate-employers/accenture-australia

Graduate Roles & Interview Tips

- Have a clear understanding of why you want to join Accenture.
- Demonstrate your technology skills. Discuss those exciting university projects & ensure you talk to the process as well e.g. team work, client engagement etc
- Ensure your communication skills are well refined in all communication mediums
- Importantly, be your authentic self at all times!

MONASH University

MATERIALS SCIENCE AND ENGINEERING

Monash University's Department of Materials Science and Engineering is an international, research-active department with modern facilities and a broad education offering in materials science and engineering. Although our work spans the entire materials field, we specialise in both the cutting-edge and fundamentals of metals and alloys, biomaterials and tissue engineering, nanomaterials, polymers, composites, corrosion, advanced materials characterisation and materials modelling. Our department is well known for our outstanding facilities, integration of practical and theoretical learning, student-run teams and our focus on people and the community.

HISTORY

The department of Materials Engineering was officially launched in 1971 with 16 students and by 1980 had the largest research group in the Faculty of Engineering. The department has since gone through numerous incarnations before officially becoming the Department of Materials Science and Engineering in 2013. In 2021, according to QS World University rankings, the department was ranked number one in Australia and 34 globally for materials science.

EMPLOYEES

Our department is made up of 31 academic staff (25% female) and typically takes on 80 Bachelors of Materials Engineering students (40% female) and 100 Masters of Advanced Engineering students (29% female) per year. Students and staff join our department from more than 40 countries around the world.

COMPANY VISION/FUTURE GOALS

Our department and its researchers are currently looking to find new and innovative ways to engage with the public and industry so that we can better understand their needs and how we might meet them.

GIVING BACK TO THE COMMUNITY

Our department is committed to producing research outcomes that are in the public good. This includes the research and development of materials which help mitigate the effects of climate change, reduce the impact of environmental pollution and aid in the treatment of diseases.

WHAT SETS MSE APART?

Our department prides itself on building life-long relationships with students, from enrolment through to alumni. We also actively promote diversity and inclusion at all levels.

Q&A

What type of people succeed in Research?

Successful researchers come in many varieties but often share some common traits. These include being innately curious about the world, creative, able to clearly communicate with experts and non-experts alike, sensitive to the wants and needs of others and excellent at organising their time.

Our department is located within Monash University's Clayton campus. This places it within walking distance of the CSIRO's Clayton Central precinct, the Australian Synchrotron and the Melbourne Centre for Nanofabrication.

Most of our researchers are located within the New Horizons research centre, a collaborative research environment designed to create new multi-disciplinary research opportunities for industry, engineers, scientists, researchers and government.

MONASH University

MONASH ENGINEERING

PHD & MASTERS SCHOLARSHIPS

Materials scientists and engineers make a unique contribution – not just by making new materials, but also by improving what we already have. Here at Monash, our graduates and researchers are making things stronger, lighter, more functional, more sustainable and more cost-effective. Their contributions underpin all aspects of engineering, manufacturing and health sciences. Not surprisingly – they're increasingly in demand.

THE OPPORTUNITY

Expressions of interest are sought from outstanding candidates interested in undertaking research studies in Materials Science and Engineering at Monash University.

Our PhD and Masters by Research degrees are a great opportunity to work on a significant research project under the direction of world-leading researchers. We have projects in the areas of energy materials, metals and alloys, biomaterials, additive manufacturing and functional materials. Our department is ranked the No.1 Materials Department in Australia, and we have state-of-the-art laboratories for materials research, with centres for electron microscopy and additive manufacturing.

TOTAL SCHOLARSHIP VALUE

$29,500 per annum (tax-free) (2021 rate). Tuition scholarships available to international students.

SCHOLARSHIP REQUIREMENTS

There are separate scholarship rounds for local (domestic) and international students. To be eligible to apply for domestic postgraduate research scholarships an applicant must be an Australian citizen, New Zealand citizen or a Permanent Resident of Australia. International postgraduate research scholarships are available for non-domestic applicants that cover both living allowances (stipend) and tuition (international student fees).

ELIGIBILITY REQUIREMENTS

Applicants will need to hold a first-class honours degree from an Australian University or equivalent degree from an overseas university in a relevant discipline.

Full details for the relevant requirements are available at:
monash.edu/graduate-research/future-students/apply

TO RETAIN THIS SCHOLARSHIP

The recipient of this scholarship must maintain satisfactory academic progress throughout their research degree.

APPLICATION PROCESS

The first step in the application process is to identify a potential supervisor.

Research profiles of academics in the department can be found at:
monash.edu/engineering/departments/materials/about-us/our-people/academic-staff

Once you have identified a potential supervisor, email them with your CV to discuss potential projects on offer.

Academics will then issue a formal invitation to apply which you can use to start the online application process.

APPLICATION DEADLINES

The yearly scholarship application deadlines are:

International: 31st March & 31st August

Domestic: 31st May & 31st October

ENQUIRIES

Enquiries about the scholarship application processes can be directed to:

Faculty of Engineering Graduate Research Office

eng-gradresearch@monash.edu

+61 3 9905 5222

MORE INFORMATION

Find out more about PhD and Masters by Research degrees and scholarships at:
monash.edu/engineering/future-students/graduate-research/phd

MATERIALS SCIENCE AND ENGINEERING

MSE.Enquiries@monash.edu

+61 3 9905 4941

GROUP OF EIGHT AUSTRALIA

Proudly owned by our people, GHD is rich in diversity of thought, background & experience.

GHD is one of the world's leading professional services companies. We operate in the global markets of water, energy and resources, environment, property and buildings, and transportation.

Company culture

GHD is driven by a culture of service excellence, we partner with our clients to develop engineering, architecture, environmental, advisory, digital and construction solutions together. We apply high standards of safety quality and ethics to create value throughout the project lifecycle.

Why we stand out

Our connected global network brings deep technical capabilities, multi-disciplinary skills and industry insights to help our clients succeed. The value of our work can be seen in the social progress, sustainable development and economic growth we bring to the communities we touch.

"Today, more than 10,000 empowered people in 200+ offices on five continents collaborate seamlessly to understand our clients' objectives, solve their problems and bring imaginative solutions to life."

"I want us to get to the point where there are as many young females considering engineering as young males."

Kate Cochrane
Geotechnical Engineer

I grew up in country Victoria, coming to Melbourne for uni with little idea of what I wanted to do. The only thing I knew was that I liked maths and science. I decided to do civil engineering because it combined the subjects I like with real world applications. Growing up I'd never heard of engineering and barely knew that it could be a career but a few friends in my maths classes at uni were doing it so I thought I'd give it a crack. Now I know there's nothing else I'd rather do.

There are an abundance of areas to specialise in with civil engineering and GHD offer the majority of them. I started off at GHD with the graduate program in the Project Management Team. Part of the grad program allows you to do an optional 6 month rotation into another team. I chose to go to the Geotechnical Engineering team as I wanted to try something more technical but after the 6 months I really liked it and decided to stay. Both of my teams were very supportive of the move and it made it easier entering the workforce knowing I had flexibility.

I had so many great opportunities at GHD working on so many different types of interesting projects in a wide variety of sectors. The work environment is set-up so that if you find something you like or something you want to work on, you're encouraged to go after it. Finding an interest or a passion in an area will tend to make you work better and be happier in general. Everyone I've found at GHD support this ideal and understand a lot of people in our generation don't want to be stuck in the same role forever.

If you are interested in becoming a part of our GHD community we have the programs below to get involved:

GHD Graduate Development Program

The GHD Graduate Development Program is an integrated two-year, holistic approach to developing our future leaders and technical experts. The structured program provides the tools and opportunities needed to establish and build a successful career with us.

Applications open: March annually
Program commences: February the following year

Our people are at the very heart of our success. That's why we are committed to developing and supporting talented, motivated individuals who are eager to launch their professional careers delivering to clients on varied and challenging projects.

Visit www.ghd.com/graduates for more information

Wood is a global leader in consulting and engineering across energy and the built environment, helping to unlock solutions to some of the world's most critical challenges.

We provide consulting, projects and operations solutions in more than 60 countries, employing around 40,000 people.

We can trace our origins back to 1848 when Matthew Hall moved to London from Newcastle and to set up his own plumbing and lead-working business. His company was later acquired by AMEC which in 2017 was acquired by Wood Group.

In Australia, we have offices in Brisbane, Melbourne, and Perth with our global headquarters in Aberdeen, Scotland. At Wood, you will have the opportunity to make a real impact with an organisation that truly cares, from industry challenges to making a difference in the communities in which we operate.

So much of our success depends on feeling part of a team with people around us that we can rely on. What unites us is our values. They set the tone, help create our culture, give us one common set of principles, and help us all have a great experience at work.

Workplace Diversity

One of our nine sustainability targets is to improve gender balance with **40% female representation in senior leadership roles by 2030.**

With graduate recruitment, we are looking at improving gender balance by at least reaching a **50/50 gender split**.

One part of our business in Australia is looking at a **100% female intake for 2022**.

We also sponsor Robogals Melbourne and have already conducted STEM workshops with employee's daughters.

Current Projects

One of our recent contract awards was by Simply Blue Energy for a proposed floating offshore wind farm located off the west coast of Ireland.

The *Western Star Floating Offshore Wind Project* aims to harness the vast wind power of the Atlantic Ocean to produce clean, sustainable energy for Ireland and beyond.

We have also recently secured a new contract with BP Castrol Australia to provide engineering, procurement, and construction (EPC) services to two Castrol lubricant blending, filling, and manufacturing facilities in Spotswood, Victoria and Fremantle, Western Australia.

Graduate Program/Internships

At Wood, we don't just look for WAM or GPA scores. We believe enthusiasm, personality, commitment, and creative thinking are just as important.

At Wood, you will have the opportunity to make a real impact with an organisation that truly cares, from industry challenges to making a difference in the communities in which we operate.

Go here to see what our graduates think:
au.gradconnection.com/employers/wood/#our-graduates

Skills or Attributes We Look For

- Curiosity
- Enthusiasm
- Energy
- Creative Thinking
- Cultural intelligence

Graduate Roles & Interview Tips

The most important thing when applying for a job is to submit *ALL* the documentation the employer is asking for. If an employer is asking for a cover letter, resume & transcripts, submit all three, not just some. Close to 50% of applicants are knocked out because of this.

A good cover letter should be between 200 to 250 words in length and should not be a repeat of your resume. Use your cover letter as an opportunity to highlight key skills relevant to the role.

The best thing to do with preparation is to research the organisation and become familiar with their values, mission and vision. Also, have a look at research projects that they have been involved in.

At Assessment Centres, the other candidates you will be with should not be considered as direct competition as assessors will be evaluating you on how you can work in a team, communicate with others, and show leadership skills. You will be given a problem to solve as a group in these exercises.

Throughout these group activities, there are a few things that you should keep in mind.

- Be assertive, not dominant
- Stay focused
- Be supportive
- Be original

S&C ELECTRIC COMPANY

Excellence Through Innovation

S&C Automation Trailer

S&C Electric Company specialises in the switching, protection, and control of electric power systems. Our solutions are an essential part of the electrical grid that brings power to homes and businesses.

Beginning in 1911 with headquarters in Chicago, S&C has had a presence in the Asia Pacific region for more than 60 years. S&C opened a branch office in Melbourne, Australia in 2013, and in 2018, established a private Australian company, S&C Electric Australia Pty Ltd.

S&C works to understand local challenges within the region, developing technology and providing services to achieve reliable power that can reduce the duration of power outages from hours to seconds – or to no outage at all.

Workplace Diversity

Here at S&C Asia Pacific, we service a sizeable geographical area encompassing various countries, ethnicities, cultures, religions and norms, and so our team is inherently diverse too, all with different characteristics which make their perspective unique.

We recognise that diversity matters, but it is only through inclusion that we are able to make the most of diversity.

We achieve this through fostering an environment of mutual learning and openness to others, fair and equitable employment practices and a culture where all team members are respected, valued and feel that they belong.

In support of our commitment to DE&I, we undertake various local educational and celebratory events focussed on diverse attributes of our team members, offer S&C affinity groups including *I.D.E.A. Group (Inclusion, Diversity, Engagement Awareness)*, *S&C Connects* (networking) and *Spectrum* (LBGTQ inclusion) and undertake advocacy activities with community groups that support and promote diversity, particularly in STEM industries.

Company Projects

One exciting project that S&C is involved in is our new Automation Trailer. The ideal vehicle to showcase our innovative portfolio of products, our trailer is visiting a range of customers and education facilities Australia-wide, bringing a range of solutions that highlights our commitment to evolution and innovation over the last century.

The setup has been specifically designed to give customers hands-on experience with the latest in automation technology, allowing them to see and operate products that are deployed in the field.

Graduate Program/Internships

Students interested in an internship with S&C can reach out to ***APACGraduateProgram@sandc.com*** and submit an expression of interest.

When it comes to supporting students/graduates, our philosophy is to provide a rounded learning experience that combines valuable commercial, technical and leadership skills training with hands-on exposure and application, delivering projects and engineering solutions that solve the unique and real challenges our customers face. Further, you'll gain international exposure, working and networking with team members across various S&C locations worldwide as well as customers across the Asia Pacific region.

Lockheed Martin Australia is an Australian company that is engaged in the integration & sustainment of advanced technology systems, products and services across space, air, land, sea and cyber domains.

Our innovative technologies have been contributing to the security of Australia and realisation of Australia's national interests for over 70 years and today we employ over 1,300 people with a presence in every mainland state and territory.

Our programs and projects directly support around 4000 additional Australian industry jobs in advanced manufacturing and high technology industries providing Australia with important sovereign capability.

Workplace diversity

Lockheed Martin has long embraced both equal employment opportunity and affirmative action and the fact it had a female CEO from 2013 to 2020 suggests it's serious about diversity. The company also has a variety of employee networks, employee resource groups and leadership groups.

We do not discriminate based on race, ethnicity, national origin, age, religion, sex, disability or marital status when hiring, promoting, training and terminating employees. The company's affirmative action programs seek to identify and break down barriers, both visible and invisible, creating an even playing field where everybody has a fair chance to reach their full potential in contributing to our business.

Current Projects

We deliver exceptional program performance and leading innovation for Australia across a broad range of environments and domains.

Lockheed Martin's diverse programs form a critical backbone of Australia's current and future defence capabilities including Next Generation Pilot Training, Combat Systems Integration, Rotary Wing Systems and Sustainment, 5th Generation Air Combat Capability, Surveillance across air, sea, land and space domains.

Graduate Program/Internships

Lockheed Martin Australia's award winning Graduate Development Program won the Defence Industry's Best Graduate Program in 2020. An award we are very proud to have received

The Lockheed Martin Australia (LMA) Graduate Development Program is designed to expose Graduates to unique learning opportunities, whilst contributing to stimulating, ground-breaking projects. We partner with Australia's research and industry communities to support our global supply chains, providing opportunities for technology transfer, innovation, local skilled jobs and business growth. Our Graduates are engaged with these facets of our business.

All Graduates participate in the two-year Graduate Development Program and join the Company as part of a cohort in February or mid-year.

The Program is structured over 2 years with the key components as follows:

- Permanent full-time employment at LMA from the start
- A team role in a cutting-edge program
- A 'Buddy' to help start the journey with LMA along with a structured induction program tailored to the Graduate cohort
- A designated Mentor for ongoing career advice & support
- A supportive environment where all leaders are provided with development in leading millennials and creating a learner centred environment
- An individualised On-the-job training program covering job-specific processes and techniques
- A Graduate development program involving contemporary training spanning leadership development, communication and technical skill development
- Psychometric profiling using Insights TM that enhances their ability to read people & adapt their communication accordingly
- Access to leading technology and thought leadership both face-to-face and virtually
- A competitive starting salary with regular reviews
- Work/life balance with a 9-day fortnight with flexible working hours
- New Starter Interviews after 3 months of their joining to check in how they have settled in the organisation

The Recruitment Process

Application > Video Interview > Online testing > Selection Interview & References > Offer

Lockheed Martin Australia is regularly adding early careers opportunities to our careers page. Be sure to keep an eye out on our early careers section for updates:

www.lockheedmartin.com/en-au/careers/early-careers.html

"Since joining LMA as a graduate I have been able to gain an exposure & understanding of the Defence contracting process and how programs are run through exposure to multiple programs. I have been encouraged to continue my learning & personal development within a field outside of my degree, as well as through the graduate program's workshops. I also influenced others to study STEM through involvement in LMA's stalls at events like Science Alive & the RAAF Edinburgh Air Show." **Elizabeth**

To learn more visit **www.lockheedmartin.com**

LOCKHEED MARTIN

Honeywell | THE FUTURE IS WHAT WE MAKE IT

We have been innovating for more than 100 years – and now we're creating what's next. Honeywell offers employees the opportunity to work on the world's most exciting projects, transforming the cities we live in, the buildings where we work, and the vehicles that move us.

The world is changing. And it's a familiar story at Honeywell. Our $36 billion business was founded on a legacy of firsts spanning 130 years. We're building a safer, smarter, and more sustainable world through our technology and software across each of our 930 sites globally. Our impact is seen in every shape and size around the world. Our solutions are felt daily in aerospace, buildings and cities, retail, chemicals and materials, safety, industrial and manufacturing, safety, and supply chains.

- Presence in 970 sites across the world
- Global HQ Charlotte, NC, USA
- 36B+ USD net sales in 2019
- 18K Engineers
- 9K software developers
- 35.5K+ granted or pending patents

Company Vision/Future Goals

Why wait for the future when you can create it? When you join Honeywell, you become a member of our diverse, global team of leaders, thinkers, innovators, dreamers and doers who are changing the future.

What does working at Honeywell mean? The opportunity to define the future of entire industries, helping transform the way the world works. A global workplace where you can learn something new every day from a diverse population of problem solvers and doers. An environment where individuals can succeed professionally and personally, advancing their career trajectory while solving their customers' biggest challenges. A work environment that encourages open dialogue, connecting different perspectives to build an inclusive workplace where diverse views are heard and respected. Avenues and channels to celebrate the innovations and accomplishments of their colleagues, their teams, and themselves.

Graduate Program

Our 2-year award winning Graduate program has a rich history of fostering our future leaders. The Honeywell Graduate Program is designed from the ground up to empower people from the moment they start their careers with Honeywell. Through challenging and meaningful assignments with great learning opportunities, together with quality training and development opportunities, we work hard to build a team of results-oriented individuals, then empower them to make the world a better place.

With the support of a global organisation and a culture of teamwork and camaraderie that is second to none, Honeywell employees can navigate their way around the world and progress from career to career within the same dynamic company. Our employees are encouraged to be visionaries and they achieve great things.

Here is what you can expect:

- Technical learning framework to support your performance in your role
- Face to face development workshops focusing on growing your leadership capabilities
- Involvement in a series of leader-led webinars to enhance your understanding of Honeywell
- An assigned Buddy to support your transition into Honeywell
- An assigned Mentor to help grow your career
- Structured networking opportunities with our Senior Leaders
- Yearly goals you set & work towards to add value to our organisation
- A professional global network of 15,000 engineers within Honeywell

Have a social impact in the way we operate our business by joining the Honeywell Graduate Sustainability Committee. Showcase your leadership skills through community and environmental projects that you manage.

By joining our program, you are joining a team of results-orientated individuals that are empowered to make the world a better place. You will be supported by a global organisation and a culture of teamwork and camaraderie that is second to none. As a Honeywell employee, you can navigate around the world and progress from career to career within the same dynamic company.

At Honeywell, Inclusion and Diversity matters. In Pacific we are committed to championing an Inclusive and Diverse workforce.

Our mission is to foster a performance culture that is built on the foundation of welcoming, including, understanding, respecting, and appreciating the different perspectives, backgrounds and experiences our people bring to the workplace every day.

To support our employees, we have established a number of employee network groups that allow diverse employees to come together based on shared identity or life experiences to provide support to each other:

- **WE Connect** *Women's Employee Network*
- **IPP Connect** *Aboriginal & Torres Strait Islander Employee Network*
- **Veterans Connect** *Employee Network for members of the reserve services or past members of the defence force*
- **Pride Connect** *LGBTQIA+ Employee Network*

"Our people are our ultimate differentiator & having employees with diverse backgrounds, perspectives, experiences and cultures brings a diversity of ideas that supports a high-performing environment."

Darius Adamczyk, Chairman & CEO

Honeywell | THE FUTURE IS WHAT WE MAKE IT

To learn more visit: **www.honeywell.com**
www.earlycareersathoneywell.com.au

Norman Disney & Young
A TETRA TECH COMPANY

NDY has been in operation since 1959 and is a leading engineering services consultancy with global reach. We have offices in Australia, Canada, New Zealand, Ireland and the United Kingdom. Our core engineering services are enhanced by specialist consulting services including ICT, electronic security, building management systems, fire engineering, hydraulics, acoustics and architectural creative lighting. Our purpose is Making Spaces Work.

What Sets NDY Apart?

PEOPLE: We're a beacon for top tier talent. As a graduate you will be working alongside industry experts with a reputation for technical excellence. You will be mentored by the very best on your journey to becoming a world class consulting engineer.
PROJECTS: You will have the opportunity to hone your skills on challenging, innovative and iconic projects with our world class clients and partners.
OPPORTUNITIES: Our learning and talent development programs and global footprint will offer you every opportunity to accelerate your career. In 2018, NDY joined NASDAQ listed consulting and engineering services firm Tetra Tech, who have over 400 offices worldwide. This is supporting our promise to employees of a fulfilling career at NDY via access to the best people, great projects and global opportunities.

Workplace Diversity

NDY are proud *Workplace Gender Equality Agency (WGEA)* Employer of Choice for Gender Equality citation holders. We are committed to supporting the career development of female talent in order to improve gender representation in leadership and technical roles with our aim of closing the gender gap in our industry. Currently, NDY have a gender split of 26% Female and 74% Male.

NDY have a leading edge diversity and inclusion (D&I) policy, strategy and gender action plan, the delivery of which is led by our senior leadership team and global D&I Working Group, chaired by our CEO.

Key actions NDY take to support diversity in our workplace include:

- Training staff to become aware of and overcome unconscious bias
- Ensuring we have best practice policies, procedures and training in place to support diversity, equity and inclusion in all that we do
- Normalising flexible work in all roles, at any level, for any reason, to attract and engage the best diverse talent and deliver superior performance
- We are currently delivering on our second Innovate Reconciliation Action Plan
- Providing staff with the opportunity to join a variety of global employee resource groups and networks including a Professional Women's Network and Pride Network
- Celebrating key annual events including *Harmony Day, Pride Month, World Day for Cultural Diversity, Wear it Purple Day, RUOK Day, International Women's Day and International Women in Engineering Day*
- Sharing our diversity success stories internally and externally
- Setting tangible targets to keep us accountable for continuous improvement of the employee experience.

Current Projects

A wide range of exciting projects we have been involved in can be viewed on our website at ***ndy.com/about-us/projects***

Graduate Program

Our graduate program commences in January each year, with applications typically open in May-June. The program injects our business with the next generation of consulting engineers and business leaders making it integral to our ongoing success. As a graduate engineer, will experience a program that offers:

- Structured development workshops
- Rotations through various engineering disciplines
- Internal development opportunities
- Support by an Online Learning Platform
- The opportunity to lead community projects supporting various charities
- The support of exceptional coaches, mentors and leaders.

By developing multi-faceted skills, you will have the opportunity to become a respected member of a team of consultants who are focused on providing our clients with professional service and technical excellence while meeting project deliverables.

You will have the opportunity to network and be exposed to leading industry experts to help further your career in the Engineering profession including Project Managers, Architects, Engineers, Contractors and Regulatory Authorities.

bright sparks

apa

The APA Bright Sparks Graduate Program will launch your career in a top 50 ASX-listed, Australian owned business with a vision to be world class in energy solutions.

APA offers you a clear pathway to a fulfilling career within a team dedicated to excellence.

The program provides exciting roles across the whole business from accounting to engineering, finance, IT, operations and many more.

You will work on real projects and experience clearly defined rotations through the extraordinary diversity of our organisation.

You will also be mentored by some of the most talented people in the industry.

Powering Ambition:

APA Bright Sparks Graduate Program

Our story

APA is a leading Australian energy infrastructure business, connecting Australian's to responsible energy since 2000. We employ around 1900 people around Australia.

We own and/or operate around $22 billion of energy infrastructure assets across Australia, including gas storage, processing and compressions facilities, gas-fired power stations and wind and solar farms.

Our 15,000 kilometres of gas transmission pipelines deliver about half the nation's natural gas usage. APA is also the sixth largest owner of renewable power generation assets in Australia.

Our purpose to strengthen communities through responsible energy, and our vision is to be world class in energy solutions.

What's important to us

Our purpose is to strengthen communities through responsible energy. We're building a sustainable business by creating value for our stakeholders – our customers, investors, employees, the environment, and the communities in which we operate. We responsibly use the resources available to us, without compromising the needs of future generations.

Our community investment program connects our business and our people to the communities in which we work and live by adding value and leaving a lasting and meaningful footprint in our communities. The communities we focus on are those that we operate in and with, in particular regional communities and First Nation people.

Two examples are our long-term corporate partnerships with the Clontarf Foundation and The Fred Hollows Foundation.

We're driven by our values – they are our compass, guiding our decision-making and how we go about our business. Our values are summarised as S.T.A.R.S; *Safe*, *Trustworthy*, *Adaptable*, *Results* and *Service*.

Launching your career

The APA Bright Sparks Graduate Program provides a unique opportunity for graduates to gain valuable industry experience, learn about our business and gain insight into what a career at APA looks like. Over the two-year program you will work across our core business areas to develop your technical knowledge and skills, and your leadership capabilities. You will work on challenging projects alongside some of the most experienced and talented people in our industry.

Bring your energy!

We want you to help us shape the future of the energy industry. We pride ourselves on being collaborative and we celebrate diversity and inclusivity. We believe we do our best work when we harness the perspectives and experiences of our people to take the opportunities and tackle the challenges that we, our customers and our communities face in our ever changing world. If you have the energy, flexibility and ideas to help us achieve our vision to be world class in energy solutions, we'd love to hear from you.

Want to know more?

To learn more about our graduate and intern opportunities please visit the careers section of our website: ***www.apa.com.au/careers*** We recommend to join our Talent Community by signing up to Job Alerts, this way we can keep you updated about positions that match your interests and skills.

Australian Government | ANSTO

ANSTO's highly-regarded Graduate Development Program aims to develop and nurture the next generation of Australian business & science leaders.

Graduates gain invaluable hands-on experience and professional development opportunities.

ANSTO is the home of Australia's most significant landmark and national infrastructure for research. Thousands of scientists from industry and academia benefit from gaining access to state-of-the-art instruments every year.

To find solutions ANSTO operates much of Australia's landmark infrastructure including one of the world's most modern nuclear research reactors, OPAL; a comprehensive suite of neutron beam instruments; the Australian Synchrotron; the National Imaging Facility Research Cyclotron; and the Centre for Accelerator Science. The Australian Synchrotron is a major research facility located in Clayton, a technology and innovation hub of southeast Melbourne. It is one of Australia's most significant pieces of scientific infrastructure.

The Australian Synchrotron produces powerful beams of light that are used at individual experimental facilities to examine the molecular and atomic details of a wide range of materials. The advanced techniques are applied to research in many important areas including health and medical, food, environment, biotechnology, nanotechnology, energy, mining, agriculture, advanced materials and cultural heritage.

Workplace Diversity

ANSTO has a very active Diversity and Inclusion committee. This committee has implemented several initiatives to improve diversity in the workplace. The Women In engineering program is one of them. This program involves networking with universities to connect with women studying engineering, a women in engineering summer internship as well as sponsorship to FEM. This program has been a massive success, where we have hired 12 interns over 4 years.

The committee has expanded its focus beyond gender diversity. This include Indigenous outreach where we have planted an Indigenous garden, LGBTQI+ Ally network.

We are looking at initiatives into cultural and neuro diversity.

Current Projects

Following the Federal Government's substantial $520 million contribution to secure the future of the facility to 2027, ANSTO has been working in earnest to secure capital investment for the Australian Synchrotron. This investment will facilitate the design and installation of eight additional beamlines, enabling the facility to meet the needs of Australian researchers and industry partners and continue enabling ground-breaking research well into the future.

Details of Graduate Program

ANSTO's highly-regarded Graduate Development Program aims to develop and nurture the next generation of Australian business and science leaders. Graduates gain invaluable hands-on experience and professional development opportunities.

Features of the program include:

- Two-year tailored rotation program
- Investment in professional development
- Networking opportunities
- Support structure.

Every summer The Australian Synchrotron runs a Women In Engineering paid internship program. This program will allow successful applicants to gain industry experience in a unique and supportive environment. Applications open in September.

We are looking for graduates with degrees in

Mechanical engineering, Mechatronics engineering, Software engineering, Computer science, Electrical engineering, Aerospace engineering & Accelerator physics.

To learn more about ANSTO & the Australian Synchrotron please visit ***ansto.gov.au/research/facilities/australian-synchrotron/overview***

Australian Synchrotron

OVERVIEW

For more than 30 years, we have worked with health and life science leaders around the world to co-create breakthrough solutions that millions rely on every day. Through proven technology platforms, expert insights and informed action, we help our clients resolve complexities in design, operations and technology – swiftly transforming ideas into market-ready diagnostic technologies and vital therapies. With headquarters in Melbourne, San Diego, and Boxborough, together, we're accelerating healthcare advancements.

VACATION PROGRAM

At Invetech we run an annual Vacation Program applicable to students who are in their penultimate year of study. The program provides students with an opportunity to be allocated to a project, working on initiatives that directly impact the outcome of the project. The Vacation Program will give students the ability to gain hands-on experience, putting theory into practice, whilst making a difference to the healthcare industry.

Opportunities are available for:

- **Electrical & Computer Systems**
- **Robotics & Mechatronics**
- **Software Engineering**
- **Mechanical Engineering**

The vacation program runs: **Nov 2022 - Feb 2023**
Applications open: **June 2022**
Check out opportunities via our careers page:
www.invetechgroup.com/careers

WORKPLACE DIVERSITY

We are working toward creating a more diverse Invetech through hiring, retention and development strategies. We are investing in the development of our leaders, managers, and allies to create an environment where everyone belongs. Our aim is to build a culture of equity for all of us, that enables greater innovation for customers and the world.

To achieve these goals our teams are leading the charge with a variety of initiatives, including the establishment of our first employee & friends resource group, called Invetech FORWARD (For Women's Advocacy, Representation and Development). FORWARD seeks to advocate for, represent and develop women of Invetech through building a community that focuses on connection and collaboration.

In addition, Invetech is working toward becoming an Employer of Choice through the Workplace Gender Equality Agency (WGEA), refreshing our recruitment processes to include best practice measures, as well as introducing a Flex Work framework that provides balance between work and personal commitments.

McKinsey & Company

Connect with McKinsey Australia

We work with companies across all sectors of the Australian and New Zealand economies on the issues that really matter — bringing McKinsey's distinctive capabilities and global perspectives to each and every client.

We serve clients at every level of their organisation, whether as a trusted advisor to top management or as a hands-on coach for front line employees. Our firm is designed to operate as one — a single global partnership united by a strong set of values, including a deep commitment to diversity, equity and inclusion.

Opportunities
McKinsey offers you the opportunity to work with leading companies across the private and public sectors, as well as nonprofit organisations, on their most important challenges. You'll work with talented and creative people, helping clients shape new perspectives and undertake initiatives that will transform their performance. You'll find that no two days will be the same — your working environment will be rich, multi layered, and always interesting.

For those that graduate in 2021 or 2022, please apply for the Business Analyst (BA) role when applications open in January 2022.

Diversity & Inclusion
At McKinsey, we have a deep and longstanding commitment to advancing diversity, equity, and inclusion in business, in society, and within our firm. We believe that Diversity, equity, and inclusion are not just moral imperatives, they are integral to our dual mission — to help our clients make substantial, lasting performance improvements and to build a firm that attracts, develops, excites, and retains exceptional people.

Diversity groups and communities:
Our inclusive diversity groups and communities collaborate to provide support across 13 networks including GLAM (for LGBTQ+ colleagues), McKinsey Black Network, Hispanic and Latino Network, Asians at McKinsey, Access McKinsey (for colleagues with disabilities), Parents of Special Children, among others. These groups enable our people to share ideas, grow and connect.

Recruiting
Recruiting women and underrepresented minorities is a priority, with women representing 45% of McKinsey globally. We invest in building the next generation of diverse leadership though initiatives such as our Women in Leadership Forum, Next Generation Women Leaders events, McKinsey Achievement Awards for women, LGBTQ+, and our Indigenous Internship program.

www.mckinsey.com

FEM 2021 Photobook

Supporting Women in Engineering

Representation & Gender-Biased Design

Representation is powerful. It influences our behaviour and our physical world as what we see is what we produce. Every person needs someone with similar life experiences that they can look up to and say 'I want to be like them'. But for many people there never is. This makes it almost impossible for many individuals to break the status quo and pursue their dreams as they must break through decades of discrimination by themselves. They may never even discover their dreams to begin with.

But we don't just need representation, we need positive representation. When minority groups are only represented in negative ways this is reflected in how others see them and how they see themselves. Positive representation of women and minority groups in our society is essential for a fair, just, and safe world as it will break down damaging stereotypes and biases.

It's important to recognise that while women need more representation in the workplace and media, it is even more important for women of colour and people who are a part of multiple minority groups to be positively represented as these are the people that experience the worst of discrimination and intolerance.

As future engineers we need to be aware of the lack of representation for minority groups as gender-biased designs have led to a world built for men and a world that is unsafe and unusable for women. It's not that product designers are intentionally forgetting women and minorities, it's their internalised biases making them not realise. Representation in the workplace and in research and focus groups used will help bring these biases to the attention of others. This is essential for a safe, inclusive and more successful product.

Examples of gender-biased designs

Car crash dummies:
Car crash dummies are based on the average male body. While there was a female dummy introduced in recent years this is simply a scaled down version of the male dummy [1]. Women are not scaled down versions of men. Women have different muscle mass distribution, lower bone density, differences in vertebrae spacing. All crucial elements when it comes to injuries in car crashes.

The construction industry:
Culturally, building and fixing is considered a man's job. This has resulted in tools being designed for men and tools that are difficult and unsafe for women to use [2].

The size of bricks have been designed to be easily picked up by the average man with one hand, however, most women find this difficult as they have smaller hands [2]. These gender-biased designs create a dangerous feedback loop as gender roles are literally being designed into tools and equipment.

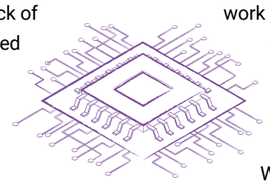
Pockets:
Designers in the fashion industry are male dominated and so when it comes to women's clothing there is an overwhelming drive for aesthetics over function. Pockets are often left out as they "ruin" the female silhouette. This is reinforcing the idea that women need to be attractive before anything else.

iPhones:
Women are more likely than men to own an iPhone [3], however, they have not been designed with women in mind. When the apple health app was first introduced it did not include a period tracker [1], a crucial aspect of any health app! It is difficult to impossible for many women to text with one hand on a 12cm or bigger phone. Whereas the average man can use this comfortably. It's been suggested that iPhones will not get any bigger because they've hit the limit of the average man's hand size [1]. Apple wouldn't want to produce a product that people can't use!

1. Prasad, R., 2019. Eight ways the world is not designed for women. BBC News. Available at: https://www.bbc.com/news/world-us-canada-47725946
2. Ely, K., 2021. The World is Designed for Men. Medium. Available at: https://medium.com/hh-design/the-world-is-designed-for-men-d06640654491
3. Salerni, N., 2021. Report Suggests Women Are More Likely to Own an iPhone Than Men. iPhone in Canada Blog. Available at: https://www.iphoneincanada.ca/news/report-suggests-women-are-more-likely-to-own-an-iphone-than-men/

MDNxFEM – Representation of Women in AI

The Monash Deep Neuron (MDN)xFEM Data and Artificial Intelligence (AI) workshop series was a collaboration event held with the intention of encouraging and introducing students, mainly women, to AI. The series consisted of three workshops, with each workshop focusing on some technical content alongside social content. The technical content was implemented to bridge the lack of exposure to data and AI in underrepresented groups. The purpose of the social content was to bring awareness to the current status of women in the AI industry and emphasize the importance of changing it.



Whilst doing research for the different social education topics, we learned a lot about the way the discrepancy in representation reflects on the technology created. The lack of representation means that the creators of the technology often do not reflect the entire population that utilizes it [1]. This becomes a disadvantage to marginalized groups in society [2]. An example of this is the data training sets used by AI and deep learning systems. AI and deep learning tools learn from real world datasets, which are used to train the system to do the job it is programmed for, as well as error-checking. Since these datasets are provided by humans, development teams composed mainly of white men can often fail to account for data variables that would apply to marginalized groups, especially women of color [3].

There are multiple problems that stem from lack of representation in AI [4]:

1. Lower quality of service for underrepresented and marginalized groups
2. Unfair allocation of resources, information and opportunities
3. Reinforcement of harmful stereotypes & prejudices
4. Health hazards

Data must be used ethically to combat this problem. Measures have been implemented to increase the safety and productivity of AI technology, in addition to increasing representation on development teams. Many countries have solid rules and regulations to ensure the ethical usage of AI [5]. As individuals or industries that work with AI, some steps we can take to ensure the ethical use of AI include: identifying potential pitfalls, understanding human bias, enabling control, and ensuring transparency and accountability of the software produced.

Timit Gebru
Computer Scientist

While women represent a small share of the AI workforce, they are making significant strides to increase representation in the field and continue to inspire more young women to pursue careers in AI. A good example for this is Timnit Gebru [6]. She is a computer scientist who works on algorithmic bias and data mining. She is an advocate for diversity in technology and the co-founder of ***Black in AI*** [7], a community of black researchers working in AI. Timit Gebru is just one example of individuals who are striving to make a change in the field of AI, however, each and every step to make a change has a big impact on the outcome produced.

AI is constantly evolving and will continue to be a large part of our lives in future. It is important to increase representation and remove biases in order to make this technology more reliable and accessible to everyone. The next step is to encourage and inspire more people, especially from diverse backgrounds, to become interested in AI and data science. Our MDNxFEM series was a small effort on our part to do just that.

If you are interested in watching the MDNXFEM AI and deep learning workshop series here is the link to the youtube playlist: *https://bit.ly/2VcWZ65*

1. R. Bastian, "Why Representation Matters When Building AI," Forbes , 28 March 2021. [Online]. Available: https://www.forbes.com/sites/rebekahbastian/2021/03/28/why-representation-matters-when-building-ai/?sh=6cddf31a6388. [Accessed August 2021].
2. N. J. Reventlow, "How Artificial Intelligence Impacts Marginalised Groups," Digital Freedom Fund, 29 May 2021. [Online]. Available: https://digitalfreedomfund.org/how-artificial-intelligence-impacts-marginalised-groups/. [Accessed 28 August 2021].
3. L. Hardesty, "Study finds gender and skin-type bias in commercial artificial-intelligence systems," MIT News, 11 February 2018.
4. G. S. &. I. Rustagi, "When Good Algorithms Go Sexist: Why and How to Advance AI Gender Equity," Stanford University, 21 March 2021. [Online]. Available: https://ssir.org/articles/entry/when_good_algorithms_go_sexist_why_and_how_to_advance_ai_gender_equity. [Accessed 2021].
5. Australian government department of industry science energy and resources, "Australia's AI Ethics Principles," Australian government department of industry science energy and resources, [Online]. Available: https://www.industry.gov.au/data-and-publications/australias-artificial-intelligence-ethics-framework/australias-ai-ethics-principles. [Accessed August 2021].
6. S. ROGERS, "8 INSPIRING WOMEN IN AI LEADING ADVANCEMENTS IN THE FIELD," DATACONOMY MEDIA GMBH, 8 MARCH 2021. [Online]. Available: https://dataconomy.com/2021/03/8-inspiring-women-in-ai/. [Accessed 26 August 2021].
7. "Increasing the presence of Black people in the field of artificial intelligence," Black in AI 2021, 2021. [Online]. Available: https://blackinai.github.io/#/. [Accessed 28 August 2021].

Empowerment & Women in STEM

What Does Empowerment Mean?

If you've ever sat through long commercial breaks, you've probably seen 'empowerment' tacked on as a buzz-word to many a marketing campaign. For example, Dove's *'Real Beauty'*, and Pantene's *'Shine Strong'* [1] both endorse a superficial form of 'empowerment' tied to buying and purchasing their products. In contrast, 'economic empowerment' is another variation that frequently appears in conversations surrounding sustainable development or poverty reduction programs. The UN Women's Empowerment Principles is just one example that expands upon its meaning to encompass: 'implementing supply chains, marketing practices and enterprise developments to empower women'.[2]

In nearly all forms of media and literature where women's rights and gender equality are concerned, the need for 'empowerment' frequently crops up. However, as it's usage grows, it's meaning often gets convoluted — more often than not becoming a token action devoid of any real substance.

This article will examine some of the varying conceptualisations of 'empowerment' and also touch upon its relation to women in STEM.

Conventional Interpretations of Empowerment

The first result that appears with a google search for 'empowerment' defines it as: 'authority or power given to someone to do something.' [3] The Merriam Webster Dictionary calls it 'a granting of authority' [4] and in a similar vein, empowerment is something that can be 'delegated' and 'authorized' per the Collins dictionary. [5]

Shared across all these definitions is a notion that empowering someone should be considered as an act of charity. In other words, this approach 'presumes that the one who empowers has the power to begin with, and grants it to the other'. [6] It is not an interaction between equals, but rather an act of generosity from someone of a higher standing to someone dependent on it. The receiving party remains in a tenuous position — as to grant empowerment also suggests a possibility to have it taken away — and the power imbalance present at the beginning of the exchange persists.

In addition, it also characterises a narrow definition of empowerment that sticks unyieldingly to it's traditional etymology. The word 'empower' is constructed from the Old French prefix 'en-' meaning 'in, into' combined with 'power'. [7] Per it's orthodox definitions, a 'state of being empowered' is centralised in concepts of giving someone 'power' and 'authority' — this reinforces a view of organisational hierarchy that vests power in an individual's societal standing and perpetuates a traditionally masculine configuration that 'power' equates to control over others.

Women's Empowerment: *A Multi-Faceted Process of Change*

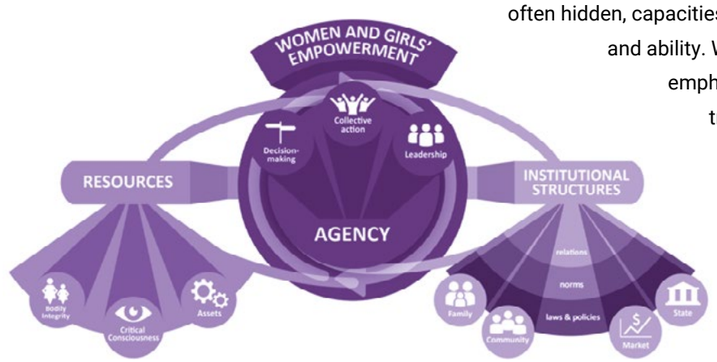
> ***A focus on empowerment requires a shift away from seeing women and girls as beneficiaries of health and development programs to viewing them as agents of change for their own individual and collective empowerment.***

'Women's empowerment' gained traction as a developmental process through the feminist movement in the global south. The 1987 publication titled *'Development, Crises and Alternative Visions: Third World Women's Perspectives'* was the first that rejected the premise of 'empowerment' focusing on the integration of women into pre-existing systems, and instead introduced a view that institutions were merely 'catalysts of [their] visions and perspectives'. It emphasised the need to transform the current 'economic, political, legal and social structures' that were inhibiting 'the creation of egalitarian relationships' in the first place.[8] A more modern interpretation by the Bill and Melinda Gates Foundation (BMGF) echoes this sentiment: *"A focus on empowerment requires a shift away from seeing women and girls as beneficiaries of health and development programs to viewing them as agents of change for their own individual and collective empowerment."*[9]

So how can this form of 'empowerment' also apply to women in STEM? Firstly, empowerment is a multi-dimensional and ongoing process of change. This is characterised by advocating for favourable conditions, resources, and opportunities to create a conducive environment in which women can thrive.

Some key factors include, but are not limited to: access to education, financial stability, support systems and mentoring, representation in media, general societal perceptions, positive female role models, policies regarding equal wages, legislation protecting against assault and discrimination, as well as workplace and maternal rights.

Women will be more likely to overcome any barriers to their aspirations, whilst developing their intrinsic, but too often hidden, capacities for self-confidence, autonomy and ability. While the process of empowerment emphasises a collective effort to transform and re-imagine existing power structures, it's conceptual core ultimately lies in drawing out and amplifying one's own agency and innate power.



BMGF Empowerment Model

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Women Supporting Women

This article will look into the global picture of women in engineering, the reasons behind the low ratio of women in engineering and how women can support each to increase these numbers.

The number of women in engineering has significantly increased in the recent decades. However, there is still a large gender gap in engineering despite there being a number of efforts put in place. Since 2011, the number of women graduating with a bachelor's degree in engineering has increased by 58%. [1] However, in many countries, women only constitute less than 30% of the workforce. As of 2016, the number of female engineers in the workforce is less than 13% percent [2]. The percentage further declines as the age of a woman increases (referred to as the leaky pipeline effect).

The reasons for the small percentage of women in engineering can be attributed to multiple factors. One such factor is the pay gap due to (a conscious or unconscious) partiality in performance assessment. A study in the UK found that women earn less than 2.5% of what men earn despite having similar qualifications. It was also found that the pay gap increased as women's ages increased, up to 11% in many cases [3].

The second major factor is the bias in performance assessment for jobs. A study conducted by UBC revealed that men are more likely to choose male candidates for jobs even when both male and female candidates possess similar credentials [4]. Although multiple companies are making a conscious effort to eradicate this bias, the progress has been slow.

Another factor contributing to the gender disparity is the perception of engineering as a male career pathway and the assumption that women do not have the necessary skills to take up a career in engineering. Studies have revealed that women themselves tend to doubt their capabilities [5]. Other factors include work-life balance concerns, not having a role model to look up to and a lack of career knowledge and understanding of the pathways to engineering careers.

Why is it important to reduce gender disparity?

1. **Reduces biases in the workforce**
2. **Increases efficiency in problem solving**
3. **Creates more opportunities for a growing workforce.**

How are women making this happen?

Encouraging Like-Minded Women

A peer reviewed study examined the factors which contributed to leadership job placement and compared the findings for men and women. It found that outcomes for both men and women were strongly influenced by their network and that the gender composition of the network contributed more to the success of women than men [6]. This study demonstrated that having a circle of close female friends positively impacts women. Although in workplaces and universities female engineers may still be the minority, making and maintaining friendships with other female engineers can be very beneficial to your own career prospects.

FEM strongly encourages our members to network and make friendships with other like minded engineers through our events. One such event was the FEMspirations and Cocktail Celebrations held in week 10 where our members got to relax and meet people from across different fields over a few drinks. As mentioned above not only has this been shown to increase leadership job placement, but it also allows you to receive support from your peers.

Decreasing Gender Bias

A study in India looked at whether having previous female leaders decreased gender bias in the general population using data from local elections. These elections have randomised positions which are mandated to be female and changes year by year. They found that in comparison to councils that never had a woman in a reserved position, approximately twice as many women won positions in councils where a woman had held a position in the last two years [7]. This indicates that prior exposure to a female leader increased voter confidence in women. If we look at this in the workplace, having more women -particularly in leadership positions- will create better workplace conditions for women as more people will be accepting of them. In an ideal world these biases wouldn't exist in the first place but it is positive that exposure to female leaders in a workplace can make it easier for other females to eventually be chosen for positions. Not only is it aspirational for young women starting out but it also helps everyone recognise and overcome unchecked biases.

Mentorship and Role Models

It is also important for potential STEM students to have strong female mentors. There are some fantastic programs which have strong numbers of female leaders that aim to encourage females into engineering. These introduce young students to not only engineering content and possible areas of study but perhaps more importantly to females who are passionate and driven. This visibility can help increase the number of young women entering engineering degrees. It has been shown that lack of relatable role models can be linked to low numbers of minorities entering particular fields [8].

Engineers Australia, the national body for registered engineers, established a National Committee for Women in Engineering which is both aiming to increase the numbers of women entering STEM fields but also increase retention of these women. Some of the important ways they aim to tackle this is by generating conversations around flexible work arrangements and paid parental leave which accommodate the needs of women so they can progress to leadership roles [9]. We know that it is important for young women to see other women in leadership roles so that they can aspire to be engineers. We need to have more women remaining in the workforce so there can be visibility of these role models.

There are a large variety of factors contributing to the gender disparity in engineering highlighting that this is a complex problem. Women can help increase the number of other women in engineering by three methods. Firstly, by creating strong and supportive networks. Secondly by taking up leadership positions to increase confidence in their aptitude for engineering. And thirdly, by being role models for young women increasing the likelihood of them considering engineering pathways.

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Being an Active Ally

Dr. Daniel Edginton-Mitchel

Active allyship fosters a positive and inclusive environment that encourages people of all genders to feel welcome, accepted and supported. It's important that conversations about allyship involve everyone, regardless of gender. Dr. Daniel Edginton-Mitchell, Monash Senior Lecturer and the Faculty Chair for Equity, Diversity and Inclusivity, hopes to be a role model for all allies. He helped us break down what allyship means and how you can begin taking an active stance for gender diversity.

Daniel *"I've considered myself a feminist for as long as I can remember, largely thanks to the strongest female role model in my life - my mother. There's no equal to the immediacy of an inspiration like her. I haven't always had perfect attitudes about gender, I only began active advocacy after starting my professional career. I was a passive supporter for some time, until my wife recounted the injustices she faces everyday in her work environment - injustices that I never have to deal with. This was a turning point for me. While standing up for equity can require a great deal of courage in some work environments, we are fortunate in the Faculty of Engineering to have courageous leadership on this issue, particularly from our Dean, Professor Elizabeth Croft. The present environment in this faculty means that advocating for equity is well-regarded, but many allies may not be so fortunate. While being an active ally takes time out of my research career, at the end of the day, the environment I am in means what I'm doing is not particularly noble or brave. It is, however, what is fundamentally right."*

What's holding our allies back:

Some do care, but they just don't have the time:

Daniel *"There's so many opportunities to get involved and a whole lot of injustices that you could invest time into, but we barely have time to do just the jobs we're supposed to do!"*

We need to convince these people that they need to find the time.

Some don't care, but aren't hostile either:

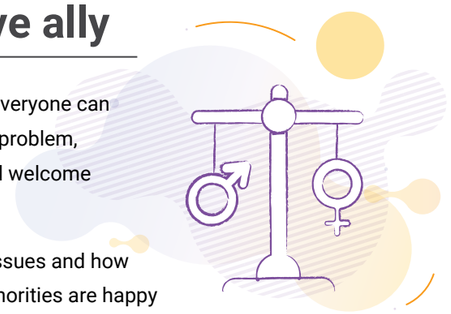
Some people are simply content to be bystanders, neither supporting nor condemning unfair behaviours. These people are reachable, but it will require some persistence!

Some don't care, and are hostile:

Daniel *"Despite the progress being made on gender equality in the workplace, there are still people who are of the view that women or other minorities in positions of power probably got there because of their gender or the fact that they're a minority".*

These people are most likely not reachable, but this doesn't mean you shouldn't still try to get them on board!

How you can start being an active ally



Look for 'low hanging fruit' – There are many small and easy steps everyone can take to help support gender diversity. While these alone won't fix the problem, the women and non-binary people in your life will be thankful and feel welcome and respected.

Educate yourself – The responsibility to educate yourself on social issues and how to support minorities lies with you alone. While many women and minorities are happy to have these conversations and help break down internalised biases, they need you to lead the conversation so they don't get emotionally exhausted.

Daniel *"Go through your lecture notes; when you talk about the history of your discipline, how many examples of female engineers do you have? After a bit of digging, it turns out that everything I do comes from Emmy Noether and her mathematical proof that underpins fluid mechanics. I never learned that, but I make sure all my students do."*

Change your language – Language has the power to make people feel valued and respected but also insignificant and powerless. As an ally, consider your language choices and what their unintended impact may be.

Speak up – Take action when you can. It is difficult to call out demeaning behaviour when it is aimed at you, so as an ally it is your responsibility to stand up and help. Go to the next page for some tips on speaking up!

Build a snowball effect

If every ally went and convinced two other people to become active supporters of gender diversity then gender diversity would quickly become much more widely accepted and respected. Different people will be receptive to different approaches; you should use your knowledge of the individual to judge which approach is most likely to be effective. The following is just a few of the possible avenues of argument you could use to inspire someone to increase their commitment to allyship.

Their sense of morality and fairness – For some, appealing to their morals and sense of fairness may be enough. Why shouldn't women be included and respected as much as men?

Daniel *"We know there are lots of young women who start off interested in STEM disciplines but get turned away because of the attitudes they encounter. Don't be part of that."*

Their self-interest – Ask the person, "is this what you want your workplace to look like? Does this environment encourage female engineers to stay?" This may help them realise the exclusivity of both their workplace and their own actions, hopefully inspiring them to reconsider their behaviour.

Their future career – If you can't demonstrate that you can take gender diversity seriously and authentically, employers are not going to be interested in you. It's not something you can fake in an interview; interviewers have seen countless candidates and know how to read people.

Daniel *"Maybe at some small old-boys engineering company you can get away with it, but if you want to work with one of the big players, these kinds of attitudes are poison to them."*

Responding to Microaggressions

Microassaults	Microinsults	Microinvalidations
Have clear intent and knowledge of emotional harm they cause	Subtle acts of microaggression e.g. a backhanded comment	Cause victims to believe their feelings are unwarranted or unwanted.

If you've ever had someone ask you *"where are you really from?"*, *"don't you think that's a little unladylike?"* or *"why don't you just man up?"* then you know what it's like to be the victim of a microaggression.

A microaggression is a small act or remark that degrades and demeans a person based on their race, gender, etc.[1] They are prevalent in minority groups such as women-identifying engineers and are often the result of internalised biases and so can come from anyone, even the people it demeans. Whilst they may be unintentional, repetitive microaggressions can cause life-long emotional harm.

If you suspect you are a victim of a microaggression, don't play it down as being "insignificant." Responding to microaggressions can be a tricky and personal process to navigate. The goal is to work out what's best for you and so **here are some tips to help!**

Deciding what to do...

Consider your relationship with the person

1. **You know the person –** They will likely respond fairly to being called out for their actions & learn from the experience.
2. **You want to maintain a good relationship –** Consider the effects a confrontation may have on your friendship

Consider the context

1. **Being called out publicly can be a confronting experience.** If there is a large audience it may be better to respond after the incident in a more private setting.
2. **If your safety or career is on the line it might not be most appropriate to respond directly.** Consider filing a formal complaint and talk to a trusted ally.

Consider timing

1. **Respond in the moment** – A more casual, less targeted approach, that may avoid grudges.
2. **Respond later** – A rushed or emotionally unbalanced response may lead to regrets - take your time!
3. **Do not respond** – You aren't any less courageous if you choose not to respond.

Consider your state of mind

1. **Confused** – Ask for clarification of their intent.
2. **Exhausted** – Consider letting this one go or addressing it when you feel ready. Prioritize self-care and seek help from those you trust.
3. **Angry** – Take a moment (or longer) to clear your head.

If you decide to respond...

Be aware that people may get defensive. Whilst they may feel uncomfortable being called out, they need to know that their actions have made you and others uncomfortable.

Never assume – Avoid assuming negative intent behind a microaggression. Remember that everyone has internalised biases and that they may have been unaware of what was projected in their actions.

Speak assertively – Consider your tone and body language, and how it might come across to others. Speaking assertively and calmly is the most useful way to create constructive conversations and ensure healthy relationships are maintained.

Prepare to disarm – Often microaggressions occur so quickly that by the time you realise and decide to act it is too late to bring up in a way that does not put the perpetrator under attack. Having a list of prepared statements can help you act quickly and decisively:

1. **Challenge** – *'what do you mean by that?'* - allows the person to clarify their intent.
2. **Educate** – *'I know you may not have realised but saying … was insensitive because … Next time you could … '* - acknowledges the perpetrator did not intend harm.
3. **Encourage allyship** – *'I used to say/do that too but then I realised …'* - recognises that everyone makes mistakes.

If someone doesn't respond well – If someone does not respond well, avoid retaliating as this rarely ends well. Remember that you have done a brave action, your feelings are completely valid, and this person is not being considerate to you and your community. Consider debriefing with someone that you trust.

If you've witnessed a microaggression

Microaggressions can be belittling, making it almost impossible to stand up for oneself. The responsibility for calling out microaggressions lies equally with bystanders. Educate yourself on social issues so you can spot microaggressions and step up as an active bystander. Speak up directly to perpetrators when you can but often it is just as helpful to actively support the victim to show that they have the support of a community behind them.

If you've committed a microaggression

It's vital that you avoid becoming defensive but acknowledge your mistake and make an active change about your behaviour. Remember that while you may not have intended it maliciously, this does not replace the impact.

Getting help

You do not need to speak out against every microaggression you witness. However, recognising them and the impact they have on you is essential as they can have severe effects on your mental health. Talking to someone you trust can help you deal with negative emotions and will help you realise you are not alone.

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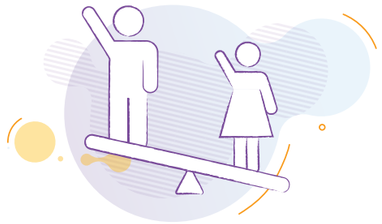
Gender Pay Gap in Engineering



What is the gender pay gap and why does it exist?

According to the Workforce Gender Equality of Australia (WGEA), the gender pay gap is a measurement of the differences in average earnings between men and women in the workforce. This pay gap exists as a result of many factors, both social and economic, that limit the earning capacity for women over their lifetime. Women are likely to earn less, have less career progression opportunities and accumulate less superannuation compared to their male counterparts (WGEA, 2020). The reasons driving these discrepancies are complex and have often been culturally embedded in workplaces over many years.

A key driver of the gender pay gap is the presence of fewer women in higher-paid leadership roles. A 2016 report from the Association of Professional Engineers Australia stated that only 12% of women in STEM fall within the top income compared to 32% of males. Furthermore, in STEM there are almost four times as many men in management roles than women, this contributes significantly to the gender pay gap. The lack of women in senior leadership roles normalises the idea that these roles are more naturally suited to men. Once women have female role models and mentors in more senior roles, it enables them to see themselves in such roles in the future. Many women experience difficulties progressing to higher management roles when they take extended periods of time off for parental leave - commonly referred to as “maternal leave”. This also reduces the amount of superannuation that women accumulate as they take time off for care-taking.

Additionally, female-orientated work industries tend to attract lower wages compared to more male-dominated industries. For example, caring and social service occupations which are traditionally female-dominated have lower wages compared to the construction and mining industries, which have long been male dominated. Careers in industries such as mining and construction are often catered towards men as they offer little flexibility for women.

How has the gender pay gap changed over time?

In 2020, WGEA reported a 19% gender pay gap in STEM workplaces. Engineering, architectural and technical services recorded gender pay gaps of up to 24%. This equates to women earning an average of 32 thousand dollars less compared to their male counterparts. This has shown slight improvement since 2016, where the STEM overall gender pay gap reported was 22%. In 2016 this value was as high as 33% for the engineering, architectural and technical services sector.

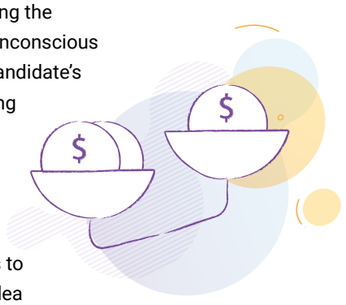
How can companies and industries work to reduce the gender pay gap?

There are countless ways for increasing gender diversity and reducing the gender pay gap in workplaces. Introducing gender-inclusive language policies in workplaces reduces the discrimination against women. For example, offering “parental leave” as opposed to “maternal leave” allows for parents to share care-taking responsibilities, and enables women to return to the workforce sooner if they desire.

Workplaces can also increase the flexibility of working hours, enabling both women and men to have time to care for children and share the household responsibilities. This may mean starting and finishing later on certain days.

Also, make gender identity anonymous during the recruitment process to help eliminate any unconscious biases. Recruiters can focus more on the candidate’s experiences and applications without making assumptions of their ability based on their gender.

Large companies, particularly in male-dominated fields, should celebrate their female leaders and provide female mentors to less experienced workers, to promote the idea that women belong in high-paid leadership roles.



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Negotiation of Pay for Women

It’s not a conversation that is often brought up in your university degree, but it is an incredibly important skill to learn when you start working in the industry. Every year, the company you will work for will undergo a performance review for their employees. This is the time for you to negotiate your salary and convince your manager that you deserve a pay rise.

Always be prepared

Always prepare for these meetings by providing evidence on why you deserve a pay rise. Record what you have done each week and note down any achievements you have made for yourself or for the team. If you can, write a development plan for yourself to create goals that can be achieved in regular intervals. Have a meeting with your boss once a month to track your progress. If you receive regular approval from the boss, your relationship with the manager will improve and hence, when it comes to negotiating, your manager would already be aware of your progress. In your negotiation meeting, this can be used as evidence as your manager can clearly see that you have been constantly improving over time.

Be professional

The way women and men engage in negotiation is a contributing factor to the persistence of the gender pay gap [1]. It has been found that women tend to find it difficult to engage in negotiation because they are perceived to be more community minded, whereas males are perceived to be more assertive [1]. Your behaviour plays a big part in the success of your negotiation, however, women who tend to be assertive can be perceived as being difficult and demanding. Assertiveness is an important skill to learn in negotiation [2], so what can you do? Be respectful but be very stern. You don’t need to be pushy, just have extra conviction in what you are saying. If you aren’t the best at being assertive, studies have shown that women tend to have an easier time negotiating if they are advocating for other women [2], hence, you can reframe your mindset and think of it in a way that is to help other women.

What else can you negotiate besides salary?

Your salary isn’t the only thing you can negotiate. Companies often provide other benefits and compensation on top of your salary and therefore, you can use these if you aren’t able to obtain the salary you want. Elements such as incentives, bonuses, and non-cash benefits such as parking, professional development or industry training programs are all negotiable [3]. Research into your compensation package so you can counter with something other than your salary.

What are the common mistakes of negotiating?

Negotiations can be quite tricky if you don’t have experience in them. However, there are a few mistakes you can avoid in order to increase the likelihood of success. Firstly, don’t back down and second guess yourself. Your manager may counteract your arguments, but do not falter. There can be an element of self doubt and the feeling of being under-qualified when it is time to evaluate your performance. However, the only solution is for you to accept your abilities and properly value your contribution to the company to ensure you receive the recognition of that effort and value [3].

One way to show confidence is to have conviction in what you are saying and doing. When you receive reassurance, those insecurities will naturally go away.

A huge thank you to ***Maria Nguyen*** from *Professionals Australia* for providing her personal experience with this piece.

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Personal Stories

Getting Job Ready

Suzanne Walker

Suzanne Walker

Traffic & Transport Engineer

1. Could you tell us a bit more about yourself?

I am currently a traffic and transport engineer at GHD, and I am also studying a PHD in Transport Engineering at Deakin part-time. I have always loved learning something new, so I have hobbies such as making cheese and sewing. I learnt how to make shoes and bags. Anything to learn how something goes together and how other people make it.

2. What was your journey like becoming a transport engineer?

Becoming an engineer is a bit of a weird story, so I dropped out of engineering in my second-year thinking "No, engineering is not for me, I don't want to do this. Everyone is saying what they are doing as an engineer and that sounds boring".
So, I took a year off, tried coming up with what I was going to do and decided that teaching was the answer. While doing my 4-year bachelor degree in teaching, I thought it was going too slow. My old lecturer convinced me to come back and finish engineering in two years and do a two-year master's degree. However, during this time, my health got worse, and I became paralyzed from the neck down. So, I spent a couple of months in the hospital learning to walk again.

With my university not being very accessible by train, I pretty much didn't get to class. As I slowly began to gain strength, I was not sure if I would have a job. I didn't have the energy to go anywhere. At that point, I didn't think I was going to be an engineer or a teacher. So, I started working as a research assistant in the engineering working space, which I really enjoyed. After I graduated from engineering, I kept working in engineering education for Swinburne and we created a new engineering degree which was all industry based and hands-on and it was just me working casually when I was able to. My health slowly improved, and I decided to start working in the industry. I started working at Ford as a Program Control Engineer and Functional Business Lead. A few months after I started they shut down the department and we were all made redundant, so I had to find a new job and that's how I joined GHD and decided to be a Rail Engineer. I decided rail engineering wasn't for me and went on maternity leave and came back and joined the Traffic and Transport team.

How did you cope with your disability?
What motivated you to come back?

I needed to finish my degree and decided that working in research at the time was the best option. I was registered with the accessibility service at Swinburne (my university at that time) so, I had slight adjustments on how I needed to do things. It was a very different learning experience. In my first 2 years of engineering, I was a top student, getting HDs and always being on top of things. Whereas, being in a wheelchair, I wasn't able to get to class, unless someone helped me, due to the train station and tram stop not being accessible. There were so many barriers and I couldn't change all of them. Having the motivation, when you don't have the energy, makes everything that much harder. But it's boring doing nothing.
It took me longer as I did it part-time. But I was determined and completed my degree eventually.

3. Why did you decide to drop teaching and go back to engineering?

When I came back to engineering it was not to be an engineer but a faster way to become a teacher, which is why I got into Engineering Education, which I thought was a great combination of the two. The idea was that this would be a stepping stone to education. However, I really liked engineering and I wanted to prove to myself that I can be an industry engineer and went to Ford.

4. How did you feel about being unemployed for a period? How did you manage to get back?

The company told us 3 months ahead that we were made redundant. At the time, I was pregnant, so it was a bit more stressful getting a job as there were 200 engineers all looking for a job. It was disappointing. However, we were all like a big family there and it made me appreciate the time as an opportunity as you don't know how long it would last.

When I lost my job, my husband did too, since we were on the same team. Whilst unfortunate, it helped that my husband was going through the same thing and all of us were in the same situation. We would look out for each other, support for each other. It was difficult, but having all of the people that cared about me made it better.

I learnt about GHD from my sister, and I really liked the sound of the culture there and I thought it would be a great opportunity.
So, I took a job that I had no direct experience in and it was an opportunity.

5. What inspired you to get into engineering?

My dad was a builder, and I grew up on building sites. I was always drawing building plans and I assumed I would become an architect. I realized that I wanted to have math and science to be a part of what I do every day, which led to me thinking I would become a structural engineer.

At the end of year 12, I did a work placement as a structural engineer to see if I liked it. I also wanted to pursue music professionally. I had all the subjects to get into music and engineering. However, the end decision was to do music on the side and do engineering as a full-time job.

6. How do you balance your work and life?

In my first two years of university, I had everything over-scheduled. I was happy but exhausted. Once my health got worse, I slowed down and considered when I'm stressed. I make sure that I do things that make me happy each day, something that brings me joy and balance. I balance everything by making sure I can say no to things, re-evaluating commitments and picking what is important.

Currently, I work 4 days a week at GHD and the other week day is left for me to focus on my PHD or do anything else I want to do. It gives me more time to do the things I want.

7. What motivated you to pursue a PHD and what advice would you give other women to pursue it?

It's important to evaluate what you want.

I love research and learning new things, it was a good way to bring research back into my life. In a personal sense, it is completely self directed and it is all on you. I saw this as a good opportunity to develop my transport knowledge, do something that I can enjoy and improve my ability to set time for myself.

8. Is there any advice you would give your younger self?

Listening to yourself. I wanted to drop out earlier, but my parents said no. I wasn't listening to myself because of other voices telling me how to live and it's important that you don't rush into things, but rather make decisions you think are the best at the time. You can always go back and change your mind because there is always time.

Make sure you make the decision that makes you the happiest and not someone else, as they don't have to live your life.

Dr. Faezeh Marzbanrad

Dr. Faezeh Marzbanrad

B.Sc., M.Sc., PhD

1. Can you tell us a bit about yourself and your career?

My Bachelor's degree was in electronic and telecommunications engineering, but for my masters, I focused more on signal processing with telecommunication applications. After completing my masters, I realised that the technical background I had with foundations in hardware and software could be applied to something I was truly passionate about: biomedicine and medical technology. I was so interested in this area that I decided to do a PhD in biomedical engineering! Realising the amazing things I could do with electronics, signal processing, machine learning and AI in healthcare applications has been the highlight of my career; so much so that I am still on this path today!

2. What encouraged you to pursue a career in teaching engineering?

One thing that I realised when I was an undergraduate student, was that I wasn't exposed to the extent of possible applications of the material and concepts I was learning. By becoming a lecturer, I thought I could expose my students to a wider range of applications, such that they could choose to pursue what specifically interested them. When I started teaching at Monash, I exposed students to biomedical applications of the concepts they were learning in units as early as 2nd year - using real world data so they could see the amazing things they could do! Helping students to make the connection between theory and application is what has made me so enthusiastic about teaching.

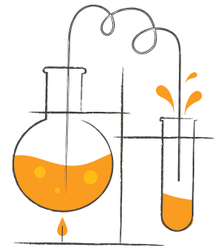
3. Do you think the engineering industry is doing enough to support women and other minorities?

It's really nice that we have diversity and inclusion committees in each faculty at Monash and this should be the same in industry. To create real change we have to do it from a position of power. I think it's more complicated than just trying to resolve issues on a small scale. That's why I think there should be a committee or a high level representative that everyone is aware of and where everyone is given the opportunity to freely and confidentially discuss those matters.

4. What do you believe are the underlying issues that are causing low female participation in engineering and how can we overcome these issues?

There are clearly some external factors which affect participation of women in engineering because I can't imagine there would be any reason why female students wouldn't like to pursue engineering as much as male students. Everyone can be interested in engineering - this doesn't have anything to do with gender. In theory, there should be a balance, yet stereotypes prevent this. I think the best way to remove these stereotypes is to start earlier!

Even playing with my own daughter, I try to diversify the range of games and toys that she interacts with because although we mightn't realise it, even child's toys can introduce stereotypes. We should also put more effort into informing primary and high school children that there is no reason why their gender should control what areas they should or shouldn't pursue.



5. Can you tell us about the changes you've seen with regards to gender diversity in engineering over your career? What do you think needs to be done in the future?

I can see the change. Since I was a PhD student, between 2012-16, until now, every year I have noticed more female students and more importantly better engagement! However, I think there is still a lot to do. If you look at certain commercial products, it is clear that what was lacking in the design was a female perspective because many of these products don't work for women. An example of this is seatbelts, which are neither safe nor comfortable for pregnant women.

Another example is breast pump machines - these are noisy and thus would be impractical to use in the office or late at night. What is frustrating about this is that the average consumer would more likely accept that this was the best available engineering design - they probably wouldn't consider that there is a possible engineering solution to this issue.

This is why we need female engineers who can envisage the changes needed and implement solutions for women. I can see the gaps in technology, particularly technology designed for unique female needs surrounding pregnancy and childbirth, and I'm sure if we had more female engineers, those gaps would be pretty much closed!

6. How do you think improvements can be made to better support women of colour in STEM fields?

It is nice that many universities and organisations are striving for gender equity in STEM, however they are still yet to specifically support women of colour who are even more underrepresented. There needs to be a greater effort to determine and target the systemic barriers. Unfortunately it is still not uncommon for women of colour to face microaggressions targeting their racial or cultural background. Those are sometimes even unintended and often difficult to recognise in organisations. This cannot be easily resolved on the spot for each incident, we should all try to question and overcome our unconscious bias and play our part. Again I believe high level representatives and those in leadership roles are better positioned to improve the situation.

7. What piece of advice would you give to women who are considering pursuing engineering?

If you are interested in something to do with engineering or STEM, you shouldn't feel intimidated and should pursue what you love. You shouldn't pay attention to stereotypes and cultures that try to define how each gender should live their lives. Gender has nothing to do with that. And it's different from country to country and culture to culture. In my home country in some universities, there is a half and half distribution of male and female students going into engineering. It's definitely possible to have a similar distribution of men and women in engineering and STEM.

This shows that gender has nothing to do with the interest for your future career. I think we should see positive change in the years to come.

Renee Meaney

Renee Meaney
Student, Club President, Team Leader

Student, Club President, Team Leader and advocate for women in engineering - Renee Meaney has kept busy during her double degree at Monash. Not only has she had a lasting impact on Female Engineers at Monash, she has left a legacy across the campus from pushing to ensure the academic safety net continued to be in place this semester to leading a team at Monash Human Powered Vehicle. I sat down with Renee to see how she's got so much out of university and what the next few steps are for her.

1. How have things been for you since stepping down as FEM President?

I like to check in on the club regularly and FEM has really great people so it's good to see that something you're so passionate about is running well. I left FEM at the end of last year and since then I've worked a summer at Invetech where I had the opportunity to learn a broad variety of things. I worked within the systems sub-team and got to do a bit of coding and some designing.

2. Did you feel prepared for the work you took on in your internship?

God no! It was more like "We need someone to design this thing, who has time?". I wanted to take on a project, was like 'I'll do it' and then I realised I've never used CAD because I was a civil engineer in a mechanical role. I would chat to some people and get them to sit next to me and teach me CAD so you kind of just learn it as you go. You can google anything on the internet and I would also harass other grads and people who were around in my sub-teams. Everyone says you don't use 90% of what you learn at university so learning stuff on the job is fine. I think really what you get is an ability to look at things and find what might be a potential problem and how we can make it simpler. I'm not using equations and if I need an equation I'll just google it. I didn't know anything but I had the right problem solving and adaptable approach.

3. How did you get better at asking for help?

I was recently speaking about this and saying I feel bad about asking for help. However, they told me that when you know something and someone asks you for help, you feel nice and good about yourself. I guess thinking about it that way helped. I asked a few people when I started at Invetech what advice they could give me and they all said to ask questions. If you think about it, the best time to not know things is now as an intern or grad, because if you leave it too long, you'll be a bad senior engineer. I think a company's culture is also really important. One time I apologised for not knowing something and one of my managers told me not to say sorry and that I'm not expected to know everything already.

4. What lessons about failing have you gained from Monash?

I have noticed that there is a culture of men trying and failing and that's okay, but women aren't encouraged to do the same - and that's something I had to learn. I can live my life thinking I know 1 + 1 = 2 and I'll never fail, but if I try to do some complicated equation I wouldn't expect someone else to do it off the bat because it's hard and they're learning. They're likely to fail a few times first and that's part of the learning process, and it's an important part. If you're not failing you're not pushing yourself hard enough. Making mistakes regularly is part of learning.

5. Do you feel confident when going for job or club interviews?

These days I am but only because of practice. During school, I did some extracurricular activities such as the National Youth Science Forum (NYSF) and I wasn't great at interviews then. Since then,I've had to interview for MHP and for Precious Plastics. The more you do it the better you get and you'll always walk out of an interview thinking I should have emphasised this more or talked about that but I think the key things are practicing with friends, being prepared for the expected questions and doing your research on the company. For things like case studies or technical questions, you have to trust yourself and really go through your processes. I had an interview with a civil club which did a mock interview with a case study and that taught me that you have to pay attention to time.

6. Have the goalposts changed for you from the start of your degree to now?

Yes. I switched both my majors to civil and commerce and I failed five units. At the start, I said I would never fail a unit. Five units is a lot, and people don't expect that from me. Particularly when I was president of FEM, I felt it was something important to talk about because then when other people fail they won't be put off by it. No one had ever really told me that it was okay to fail, that engineering was hard and it's okay if you want to underload.

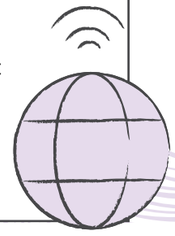
For me, the goalposts used to be not failing, finishing university in five years and getting a graduate job right out of university. I now put more emphasis on things like internships and my work with clubs and teams. I think my values have changed in terms of what I want to get out of my degree. Getting a HD is less important to me than having passed my degree with some great work experience - you can't do everything. Things aren't as clear cut as I thought they were in the industry. Lots of people get recommendations for jobs through networking, having a 20 minute chat before applying with a rep can really help.

Companies that are going to hire someone like me are the ones that are going to be out networking and looking for people with broader skills. Companies that don't look at people with a below 80 WAM are not for me, I might still apply but I know I should look for other things. I got told one of the top four engineering companies doesn't look at your grades. So it doesn't concern me anymore.

7. Any tips for networking?

I always have a few questions ready.
One is, "what is the best and worst part of your job?" It's not quite what they expect and you want to be memorable for asking different questions. You tend to get honest answers as well that help you decide if the company is good for you. Always remember to introduce yourself, including if you're a member of a committee and your position.

There's often two kinds of people at engineering networking events; the engineers and the HR reps. Make sure you tailor your questions to the right person, it might not be great to ask a recruiter what engineering they do in a day because they probably don't. I find specifically asking about the recruitment process isn't very fruitful, they often can't tell you much anyway.



Tips for Jobs

The job application process can be a stressful time for many students. It can be exhausting trying to write up cover letters, refining your resume and preparing for interviews. The process is different at every company and different roles, so here are some tips to make it all a little easier. These were compiled after having had a chance to sit down with a recruiter from Tesla.

Resumes

Formatting and layout –
Save your resume into a PDF - recruiters don't like word documents. Make sure to be concise - 1 to 2 pages is all you need. If you find it is getting longer, you are including unnecessary information. Don't include every single thing you have done - include the main things such as relevant work experience. It is also good to include an achievement section. The achievement should highlight the biggest contributions you have made. It should include how you achieved it or what you did to improve a certain aspect of your job. It is important to make it factual by including figures or numbers. That is what makes it believable, try to be as specific as you can.

It is best to highlight your skills. Put your skills section at the top of your resume so the recruiter can easily identify if you are technically qualified for the role i.e. your software skills, technical skills etc.

The Work Experience –
As a university student, it is not expected that you will have a lot of work experience. Instead, volunteer and be a part of student societies or student teams. There are many opportunities available at universities, so take advantage of them as much as possible before you consider applying for internships and jobs. Unfortunately, the reality is that employers, especially the big companies receive thousands of applications, and as such it can be extremely competitive.

There are companies who do look for potential, not necessarily the best grades. They want someone with a bright attitude, a good work ethic and a drive to succeed, so if you can demonstrate that to the company then you will have a great chance at being offered a position there.

Language –
Do not avoid using technical jargon in your resume and cover letter. Recruiters are siloed into different areas of the organisation and hence, they would understand all the jargon you use. Using technical jargon ensures us that you have the technical skills and experience needed for a certain role.

Cover Letters

Content –
A cover letter is very important, hence you should demonstrate your technical skills and your interest in the organisation through this letter. You have to demonstrate your passion for the company, mention what drew you to the opportunity, what you can bring to the company. You will only need a few paragraphs, it does not need to be long. Make sure your first few sentences are engaging and impressive - recruiters won't spend long on each cover letter. If you are unsure of where to start, it's best to talk about what drew you to the company.

Example: *"I am writing to express my interest in your engineering internship. I am passionate about this company because…., I am excited to be a prospect for this role because…"*

Personalised –
The biggest mistake you can make is not personalising the cover letter for the company you are applying for - the generic ones are very obvious. There have been few instances where candidates have not even referenced the company or the role. Make sure you specify that in your cover letter. Outline your relevant skills and experience and make it specific to the advertisement of the position.

No Repetition –
Do not repeat what you have on your resume into your cover letter. It becomes too clunky and isn't really necessary. The cover letter should include information such as why you are excited about the role, SOME of the key experiences you have had and what you can bring. what you are really doing is marketing yourself to the company - convince us that you are the right person for this position.

Language –
You should use token words in the role descriptions such as 'communication skills' or 'teamwork skills'. However, you need to also include how you used those particular skills and note the relevant experience you used those skills for.

Interviews

Research –
Make sure to do research on the company. Research its products, the particular business unit you are applying for, the specific skills they are looking for and highlight them in your interview. An additional tip is to do research on the interviewer if you know who they are ahead of time. Have you looked them up on LinkedIn and seen their research or experience. Recruiters like this as it shows that you have put effort into making a really good impression.

Preparation –
Be prepared but not over prepared. Candidates tend to veer off the question as they've only practiced it one way. Rather than preparing answers to questions, prepare examples and practice presenting these examples. The STAR method is a helpful tool for you to use when answering behavioural questions.

Before an interview, there may be assessments involved – take these seriously and submit them as early as possible.

Networking –
Recruiters will often give you tips and tricks to help prepare you for the interview, so try to have good rapport with the recruiter, as they do want to help you succeed in securing a position. Networking events are a great opportunity to meet them.

You can share your LinkedIn and send them a message saying you are looking for a role. It is important to invest in a relationship with the recruiters.

> ***Be proud of your accomplishments, and take credit for the work you have done.***

Tips for Jobs (Cont.)

The first Impression

Recruiters will look at how well you have dressed.

Example question: *Tell me about yourself*

It is an important question and should not be a simple question to answer. Do not ignore this question, as this question helps us gather a first impression on you. You can say *"Hi, I'm __, I'm in my penultimate year at university, I'm passionate about __, and hoping to get into __ career as a result of __"*. This should be an elevator pitch, so keep it short and sweet, around a minute. We do care about your passions, what you want to do and your career aspirations.

Behavioural questions – There are usually several interviews involved with a variety of situational type questions. You do not need to know the answer to everything. What we mostly want is for you to talk through the process on how you will go about solving a certain problem.

What to avoid – Don't talk too much, try to keep your answers concise. It is natural to be nervous, but try to be aware of how long you are taking to answer a question and stop when you know you are off-track. Avoid dominating the conversation when you are in an interview. One of the basic indicators of when a candidate is not right for a position is if they do not highlight why they are passionate about a role and if they do not provide any evidence of exceptional performance and not going above and beyond in their previous experience.

Take credit – There is a tendency for women to use 'we' instead of 'I' when they talk about their achievements in their previous roles. Just be proud of your accomplishments, and take credit for the work you have done. We won't think you are bragging about yourself, we just want to know what you have accomplished. If you have done team projects, then you can definitely talk about them, but talk about what you specifically did - it doesn't matter what the rest of the team did. We want you to demonstrate that you can be a strong individual contributor but also a strong team lead. So you can talk about yourself, but then bring it back to 'we' by talking about your accomplishments with the team.

Ending it off – At the end of the interview, the interviewer will often ask *'do you have any questions?'* Always ask a question. You can ask about their experience, ask for feedback, what the company or department plans are in the future. You aren't evaluated at this stage, but don't ask questions you can easily find the answer to on google. Sometimes you can tell what the culture is like at a company just by going through the interview process. If you had a negative experience, then that might be an indicator that the culture may not be great there. Good companies will hire good recruiters. After the interview, send an email to thank the recruiter for their time.

Networking 101

In the digital era of zoom calls and breakout rooms, building relationships and connecting with others has never been more challenging. Consequently, the ease of networking has not been spared either, with the physical barrier of the computer screen often attributing to feelings of disconnection.

So why bother networking? Simply put, clear and consistent communication is imperative at any stage of an engineering career. The emphasis placed upon teamwork in university aims to mirror the eventual workplace environment that will require daily collaboration with a variety of people. Networking acts to build connections whilst honing interpersonal skills and boosting confidence. In addition, it taps into the firsthand insight of the experiences and knowledge of industry professionals. Since it's importance and value cannot be understated, we've prepared some tips and tricks to help you navigate the basics!

1. **Prepare, prepare, prepare!**

Research the attending companies and come with a goal in mind. Whether this goal is to interact with company representatives, find the answer to a certain question, or even just to increase your confidence in conversation — a purpose can amplify your conviction to actively participate. Some things to prepare prior to the event are:

An introductory 'elevator pitch' – covering who you are, what you're studying, anything you're passionate about, and what you'd like to know - keep this brief and straightforward! Ensure you do not treat it as a speech, but rather as localised phrases to insert naturally and keep the conversation flowing!

Questions – a great place to find conversation topics is in a company's programs, projects, or even values, take the extra step to customise your questions accordingly.

A LinkedIn profile – this allows you to connect or stay in touch after the event. Monash Career Connect offers an online module as well as an opportunity to solicit feedback for your profile!

2. **Utilise the online environment to your advantage**

Open up a note taking app alongside the networking platform and jot down any questions, information or points of conversation before, during and after the session. Replicate the networking environment by making an individual zoom and practising your introduction, this is also a great way to observe your mannerisms — you'll be surprised by how many things you may do unconsciously. Most importantly, unmute yourself and turn your camera on!

3. **Stop thinking about 'business' and start focusing on 'relationships'**

While there is a pressure to present the best version of yourself and to 'stand out from the crowd', your approach can make all the difference between coming off as overbearing vs. eager and enthusiastic to learn. Aim for genuine conversation and don't make demands or presumptions of others, a key difference in tone is outlined here:

Don't: *"I've submitted an application for an internship, when can I expect to hear back?"*

Do: *"I've actually applied for an internship here since the company's focus on sustainability really resonates with my interests. I was just wondering if you were aware of what the next steps are in this process?"*

4. **Embody the active listener**

Give your full attention to whoever is speaking, participate constructively in conversation and approach areas of uncertainty and doubt with a growth mindset. Body language is a key indicator of engagement. Actions as simple as nodding your head can boost the energy of the speaker and show their words are being heard. In addition, don't be afraid to ask questions of any kind; this is one of the best ways to keep conversation flowing as well as displaying a sincere interest in learning and improving.

5. **Look towards the future**

Distinguish between:

Ending a conversation with the intention of making future contact:
"It was so lovely to speak with you, I'm currently on LinkedIn/I'd be interested to hear more about the project." or *"If it's okay I'd like to reach out to you with some more questions about [topic]."*

Ending a conversation with the intention of starting a new conversation elsewhere:
"Thanks so much for your insight, I learnt a lot and it was great to hear your perspective on [topic]. I'll just be going ahead and making my way around the rest of the room, but it was nice to meet you and I hope you have a lovely night!"

Day in the life of a Graduate Engineer

Marielle Salom

GHD Project Manager

Q **Can you give a few sentences about what you do?**

A) I am a Graduate Project Manager for GHD, working on Victoria's largest infrastructure project; the North East Link Project. I work closely with the Civil and Structures team to coordinate deliverables, review drawings and reports. I studied Civil Engineering and Commerce at university, and I found being a Project Manager complements both of those courses while allowing me to have an overview of almost every aspect of civil engineering.

Q **Can you give a brief outline of what your typical workday might look like?**

A) Most days are in the office, however, I do go out to sites when required and when I can. I am working on the North East Link Project and there is a significant amount of coordination. First thing in the morning, I check my emails to check if any urgent action or emails have come from the night before and then get down to work. 'Work' can look from anything to coordinating drawings, reports, programs and lookaheads. There are a lot of meetings to find solutions to problems and communicate the information to the client.

Q **How did you find your transition from a university student to a graduate engineer at GHD? What do you find are the advantages and disadvantages of joining a grad program?**

A) I found it quite smooth as I had been working as an undergraduate engineer for 4 years prior to the graduate program. I believe the earlier you can get experience as an undergraduate engineer, the easier the transition. The advantage of joining a graduate program is that at lots of companies, you join a Global Wide program. The minor disadvantage is that you are given a different amount of responsibility to a practicing engineer.

Q **Did your colleagues impact your adjustment to this new environment?**

A) Yes, I had made connections and relationships prior to the graduate program through the GHD internship program. My colleagues were very welcoming and accommodating of the work I wanted to undertake.

Q **How have you found transition to working online and the change in your work-life balance?**

A) It has definitely made the work-life balance harder to balance, as you can't just leave your laptop at the office. It is important to establish boundaries early on and communicate them to your colleagues (and stick by them!)

Q **What activities during university do you find helped you most in your work?**

A) I found activities such as 'timetabling' study around other co-curricular activities. This reduces procrastination and allows you to have something to look forward to. Being the Female Engineers Monash's Industry Liaison also assisted me in staying connected to the industry and allowed me to see different types of civil engineering, which made me more motivated to get into the industry full-time.

Q **Do you have any interesting projects you have been working on?**

A) I have established a Project Management Young Professionals Network at GHD across Australia, New Zealand and Fiji, which holds events every month about different aspects of Project Management. Most engineers are required to undertake some type of Project Management in the industry, so I saw the potential of such a network and created it myself.

Q **What are your future career goals?**

A) To work overseas, preferably in New Zealand, once it is safe to do so. GHD has offices around the world, so I have already applied for an overseas role next year.

Q **Do you have any advice for current students looking to enter your field?**

A) Make sure you choose something you enjoy. I acknowledge everybody provides this advice, however, it is more important than the salary, hours or role, coming from somebody who has tried several roles.

Day in the life of a PHD Research Student

Yuxi Liu

PHD Research Student

Q **How did you find your transition from a bachelor/masters student to a PHD research student?**

A) It is actually a hard transition. During your bachelor's, the majority of things we do are focusing on assignments, implementation of knowledge and practice of industry skills. As a PhD student, we focus more on deep research and logical thinking.

The final year project (FYP) is a good chance to know more about research and switch from a student to a researcher. The FYP trains students to read literature and have a systematic thinking needed for research. Moreover, the right supervisor is there to guide the direction, provide advice and help.

I found it helpful to talk with academic mentors in our faculty and colleagues. They had the same experience and could guide me more.

Q **Did your colleagues/peers impact your adjustment to this new environment?**

A) Yes, they helped me a lot, which I really appreciated. They spoke about their own feelings and their experiences when they were new students. They are all friendly, and the easy-going environment made me feel more comfortable. They are always happy to answer my questions and help me with anything.

Q **How have you found the transition to being online? What has been the major challenge of this experience?**

A) The pandemic affects PhD students a lot, especially for students who have laboratory experiment tasks. They need permits to get access to the lab, which is inconvenient.

For me, my research is based on computer modelling, so the work-from-home limitation does not affect me too much. However, it's true that I have obviously fewer chances to talk with other peers in person to exchange our ideas.

Q **What project are you currently working on?**

A) I am currently working on a hydropower station project, which can be identified as a large underground project with deep depth under mountains. There are lots of challenges with this project and I am doing parametric research based on computational modelling.

Q **Why did you decide to pursue research?**

A) When I chose my FYP topic, I found a huge interest in tunnelling, and that's also why I continued to choose the same research field. Moreover, I had a very great research experience when I was doing my FYP. I found research to be fun and meaningful and that I may solve a technical problem in the industry by doing research. My supervisor also guided me a lot in the right direction to have productive results.

Q **How did you fall into your area of interest? How did you go about finding a supervisor?**

A) Probably because of my interest in tunnels in my childhood. There were a lot of new techniques applied in tunnels when I was reading the news, and those new techniques in tunnels actually were used by our normal citizens. I felt it was really cool.

I found my supervisor via the FYP project. I suggest that you carefully choose your fyp topic and supervisor, because you may find interest in doing research, and your supervisor may also be a good mentor, helping you in both research and industry paths.

Moreover, I suggest students get in touch with people who are related to their academic research area. They can give advice and directions on what's suitable for you and they could potentially extend your knowledge on research.

Q **What are your future career goals?**

A) I haven't finally decided yet. I feel like both going into the industry or continuing doing research is good and has great areas of development. I could still help to solve the problems in projects in either career path.

Q **Do you have any advice for current students looking to pursue their PHD?**

A) As I mentioned above, please carefully choose your supervisor and topics when you are picking your FYP project, because that would help a lot.

2021 FEMALE ENGINEERS AT MONASH

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Industry Guide

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