

Pathways to higher qualifications

When students choose TAFE to study higher education

TDA Case Studies:

Nursing

Hospitality

Civil Engineering

Forensic Science

Aviation Management

Control Systems Engineering

Forward



The six case studies in this publication afford inspiring stories of students who have chosen to pursue qualification pathways from vocational to higher education in public technical and further education providers (TAFE) in Australia. Each story describes a new career in the making; one that may not have evolved had the students not had the opportunity to study higher education at TAFE.

Each student's experience demonstrates the strengths of TAFE in the tertiary environment; the accessibility and applied nature of the learning, the innovative and specialist nature of the programs, the supportive learning environments, the integration of education and work, the 'work readiness' of TAFE graduates and the many collaborations TAFE has with industry that benefit communities, governments, industries and learners nationally.

The introduction of the delivery of higher education in TAFE reflects increasing industry demands for higher skills and qualifications and a steady stream of 'work-ready' graduates. TAFE is critical to meeting this demand, particularly in industries where skills are in short supply and in regions where access to higher education traditionally has been low. Currently, almost 90 higher education qualifications are being delivered at over 20 TAFE campuses across Australia in a range of industry specialisations.

TAFE Directors Australia (TDA) commissioned this research paper in 2013. The research focused on the experience of students who have completed, or are completing, higher education qualifications in TAFE. The aim is to highlight the significant value of TAFE in Australia's tertiary education sector and its role in contributing to the achievement of the Commonwealth Governments' targets for increased educational attainment in the workforce.

I invite you to share these inspiring stories of students who have undertaken innovative and rewarding journeys into higher education with our TAFE members.

Martin Riordan

Chief Executive Officer
TAFE Directors Australia

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Disclaimer

The views expressed by participants herein do not necessarily represent the views of TDA.

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Graduates and Students:

Sharon Hill
Nathan Hammer
Victor Knox
Rylin Richardson
Emma Sheehan
Ben Killeen

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Contents

Case study 1: Pathway to a career in nursing	4
Sharon Hill – Bachelor of Nursing, Holmesglen, VIC	4
Case study 2: Pathway to an international hospitality career	6
Victor Knox – Bachelor of Culinary Management, William Angliss, VIC	6
Case study 3: Pathway to a career in civil engineering	8
Rylin Richardson – Associate Degree in Civil Engineering, Southbank Institute of Technology, QLD	8
Case study 4: Pathway to a career in forensic science	10
Emma Sheehan – Bachelor of Forensic Science (Crime Scene Examination), Canberra Institute of Technology, ACT	10
Case study 5: Pathway to a career in aviation	12
Nathan Hammer – Associate Degree in Aviation Management, Polytechnic West and Murdoch University, WA	12
Case study 6: Pathway to a control systems engineering career	14
Ben Killeen – Bachelor of Engineering Technology (Mechatronics), Chisholm Institute, VIC	14
References	16

Background

TAFE Directors Australia (TDA) commissioned six case studies of students who have completed, or are in the process of completing, a TAFE higher education qualification.

The context is the emerging Australian tertiary environment; an environment forged by the Bradley Report (2008)¹ which calls for more seamless transitions for students from vocational education and training to higher education. Policy responses since Bradley have resulted in nine TAFE institutes becoming higher education providers (HEP) in their own right who are delivering collectively over 80 higher education qualifications across a range of industry specialisations and locations. Higher education qualifications developed and delivered by TAFE are accredited by the Tertiary Education Quality and Standards Agency (TEQSA) and, as such, are required to meet the same Australian Quality Framework specifications that apply to university qualifications. The delivery of higher education qualifications by TAFE in Australia reflects developments in the United States of America, the United Kingdom and New Zealand and other regional countries including Indonesia, Singapore and Hong Kong.

The following stories illuminate the opportunities students have to improve their education, employment and life prospects through higher education in TAFE. By servicing new and diverse cohorts of students, TAFE is enhancing the diversity of the tertiary education sector and thereby contributing to the achievement of targets set by the Commonwealth Council of Australian Governments (COAG) for increased participation in higher education from people with low SES backgrounds² and also for higher qualifications in the workforce. These targets are currently not being met by the higher education sector alone. While the expansion of TAFE into higher education is relatively new, its value in meeting the needs of new and diverse groups of students seeking affordable and flexible pathways to higher education is clearly established.

The following case studies accompany TDA's position paper, 'Public and technical further education providers in the tertiary sector: Unleashing the capability'³ which outlines in detail the significance of TAFE's role in Australia's tertiary sector.

Research design

The case studies represent a range of higher education qualifications being delivered by TAFE across different industries and locations in Australia. The selection criteria preferred students who:

- had completed their higher education study (if not, students in their second or third year). Where students have not completed their higher education qualifications, ethics approval was sought from participating institutions;
- represented each state and territory where TAFE offers higher education qualifications;
- had completed or were completing higher education qualifications in areas of skill shortage; and
- represented diversity in their respective backgrounds.

Representatives from TAFE HEPs were asked to nominate students who met the criteria to participate in the study. Permission was sought from the students to participate in an hour interview either face to face, by phone or via web based conferencing. Students were asked a series of questions based on the following research interests:

- What influenced/motivated you to undertake a higher education qualification at TAFE?
- What educational pathways did you follow in order to pursue your career aspirations?
- What was your experience studying higher education in a TAFE setting?
- How have you benefited from studying higher education at TAFE?

The interviews were recorded and transcribed and the transcripts were analysed using qualitative methods of content analysis. Desktop research was undertaken to determine information about the qualifications awarded, the delivery mode and general information about the associated professions. A draft of each case study was sent to the relevant student for confirmation and to TAFE Institutes for affirmation of information regarding course development, content and delivery. Overall, six students participated in the study:

Symbols & Legend



Nursing



Hospitality



Civil Engineering



Aviation



Forensic Science



Electrical Engineering

Student	Industry	Institute	State/Territory	Qualification
1. Sharon Hill	Health	Holmesglen	Victoria	Bachelor of Nursing
2. Victor Knox	Hospitality	William Angliss Institute	Victoria	Bachelor of Culinary Management
3. Rylin Richardson	Civil Engineering	Southbank Institute of Technology	Queensland	Associate Degree of Engineering
4. Emma Sheehan	Forensic Science	Canberra Institute of Technology	ACT	Bachelor of Forensic Science
5. Nathan Hammer	Aviation	Polytechnic West	West Australia	Associate Degree in Aviation Management
6. Ben Killeen	Control Systems Engineering	Chisholm Institute of TAFE	Victoria	Bachelor of Engineering Technology (Mechatronics)

CASE STUDY 1

Pathway to a career in nursing



Sharon Hill
Bachelor of Nursing
Holmesglen, VIC

People at work still say to me, did you do a degree at TAFE? I say to them that TAFE higher education is a great alternative to university.

Sharon Hill is completing the Graduate year of her Bachelor of Nursing while working full time as a mental health nurse in a psychiatric ward; a field of nursing she is passionate about. Sharon completed her Bachelor of Nursing at Holmesglen in 2012 and plans to specialise in depression and suicide care once she has finished. Sharon's career ambition was first to be an air steward, a hairdresser and then a child care worker but, after completing year 12, she was unsuccessful in applying to study childcare at university.

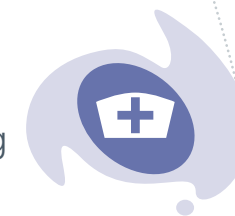
Ambivalent about what to do next, Sharon completed an Associate Diploma of Business at Chisholm Institute and worked for a number of years as a personal assistant in small businesses in the outer eastern suburbs of Melbourne. During this time, Sharon married, had a family and then ceased work altogether to be a 'full time mum'. Some years later, with pressure to re-skill and return to work and as a single mother with four children, Sharon pursued her long-held ambition to be a nurse.

The nursing profession

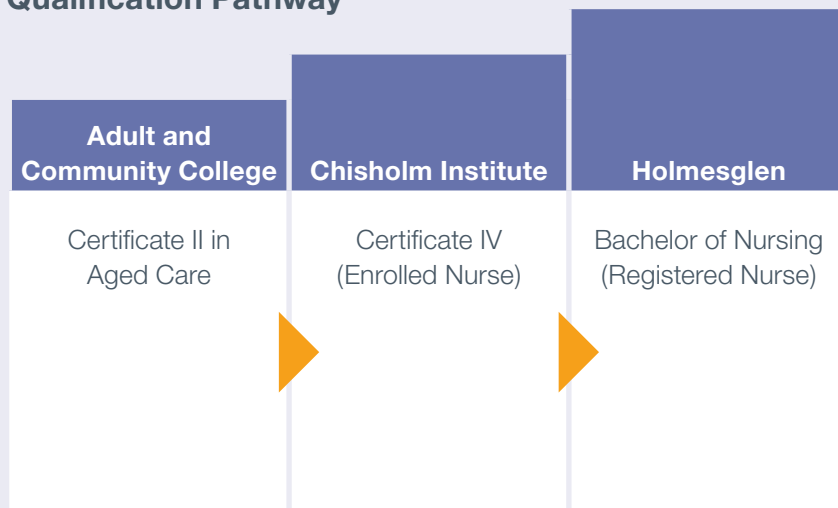
In Australia, nurses are licensed to practise by regulatory authorities established under State or Territory legislation. There are two levels of licensed nurse – a registered nurse (RN) and an enrolled nurse (EN) plus nursing assistants and other unlicensed health care assistants who support nursing work. All registered nurses (known as Division 1) complete a Bachelor degree in higher education and enrolled nurses (Division 2) complete a Certificate IV or Diploma (Enrolled Nursing) depending on which state they work in. The profession has experienced persistent national shortages, in particular of registered nurses, for over a decade, with shortages of enrolled nurses also occurring in certain sectors and positions. Current projections in the current system expect demand of registered nurses to outstrip supply by 2025⁵.

A career in the making

Sharon's nursing career commenced with a Certificate II in Aged Care at a local adult community college; a qualification she completed while working as a personal care assistant (PCA) in aged care facilities. With an award in adult learning, and new found confidence, Sharon went on to complete a Certificate IV (Enrolled Nursing) at Chisholm Institute in Berwick, studying full time and working part time as a PCA on her days off. The Certificate IV qualified Sharon to care for patients under the supervision of a registered nurse, but not to provide the 'end to end' care for patients she desired. Deciding to study a Bachelor of Nursing, Sharon applied to university and again was unsuccessful. Undeterred, she applied to Holmesglen in the first year of the Bachelor of Nursing and was accepted with full recognition of her previous qualifications and experience. Sharon went on to achieve ten high distinctions in her higher education study and developed a keen interest in mental health nursing. Once she has gained further professional experience in mental health nursing, Sharon plans to complete a Master's Degree in this field.



Qualification Pathway



A conversation with Sharon Hill

How important was the pathway from vocational education and training into higher education for you?

I don't believe I could have studied the Bachelor without the experience of the Certificate IV. The progressive path really suited me. I thought there was no way – not in a million years – could I ever be a Division 1. No one in my family has done a higher education qualification before.

What was it like studying a Bachelor degree at TAFE?

It was really practical. We would learn the theory and then do it in practice under the supervision of our teachers and mentors. Because we were a small group, our teachers could really help us. They had years of experience nursing in the wards in critical roles so the learning was real. I feel it totally prepared me for work – the work placements were essential.

What helped you most in your study at Holmesglen?

I didn't ever believe I could be a qualified nurse. It was the teachers who kept pushing me ... they understood what we were going through. They didn't just get up the front and lecture us ... they knew us all personally. I achieved ten high distinctions after just scraping through my first exam and failing my first assignment. It was fantastic and it has made a big difference to my life.

Higher education at Holmesglen

Holmesglen commenced the Bachelor of Nursing in 2009 as one of the first TAFE Institutes to offer degrees in Australia. The institute now delivers over 20 higher education programs, from associate degree to post graduate level, across a range of disciplines. With an applied focus and strong industry support, students are prepared for work through a combination of theory, real life simulations and supported clinical practice in a variety of health care settings. Delivery modes include class based activity, independent learning, structured online learning and practice experience. The Bachelor of Nursing at Holmesglen gained Commonwealth Supported Places (CSP) funding in 2009, forging a pathway for TAFE into the tertiary sector. The first graduates came from a variety of backgrounds, with only four of the 29 students entering the course straight from high school. More than 30 per cent of the group were mature-age students and 20 per cent were from low socio-economic backgrounds. Graduates of this course are eligible to apply to the Nursing and Midwifery Board of Australia as a registered nurse.

CASE STUDY 2

Pathway to an international career in hospitality



Victor Knox
Bachelor of Culinary
Management

William Angliss Institute, VIC

The academic study had a powerful effect on me ... I will always look back on the time I studied as being well worthwhile. Higher education changed my world view.

Victor Knox is a young Chef who recently completed his Bachelor of Culinary Management at William Angliss Institute in Melbourne. Being a Chef was not always Victor's ambition – the opportunity to be an apprentice Chef provided an attractive alternative to school. Finding school too boring, Victor left after Year 10 to take up an apprenticeship in a small boutique resort in Cairns, attending trade school at the local TAFE. After qualifying as a Chef and gaining experience in the kitchen, Victor decided to broaden his career options and become a Pastry Chef. His ambition now is to work his way to a management position in an international hotel, starting with a trainee position. Eventually Victor plans to establish a small hospitality business.

The culinary profession

To be a qualified Chef or Cook, students must complete a Certificate III in Hospitality (Commercial Cookery) qualification or higher generally via an apprenticeship or traineeship, and further study. The culinary profession in Australia has long experienced skill shortages with Chefs, Cooks and Pastry cooks in short supply across Australia, particularly in regional areas. The area of greatest shortage is highly experienced executive or head chefs⁶; a shortage that could be exacerbated in the future as fewer apprentices enter the system⁷.

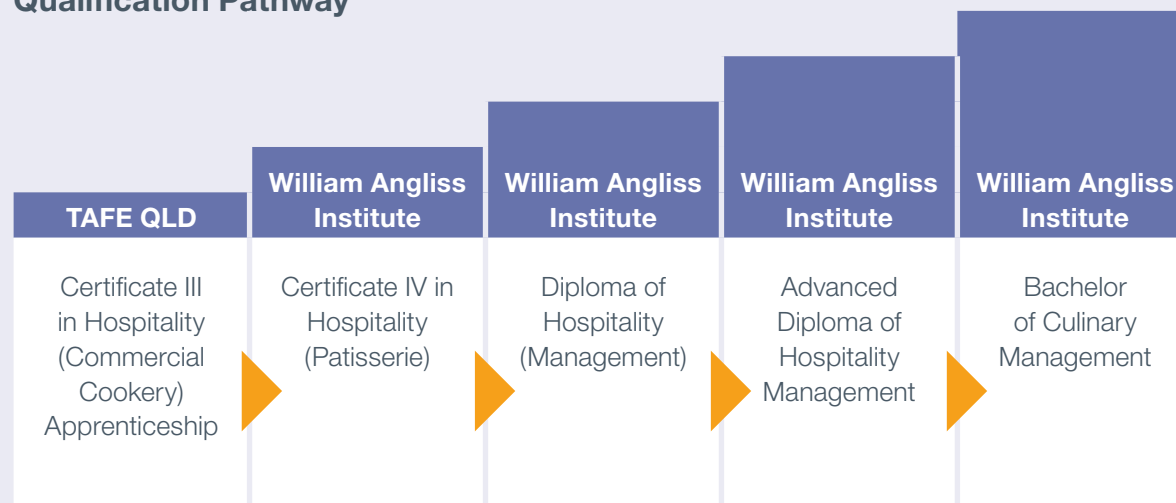
Pathway into higher education

After Victor had completed a Certificate III in Hospitality Commercial Cookery, he moved to Melbourne from North Queensland to complete a Certificate IV in Patisserie at William Angliss, working part time as a Cook while he studied. The Certificate IV provided a stepping stone into the Diploma of Hospitality which, with the credits he had for the Certificate IV, took Victor six months to complete. To his surprise, Victor enjoyed the higher study. It gave him, he says, 'even more appetite for management'. Victor continued on to complete the Advanced Diploma in Hospitality Management and, after achieving very good results, was offered a place in the Bachelor of Culinary Management. To support his study, Victor received VET Fee Help and was also fortunate to be awarded an Endeavour Award Scholarship to study a semester in Malaysia at the Berjaya University College of Hospitality in Kuala Lumpur; a William Angliss Institute higher education partner.

An important component of the Bachelor is a significant period of work placement, which Victor completed in a five star hotel in Hong Kong. This experience provided insights into all the operations of the hotel and whetted his appetite for a senior management career in international hotels. After graduating in 2012, Victor now works as a chef while he applies for trainee manager positions at resorts across Asia. Trainee positions offer attractive and lucrative career opportunities and, as a result, attract high quality graduates from a global field. To be successful in this competitive environment, a degree in a Hospitality field is mandatory.



Qualification Pathway



Higher education at William Angliss

William Angliss is an internationally renowned TAFE Institute in Melbourne that specialises in Hospitality, Tourism and the Culinary Arts. The Institute has provided higher qualifications such as Vocational Graduate Certificates for many years and introduced Bachelor programs in the tourism and culinary professions in 2007. Developed in conjunction with industry, the Bachelor is taught in a combination of lectures, seminars, tutorials, workshops, practical and laboratory sessions and excursions. In addition, students complete a twelve month internship during their study to ensure they are 'work-ready' when they graduate. Being placed in workplaces for an extended time provides invaluable opportunities for students to apply theoretical knowledge in real work situations.

A conversation with Victor Knox

What was it like studying higher education in TAFE?

Doing anything academically after an apprenticeship was far from my mind. I thought I would be working in the kitchen for the rest of my life. All my siblings have done a degree. They did well in high school – I was the black sheep. I really enjoyed TAFE, particularly the personal interaction and support from the teachers ... I wouldn't have been able to do a Diploma without the Certificate IV and would not have been able to do a Degree without the Advanced Diploma. The hardest part for me was adjusting from work to study.

What support did you need to study a Bachelor of Culinary Management?

Having not completed Grade 11 or 12, higher education was very new to me. I had never sat in a lecture or written an essay and relied on support from William Angliss and my family. Most of the teachers were managers in industry and understood my situation which was great. They really helped me and now, having read and written a lot and achieved pretty high results, I am confident about higher education. I really like proving I know what I am talking about.

How has TAFE assisted you in your career?

It has really opened up my career opportunities. Having studied finance, business planning, human resource and a range of other management subject at high levels, I have a very good grounding and the credentials for a career in Hospitality management and for my own business in the future.

CASE STUDY 3

Pathway to a career in civil engineering



Rylin Richardson
Associate Degree in
Civil Engineering
Southbank Institute of
Technology, QLD

I would not have known my career options if I had not gone to Southbank. It has been fantastic – I was really lucky.

Rylin Richardson recently completed an Associate Degree of Civil Engineering as an international student in Brisbane. Born and schooled in Durban, South Africa, Rylin attended a technical school specialising in trades such as civil, electrical and mechanical technology from Grade 10. His interest in these professions was kindled in earlier years through school subjects such as technical drawing and mechanics. During his schooling, Rylin was a champion sportsman who regularly represented his state in body boarding competitions and was far more interested in sport than education; particularly tertiary education.

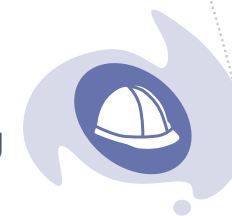
When he left school, Rylin completed a Certificate IV in Desk Top Publishing and, in partnership with a sports sponsor, started a graphic design business in South Africa before moving to Australia a few years later. Rylin commenced higher education study in Brisbane, enrolling in an Associate Degree of Civil Engineering at Southbank Institute of Technology as an international student. He completed his course as a domestic student after being awarded permanent residency.

The Civil Engineering profession

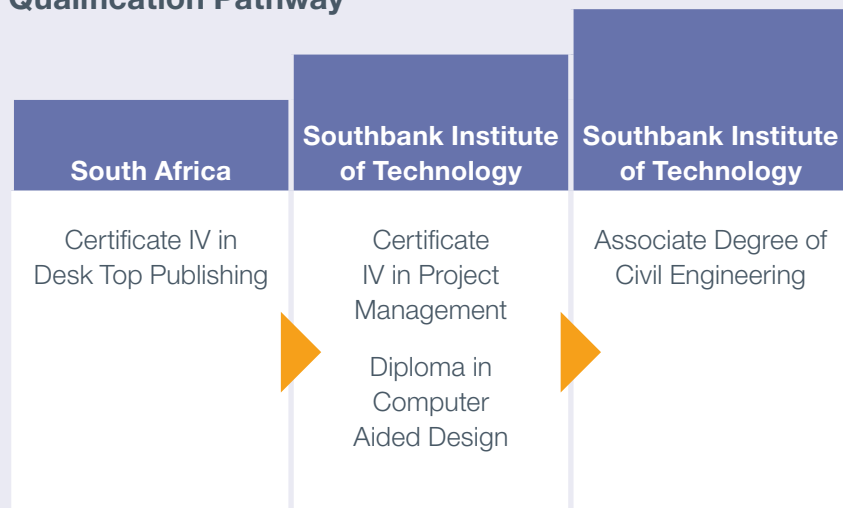
A Civil Engineer works across a broad range of engineering applications such as transport systems, bridges, plant engineering and water and waste management. Most Civil Engineers have a Bachelor or higher qualification as there are no trade equivalents and few providers offering technician level training in the field. Civil engineers, along with other professional associate and trade engineering occupations, have been in shortage for many years in Australia,⁸ with shortages expected to increase in the short term. Supply is expected to come mostly from higher education and vocational education students and, to a lesser extent, from skilled migration programs⁹. According to Skills Australia (2012)¹⁰, problematic articulation arrangements between the vocational education and higher education pathways have impacted on the supply of engineering graduates.

Pathway into higher engineering qualifications

After settling in Brisbane, Rylin obtained work as a graphic designer in an engineering company. He was encouraged by the company Director at the time to upgrade his qualifications through a cadetship. Finding university fees too expensive as an international student, Rylin enrolled in the Associate Degree of Civil Engineering at Southbank Institute of Technology. He soon discovered he enjoyed higher education and was particularly good at maths, receiving high distinctions in the subject. While studying the Associate Degree, Rylin secured a second cadetship at the Brisbane City Council, working in rotation through engineering and design teams across a range of civil engineering projects. He found the study very useful to his work, especially in the civil design section where he brought new CAD (computer aided design) and project management skills to the team. Rylin graduated in 2012 and now works as a Civil Designer at the Council.



Qualification Pathway



Rylin plans to further his experience in the profession before commencing either a Bachelor of Engineering or a higher qualification in the project management field at one of the universities with established articulation arrangements with Southbank Institute. Rylin has yet to decide which career option to pursue into the future – a civil designer, an engineer or project manager – all of which are professions currently in demand in Australia.

Higher education at Southbank Institute of Technology

Southbank Institute of Technology (SBIT), a large TAFE institute in Brisbane, offers a wide range of study choices from Certificate through to Associate Degree and Bachelor qualifications. The Institute also offers articulation programs into a number of universities with 258 pathway options available across a range of program areas. Graduates from the Associate Degree in Civil Engineering program can articulate to a Bachelor of Engineering at the University of Queensland and Queensland University of Technology (QUT).

SBIT's Associate Degree in Civil Engineering is accredited by Engineers Australia at Engineering Associate level. SBIT is one of four tertiary institutions, and the only non-university institution, with this accreditation. Through the Dublin Accord, SBIT's Associate Degree in Civil Engineering is recognised in Canada, Ireland, Korea, New Zealand, South Africa, USA and the UK, which greatly improves the global mobility of the program's graduates. SBIT graduates are in high demand by employers in Australia to fill cadetships, design technician and engineering associate roles due to the industry relevant and practical training they receive.

A conversation with Rylin Richardson

Why did you choose to study an Associate Degree of Civil Engineering at TAFE?

I looked at studying a Bachelor of Civil Engineering at university but with the fees – there was no way I could do it. The pathway TAFE provided really helped me. I was so excited when I finished my first Diploma (Computer Aided Design) – it was the first Diploma I ever achieved. It gave me the push to keep going. Even before I had finished the Associate Degree, I had the Certificate IV in Project Management and the Diploma behind me ... I could have exited at that point if I had wanted to.

What was it like studying higher education at TAFE?

I had been out of school for a few years and thought I would really battle but I'm the type of person who responds well to the type of teaching in TAFE. I really enjoy hands on, small and practical classes that challenge me. I found the lecturers very open and helpful with a large amount of industry experience – it made it much more interesting. They gave us theoretical and practical knowledge and the experience we needed – plus they gave me life skills too. My success is largely due to the learning environment and the support and encouragement I received.

How relevant was your study to your work?

I was able to apply what I learned to my work especially in the civil design section of the Council. It was a bit daunting – the Principal Engineer expected a lot of me. I was lucky I had a good grounding from the course and could bring expertise such as the latest CAD skills and good project management skills to work. I was able to show them a few new things which they really appreciated.

CASE STUDY 4

Pathway to a career in forensic science



Emma Sheehan
Bachelor of Forensic Science
(Crime Scene Examination)
Canberra Institute of
Technology, ACT

I had to complete the last 6 months of the Bachelor by distance. CIT were flexible and able to accommodate me so I could still finish in three years.

Emma Sheehan recently completed a Bachelor of Forensic Science (Crime Scene Examination) at Canberra Institute of Technology (CIT). Emma developed an interest in forensic science in her later school years even though her ambition at the time was to be an early childhood teacher. After completing school, she was accepted to study a Bachelor of Early Childhood Teaching at University but, unsure about her career choice, deferred her course for a year to study a Certificate IV in Laboratory Operations at TAFE NSW in Newcastle.

Specialising in forensic testing, the Certificate IV provided Emma with an overview of the fundamentals of forensics and confirmed her interest in crime scene investigation. After achieving high results in her studies at TAFE NSW, Emma continued to study forensic science with a specialisation in crime scene investigation, through the Advanced Diploma and then Bachelor of Forensic Science at CIT. Emma is the first in her family to undertake a degree.

A career in forensic science

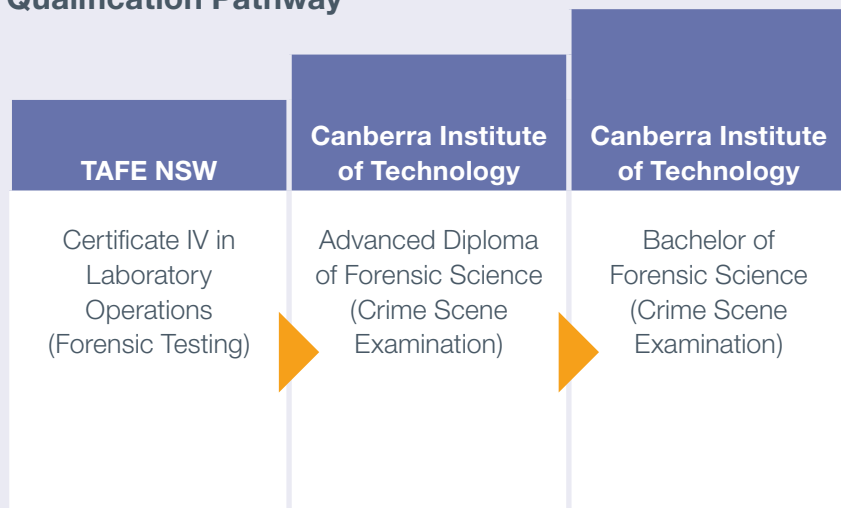
The Bachelor of Forensic Science (Crime Scene Examination) qualifies Emma to work as a forensic field scientist, a crime scene investigator or a scene of crime officer (SOCO) in the police forensics services or other related industries and scientific disciplines. Many large companies also use investigative scientists for determining sources of contamination in products or product failures. In Australia, most graduates who join a forensics area within the police force are employed as crime scene or finger print specialists but many other opportunities are available in areas such as biology criminalistics, ballistics, document examination and fire investigation. Entry into forensic science in the police force requires a degree as a minimum qualification, with graduates from CIT's Bachelor of Forensic Science (Crime Scene Examination) well regarded for forensic positions.

Pathway to a Bachelor in TAFE

After completing the Certificate IV in Laboratory Operations and investigating a range of higher education courses on offer, Emma selected the Advanced Diploma of Forensic Science (Crime Scene Examination) at Canberra Institute of Technology; the only course she could find orientated towards field based rather than lab based testing. While three universities in NSW offered a Bachelor of Forensic Science, Emma considered them to be too theoretical for her purposes, preferring instead a more practical approach to learning the skills for crime scene investigation. The Advanced Diploma provided a pathway for Emma to the Bachelor of Forensic Science (Crime Scene Examination) at CIT; a pathway funded for the first two years, which made the costs of living away from home more affordable for her. Despite having to move back to her home in NSW in her final year, Emma completed her degree within three years and now aims to specialise in forensic profiling although, as she acknowledges, this is a highly specialised area. However, having successfully completed her Bachelor, Emma is well positioned to pursue a range



Qualification Pathway



of preferred career options including positions in mortuaries, crime scene investigation, pathology, and ballistics and fingerprint analysis. After gaining professional experience, Emma intends to pursue further higher education study in forensic science.

Higher education at Canberra Institute of Technology

Canberra Institute of Technology (CIT) is recognised as a leader in the field of forensic science education. CIT has trained crime scene examiners in the Australian police force and police forensic scientists from around the world through the National Centre for Forensic Studies (NCFS). The NCFS is a partnership between CIT, the Australian Federal Police (AFP) and the University of Canberra that aims to further forensic science training, education and research through collaboration. Through the partnership, the AFP provides students at CIT with topical issues to investigate for their research projects. The Advanced Diploma of Forensic Science at CIT articulates directly to the Bachelor of Forensic Science (Crime Scene Examination). Students, who have successfully completed stages 1–4 of the program, or equivalent, can progress to the third year of the degree.

A conversation with Emma Sheehan

What was it like studying forensic science at TAFE?

CIT only accepts small numbers into forensic science courses so I was lucky to be accepted. Small classes appealed to me – I had individual tuition and attention which was really important in my final year when I missed quite a few classes. The classes had theoretical and practical elements – either in the lab or in the crime scene house or field based – which was what I wanted. After we learned the basics, we progressed to more specialised subjects such as blood spatter analysis, fire and explosive scenes, forensic anthropology (bones), and odontology (dentistry). We learned what to look for in a crime scene and the most likely spots for fingerprints. We did basic law too so we understand about search warrants and what you can and cannot touch.

How relevant was your course to the industry?

It was very relevant. The teachers and lecturers had experience working in victim identification in disasters such as the Bali bombing and the Aceh tsunami. The teachers knew what they were talking about and taught from real life experience. In our final year we had to do a research project. The AFP gave us a list of projects to work on. I investigated how contamination affects a dog's ability to pick up a human scent. It was really interesting.

How well prepared are you for your career?

Having finished the Bachelor in December 2012, I am looking for jobs in the police, in the private sector, in laboratories or in the mortuary. I have quite a few options because I did chemistry and biology and also because CIT graduates are sought after by industry. I am also interested in continuing onto a Forensic Science/Law higher qualification but I want to work for a while first.

CASE STUDY 5

Pathway to a career in aviation



Nathan Hammer
Associate Degree in
Aviation Management
Polytechnic West and
Murdoch University, WA

TAFE provided a specialisation and then a pathway I could follow ... those options just weren't there in the university sector.

Nathan Hammer recently completed an Associate Degree of Aviation (Management) at Polytechnic West in Perth. His ambition from an early age was to be a pilot but, while at school, he discovered this was not a career path he could follow. Despite this setback, Nathan pursued his interest in aviation through involvement in the flight simulator community over many years. After completing year 12, Nathan applied to university to study aviation management but was unsuccessful. He was, however, accepted into the Diploma of Airport Management at Polytechnic West which was ideal, he says, – it gave him a taste of everything from airport operations to factors influencing aircraft operations and general management.

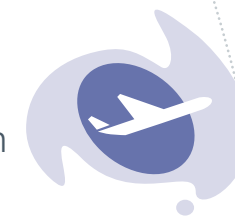
After achieving high results in the Diploma, Nathan again wanted to progress to higher education qualifications but, despite an intensive search of universities locally and nationally, could not find a qualification that suited him. Most courses focused on subjects for pilots such as navigation and aircraft systems which, while of interest to Nathan, did not get to the 'heart' of what he wanted to do in the future; 'to run an airport'.

A career in aviation

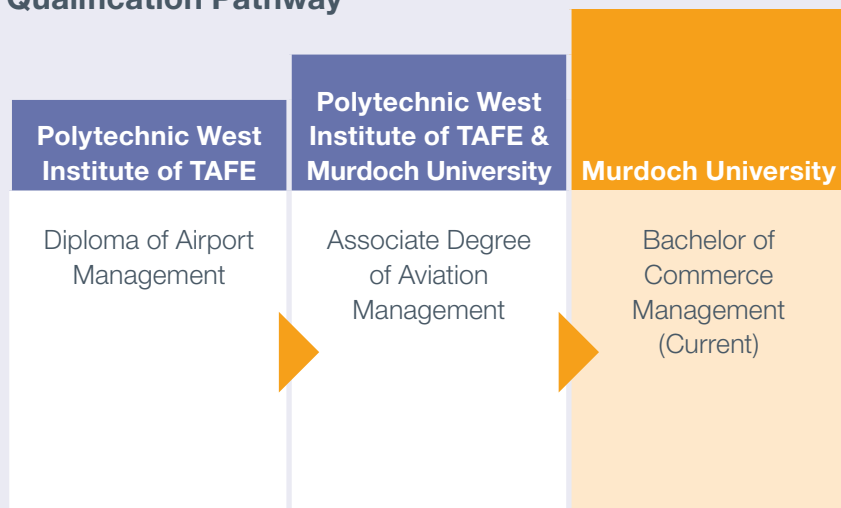
The Associate Degree in Aviation Management prepares students for a career in airport management. An airport manager oversees general operations including the maintenance of terminals and runways, the management of people traffic, airport staff and facilities and the enforcement of safety and Civil Aviation Safety Authority rules and regulations. The aviation industry in Western Australia has experienced enduring skills shortages associated with the mining boom over the past decade. Increased demand for workers in mining related industries, particularly in regional and remote areas, has resulted in significant growth in 'fly in, fly-out' workers with flow on effects for air traffic and associated infrastructure and services.

Pathway to higher qualifications

The best career option for Nathan was to articulate from the Diploma of Airport Management into the Associate Degree of Aviation (Management) at Polytechnic West; a qualification delivered through a partnership between the Institute and Murdoch University. With one year's credit awarded for the completion of the Diploma, the Associate Degree allowed Nathan to specialise in aviation (airport planning, design and management) at Polytechnic West and management expertise through Murdoch University. Much of the aviation study is based at Polytechnic West's Aerospace Training Centre at Jandakot airport; a small airport near Perth with a fully equipped Hangar, various aircraft, computer facilities and a flight simulator. As Jandakot is a training airport, students are exposed to day to day airport operations and can 'hear and see what's happening' as they learn. After finishing the Associate Degree of Aviation, Nathan transitioned into the Bachelor of Commerce Management at Murdoch University which he is due to complete in 2013. Once completed, Nathan plans to specialise with more study in the aviation profession but, in the meantime, will gain a few years 'on the ground' experience either at the local airport or, if not, in the related logistics and general management fields.



Qualification Pathway



Studying an Associate Degree at Polytechnic West

The Associate Degree of Aviation (Management) at Polytechnic West is recognised for its strong theoretical and practical foundations of airport planning, design and management. The course was designed in consultation with Australian aviation industries and aims to provide students with a 'non-flying study option' to gain the theoretical knowledge necessary to enter the air transportation industry. The course covers a wide range of perspectives to broaden students' understanding of the factors and complexities involved in establishing and operating airports. Lecturers come from a wide range of backgrounds including international pilots, airport managers, flight instructors and military & commercial aviators and managers; all of whom bring specific expertise to the program.

A conversation with Nathan Hammer

Why did you choose to study higher education at TAFE?

TAFE was the best option for me. I couldn't do what I wanted to do at university ... TAFE provided a great stepping stone into the industry. When I was at school, I didn't appreciate the role of TAFE. I come from an academic family and my friends all went to university. At first I had the feeling that I was not equal. But now I am. Both my brother and I have done a Diploma at TAFE before going to university which has worked for both of us. The other great thing is that the TAFE pathway is more affordable.

What was it like studying an Associate Degree in TAFE?

The study at TAFE was practical and theoretical. We covered administration subjects such as accounting, budgets, law, technology etc. which gave me a great background for management. Being onsite at the airport meant I was studying technical and management subjects in a real aviation context. Jandakot is a training airport so we would see and hear what was happening. ... I spoke to pilots after their flights to find out what happened and to learn from them.

How will the TAFE pathway assist your career?

Employers are really interested in us because of our course and experience. The aviation units I did at Polytechnic West gave me a big advantage – I could specialise. Plus the management degree gives me more options other than aviation if I want them. If I hadn't done the Diploma, I probably would have done security and then gone into airports – which would not have suited me nearly as well. Through TAFE I had a taste of the industry to see if I liked it ... and I did.

CASE STUDY 6

Pathway to a career in control systems engineering



Ben Killeen
Bachelor of Engineering
Technology (Mechatronics)
Chisholm Institute of TAFE, VIC

There were no other Bachelor of Engineering courses outside Melbourne that offered part time and after hours study. Chisholm's course allows me to study while still working full time ...

Ben Killeen is currently studying a Bachelor of Engineering Technology (Mechatronics) at Chisholm Institute of TAFE in Dandenong part time. Ben was a high achiever at high school excelling in maths and physics in Year 12 but, by his own admission, “... was a bit immature and definitely not ready to go to university”. On the advice of a family friend, an electrical engineer, Ben declined an offer to study electrical engineering at university and, instead commenced an apprenticeship with BHP Steel in Hastings, Victoria. He completed a Certificate III in Electrical (Electrician) as required for his apprenticeship and, in addition, also completed a Certificate in Basic Electronics and a Certificate IV in Electrical (Motor Control) at Frankston TAFE (now Chisholm Institute).

After completing his apprenticeship, Ben worked for a further twelve years as a process electrician carrying out breakdown and scheduled maintenance at BlueScope Steel (formerly BHP Steel); a large component of which consisted of root cause analysis work aimed at improving process uptime and preventing equipment failures.

Engineering in the oil and gas industry

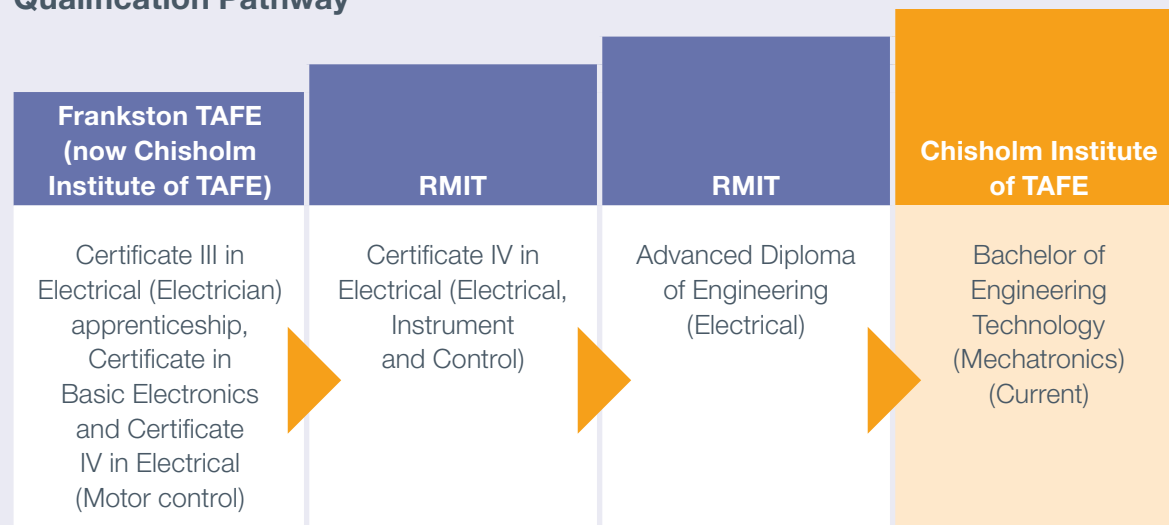
Large investments in oil and gas projects in Australia, particularly in Western Australia and Queensland, has resulted in unprecedented demand for a range of engineering related skills. As local projects compete with international companies for skilled labour, skills capability gaps have arisen at highly technical and senior levels. There is also growing demand for technical personnel in upstream oil and gas operations and maintenance, and supervisors with appropriate levels of technical and safety experience and front-line management skills. Adding to skill shortages are estimations that around 50 per cent of current employees in the sector will retire over the next 10 years¹¹.

Pathway to higher qualifications

During his employment at BHP, Ben also completed a Certificate IV in Electrical (Electrical, Instrument and Control) at RMIT which qualified him to work as a dual trade 'Electrical and Instrumentation' technician. The dual trade qualification, combining the electrical mechanic trade with the instrumentation fitter trade, has become a common minimum qualification for employment in heavy industry. Ben then completed an Advanced Diploma of Engineering (Electrical) focusing on project management and technical skills such as computer aided drafting and mathematics. Looking to expand his experience, Ben resigned from BlueScope Steel and began working in a full time casual position for a large company providing general maintenance services and field managed modifications for Esso Australia. His aim was to gain secure full time employment in the oil and gas industry. To 'open up' his career options, Ben decided to upgrade his qualifications and enrolled in the Bachelor of Engineering Technology (Mechatronics) at Chisholm Institute in Dandenong. Soon after, he was able to secure a full time position as a 'Power and Control Technician', working for Esso Australia at the Long Island Point Fractionation plant. Ben's ambition now is to complete his Degree and progress from tradesperson to engineer within Esso Australia.



Qualification Pathway



Higher education at Chisholm Institute of TAFE

The Bachelor of Engineering Technology (Mechatronics) at Chisholm Institute of TAFE was developed in association with the South East Melbourne Manufacturers Alliance (SEMMA)¹² to meet industry needs for high level technology skills. The location of this degree at Chisholm, in the south east region of Melbourne, is important given the region has around 50% of the state's manufacturing operations. As part of the degree, SEMMA provides 8 week practicums and industry based capstone projects for students to ensure the course content remains relevant and current. The course content is a blend of traditional engineering technology subjects and industry focused skills such as programmable logic controllers, industrial automation and machine condition monitoring to provide industry context. Graduates can progress to a Masters degree accredited by Engineers Australia.

A conversation with Ben Killeen

How important was the pathway from TAFE to higher education for you?

The trade pathway through TAFE really suited me. I was able to build my skill base slowly and experience real world physics in heavy metal environments rather than solely through text books. The best way for me was to build expertise through my courses and apply them to my work over the years. It is great that I can study part time and still work a full time job to support my family ... my main concern with the course is that TAFE may lose funding and cut courses like mine preventing me from completing the degree.

What is it like studying at TAFE?

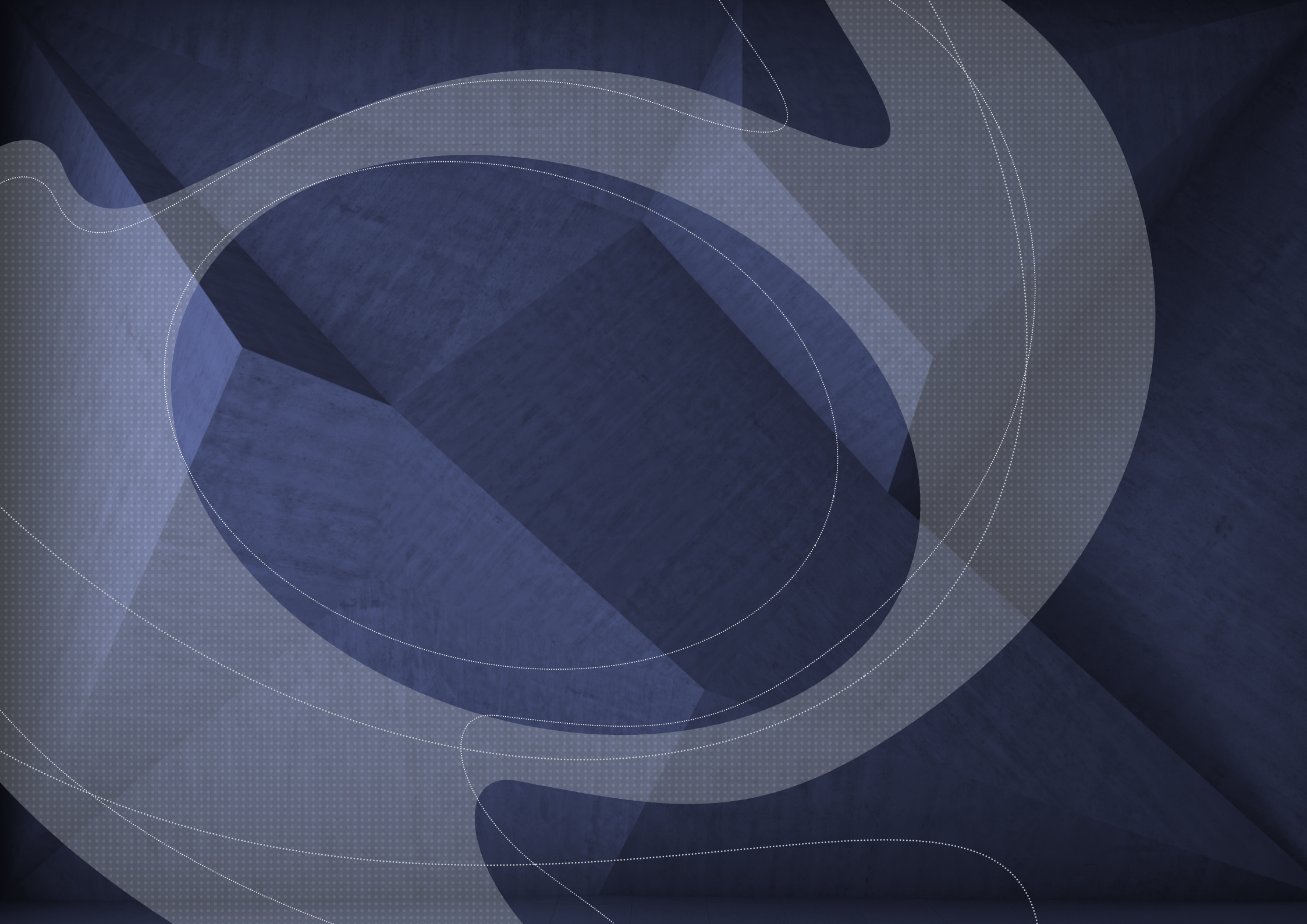
The classes are small and relaxed – we have access to one on one support. The course is based in industry and offers a 'hands on' approach to engineering while still including academic research and submission of reports to professional standards. We have close communication with the lecturers ... due to my industry experience, I am able to bring safe work practices from heavy industry into the classroom.

How relevant has your study at TAFE been to your career?

The base qualifications obtained through TAFE are compulsory components for any licensed electrical tradesperson. The qualifications or certificates obtained over and above that base allowed me to work my way into more specialised roles such as my current position within Esso Australia.

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