# TRAINING FOR THE CLEAN ECONOMY

THE VICTORIAN TAFE NETWORK PROSPECTUS 2024 TAFE OVERVIEW

TAFE VICTORIA

#### Acknowledgement of Country

We acknowledge the Traditional Aboriginal Owners of Country throughout Victoria and pay our respects to them, their connections to land, sea, and community. We pay our respects to their Elders past and present and future Traditional Owners. and the second



With hundreds of qualifications to choose from, our network of TAFE institutes and dual-sector universities delivers contemporary training solutions across the state.





## L he Victorian TAFE Network is committed to supporting Victoria's transition to a clean economy.

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## FOREWORD





**The Hon Gayle Tierney MP** Minister for Skills and TAFE Minister for Regional Development

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#### Victoria's network of 16 TAFE institutes and dual-sector universities is at the forefront of Victoria's transformation to a clean economy.

The Victorian Government has set world-leading targets to transition to 95% renewable energy by 2035 and achieve net zero by 2045. This is a big undertaking, and it can't be done without a training response that delivers a workforce with the necessary skills. Victoria's network of 12 TAFEs and 4 dual-sector universities Is ready to play a central role in this.

We are bringing back the State Electricity Commission (SEC) to drive down power bills, reduce emissions and help create up to 59,000 jobs in renewable energy, with at least 6,000 jobs for apprentices and trainees. A new SEC Centre of Training Excellence will work with schools, TAFEs and universities, as well as government and Traditional Owners, to build the workforce we need. We are also developing two renewable energy training centres – one for hydrogen and one for wind – to prepare Victorian workers for these emerging industries.

We have established a TAFE Clean Energy Fund, with the first investments to open new facilities focused on renewable energy jobs at TAFE Gippsland, South-West TAFE and Federation TAFE.

#### The road ahead

In 2023, we set out the Victorian Clean Economy Workforce Development Strategy, a 10-year framework to guide government, industry and the workforce on the path to net zero.

The Strategy outlines 5 strategic priorities to drive workforce transition, including a targeted skills model, flexible education and training, and enhanced workforce planning and attraction.

We need to work together to co-develop the necessary education and training as the economy rapidly changes.

### The Victorian TAFE Network is your training partner

In this spirit of collaboration, I am delighted to present *Training for the Clean Economy – the Victorian TAFE Network Prospectus.* 

This prospectus is a resource for business and industry that shows how the Victorian TAFE Network, led by the Office of TAFE Coordination and Delivery (OTCD) and comprising 12 TAFEs and 4 dual sector universities, is already contributing to the clean economy and how it stands ready to partner with industry to develop solutions for emerging workforce and skill needs.

I hope that this prospectus is the catalyst for new connections and partnerships between Victoria's business community and Victoria's TAFEs and dual sector universities, as we all work together towards achieving a clean economy.

**TAFE Network** members are ready to design and deliver the training that your business needs to succeed in the clean economy.

# VICTORIA'S TAFE NETWORK

The Victorian TAFE Network is committed to supporting Victoria's transition to a clean economy. The Network is ready to support the development and delivery of skills and training needs for the clean economy.

Victoria's TAFE Network comprises 16 institutions delivering from more than 100 campuses across regional and metro Victoria. The Network offers training aligned to all aspects of the clean economy, including in the areas of the circular economy, renewable energy, and climate change mitigation and adaptation. Backed by government, TAFE Network members are ready to design and deliver the workforce training that your business needs to succeed in the clean economy.

#### The TAFE Network delivers skills for Victoria's economic growth and social inclusion

Through the Victorian TAFE Network, the Victorian Government provides high-quality, vocational education and training in skills areas linked to the government's economic and social objectives. This includes skills for economic growth in key areas such as:

- the transition to a climate-resilient future
- the technology and digital sectors, agriculture, hospitality, tourism and manufacturing
- construction to support the government's large-scale infrastructure priorities
- Victoria's critical social and community services including early childhood education and care workforces, supporting delivery of the government's priority social and inclusion reforms.

TAFEs also play a unique role supporting local communities and regional economies by providing community access to TAFE facilities for civic activities and emergency response efforts. At the regional level, TAFEs are key players in supporting regional development, infrastructure, revitalisation, local staff and businesses.

#### The TAFE Network partners with industry in growing Victoria's economy

Members of the TAFE Network work to maintain and deepen their relationships with industry to benefit students who need contemporary skills, and to support the growth of the Victorian economy with a pipeline of skilled people to drive its industries.

Working closely with other portfolios and stakeholders of the Department of Jobs, Skills, Industries and Regions, the TAFE Network is well positioned to establish new partnerships with industry to deliver new capabilities that will support Victoria's productivity and meet new and emerging needs.

TAFEs are at the forefront of delivering future, high-quality skills to support Victoria's workforce development, including in important areas such industries supporting transition towards renewable energy and advanced technologies. This includes engaging local industry in course and assessment design and developing leading-edge materials and assessment.

By working as a network, Victorian TAFEs ensure all Victorians can access vocational education and training and skills through:

- reliable access to consistent, highquality training in the vocational skills areas linked to the greatest job demand
- innovation in applied learning in specialised skills areas linked to specific industry skills needs, particularly in 'future skills' areas and skills to support the clean economy and industry resilience to the impacts of climate change.

#### The Victorian TAFE Network delivers innovative training to support Victoria's transition to a clean economy

The skills and workforce development activities needed for the transition to the clean economy transition are many and varied.

In some parts of the economy, the transition to the clean economy will be achieved by people being trained in existing 'traditional' skills, but in greater numbers than before. In other parts of the economy, the transition will involve training workforces in completely new skills. In some situations, people might find it useful to 'top up' their existing skills and training by obtaining skillsets associated with new technologies or ways of working.

The TAFE Network offers leading and contemporary courses and training programs that have been developed with industry and align to specific industry needs. These offerings are designed to meet the evolving demands of the clean economy and support industry in preparing for changing requirements and expectations.

Whether it is a micro-credentials, skillsets, qualification, or other training solution, the TAFE Network is ready to support Victoria's industries and businesses on the road ahead.

The Victorian TAFE Network is your partner in building the workforce you need to excel in the clean economy.

## BENDIGO TAFE AND KANGAN INSTITUTE

#### Bendigo TAFE and Kangan Institute have a broad clean economy offering and are leaders in electric vehicles (EVs) and automotive innovation.

For over 155 years, Bendigo TAFE and Kangan Institute (BKI) has been transforming lives. With a rich history of delivering education to the local community, both TAFEs have a focus on shaping individuals for success in local employment opportunities.

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Distinguished by cutting-edge facilities and high-quality programs, Bendigo TAFE and Kangan institute create a dynamic and welcoming environment conducive to effective learning. Catering to a diverse cohort of over 21,000 students annually, both TAFEs offer an extensive array of vocational courses that prepare individuals for the demands of the workforce.

Bendigo TAFE and Kangan Institute have 8 TAFE campuses located in Docklands, Cremorne, Essendon, Broadmeadows, Bendigo City, Charleston Road, Echuca and Castlemaine, underscoring their commitment to accessibility and community engagement.





#### **TECHNICAL TRADES**

Bendigo TAFE and Kangan Institute embed skills units to apply sustainable best practices in core technical trade areas (i.e. electrotechnology, plumbing, engineering, building and construction). The TAFEs are committed to maintaining and expanding these offerings to ensure technical trades qualifications prepare workers for the clean economy.

#### CONSERVATION AND ECOSYSTEM MANAGEMENT

Bendigo TAFE and Kangan Institute deliver a well-established array of programs in agriculture, conservation and ecosystem management, encompassing certificate III, certificate IV and diploma levels. These offerings are underpinned by collaboration with industry partners, ensuring qualifications are in line with emerging policies and expectations.

#### AUTOMOTIVE

Through training delivery at the Automotive Centre of Excellence in Docklands, Bendigo TAFE and Kangan Institute are recognised as national leaders in the field of automotive and electric vehicles (EVs). The TAFEs are actively enhancing its expertise in EV-related skills, such as repair, and solidifying partnerships to meet the growing demand. This commitment remains a top priority, demonstrated by the introduction of new EV units, including battery inspection and servicing, into automotive courses in September 2023. Furthermore, both TAFEs are committed to maintaining understanding of, and where necessary incorporating knowledge of, emerging new technologies in the sector into qualifications.

#### FASHION

Kangan Institute's Cremorne campus runs a successful recycled fashion program. In addition, circular design principles are well embedded in existing diplomas in fashion design.

#### Clean economy courses offerings

#### AGRICULTURE AND CONSERVATION

Certificate III in Conservation and Ecosystem ManagementAHC31421Certificate IV in Conservation and Ecosystem ManagementAHC40920		
and Ecosystem Management Certificate IV in Conservation and Ecosystem Management Certificate IV in Agriculture AHC40116 Certificate III in Parks and Gardens AHC31021	Certificate III in Horticulture	AHC30716
and Ecosystem Management Certificate IV in Agriculture AHC40116 Certificate III in Parks and Gardens AHC31021		AHC31421
Certificate III in Parks and Gardens AHC31021		AHC40920
	Certificate IV in Agriculture	AHC40116
Certificate III in Agriculture AHC31022	Certificate III in Parks and Gardens	AHC31021
	Certificate III in Agriculture	AHC31022

#### AUTOMOTIVE

AURSS00064
AUR31120
AUR30620

#### **BUILDING AND CONSTRUCTION**

Advanced Diploma of Building Design (Architectural)	22477VIC
Certificate IV in Building and Construction (Building)	CPC40120
Diploma of Building and Construction (Building)	CPC50220
Diploma of Building and Construction (Management)	CPC50320
Certificate II in Plumbing (Pre-apprenticeship)	22569VIC
Certificate III in Plumbing	CPC32420
Certificate IV in Plumbing and Services (Operations)	CPC40920

#### ELECTRICAL AND RENEWABLES

Certificate III in Electrical Machine Repair	UEE30620
Certificate III in Electrotechnology Electrician	UEE30820
Certificate III in Air Conditioning and Refrigeration	UEE32220

#### ENGINEERING

Certificate IV in Engineering Drafting	MEM40412
Diploma of Engineering – Technical	MEM50212
Certificate III in Engineering – Fabrication Trade	MEM30319
Certificate III in Engineering – Mechanical Trade	MEM30219
Certificate IV in Engineering	MEM40119

#### OTHER

Advanced Diploma of Applied Fashion Design and Merchandising	MST60119
Diploma of Applied Fashion Design and Merchandising	MST50119

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COURSE DEVELOPMENT & DELIVERY



#### AMWU - Introduction of electric buses, upskilling technicians

Bendigo TAFE and Kangan Institute supported the Australian Manufacturing Workers' Union's (AMWU) Victorian branch in its transition to zero emission buses by developing and delivering related courses for technical and non-technical staff.

#### ABOUT THE INITIATIVE

The Victorian Government's \$20M Zero Emission Bus Trial aims to inform the transition of almost 4,500 diesel buses to zero emissions. This 3-year trial leads up to 2025 and involves 6 operators across Victoria introducing 52 zero emission buses into their fleets.

Driving this trial, AMWU (VIC) aimed to support its bus workers through this transition period with training and engaged Bendigo TAFE and Kangan Institute as its training partners. As 2 different skills gaps were identified, the need for a technical staff (e.g. diesel technicians, auto electricians) and non-technical staff (e.g. refuelers, yard hands) training pathway was defined.

The course is currently in development in a collaboration with AMWU as the overarching initiative driver, major Victorian bus companies and Bendigo TAFE and Kangan Institute as the delivery partners across metropolitan and regional areas.

#### OUTCOMES AND NEXT STEPS

For the technical pathway, adapted versions of existing training units were developed and initial classes delivered over 3 days in 8-people groups. For the non-technical pathway, a new unit was developed which is pending approval.

These trainings are provided at Kangan Institute's Automotive Centre of Excellence in Docklands.

The course development and delivery partnership will focus on the following key next steps:

- Completing the technical pathway delivery with more groups
- Introducing and running the new non-technical staff unit.

COURSE DEVELOPMENT

#### Heating, Ventilation, Air Conditioning & Refrigeration

Bendigo TAFE and Kangan Institute developed an upskilling course for the regional Heating, Ventilation, Air Conditioning & Refrigeration (HVACR) workforce so its members are trained in the transition from global warming potential (GWP) gases to greenhouse-friendly refrigerants and technologies.

#### ABOUT THE INITIATIVE

In the region, and especially in the more rural areas, the HVACR workforce's current capabilities to fine tune and monitor HVACR equipment and facilities are not aligned with emerging trends.

- Therefore a project was launched to develop a course that covered:
- 1. new resources and training methodologies
- 2. mobile pod delivery
- 3. a STEM outreach support platform
- 4. a plan to support rollout, upskilling and ongoing development
- 5. a research report on updated refrigeration qualifications.

This project was delivered in a partnership between TAFEs (Bendigo TAFE and Kangan Institute) and industry. It refocuses HVACR training towards greenhouse-friendly refrigerants and technologies.

#### OUTCOMES

Units for the Certificate III in Air Conditioning and Refrigeration course have been delivered since February 2022.

Innovations have been developed for the teaching of the latest HVACR industry skills (e.g. mobile training pods, augmented reality).



TAFE OVERVIEW

COURSE DEVELOPMENT



### Industry-wide upskilling training and assessment model for electrical motor rewinding and repair

Bendigo TAFE and Kangan Institute developed an engaging upskilling course for the electrical motor rewinding and maintenance sector to enforce and extend the current qualified workforce in the region.

#### ABOUT THE INITIATIVE

The electric motor rewinding and repair sector is extremely thin and Bendigo TAFE and Kangan Institute are is the only providers of related courses in Victoria through training and qualifying apprentices. Critical workforce capacity issues and skills gaps have developed over time due to the aging workforce, a lack of apprenticeship take up and a dependency on imported machinery (e.g. electric rotating machinery from China).

Therefore, a project was launched to upskill the electrical motor rewinding and maintenance workforce in rural and regional areas with the latest skills via a more flexible, mobile and innovative delivery model.

This involved updating the TAFEs' training equipment and developing an innovative mobile classroom and practical training solution to improve their ability to teach the latest technologies in testing, motor energy efficacies and renewable sustainability in a flexible way.

This course was redeveloped by Bendigo TAFE and Kangan Institute in collaboration with an array of industry partners with strong interest in the resulting course offering upon completion.

#### OUTCOMES AND NEXT STEPS

The digital online units (10) contained within the relevant machine repair certificate have been offered in the region since January 2024.

The course development partnership focused on the following key steps:

- Purchasing required assets (e.g. onsite training vehicle)
- Upgrading existing outdated training equipment and tools.

# BOX HILL INSTITUTE



In alignment with industry trends, Box Hill Institute is developing electric vehicle skill sets for stand-alone courses and integration within automotive apprenticeship qualifications.

Box Hill Institute is known for practical and flexible learning developed through close collaboration with industry. With a focus on hands-on and real-world experience, students benefit from the expertise and innovative teaching approaches of highly experienced staff.

Box Hill Institute delivers various courses across the secondary, vocational and higher education sectors in 4 countries, with qualifications recognised locally and internationally.

The institute offers a broad spectrum of certifications and delivers training and services in many workplace locations. In Victoria, Box Hill Institute has 3 campuses (Box Hill, Lilydale and Melbourne city – which is co-located with the Centre for Adult Education).



#### ELECTRIC VEHICLES

Box Hill Institute currently offers inspection and servicing skills development for electric vehicles (EV) and hybrid vehicles (PHEV). In the near future, Box Hill Institute will offer stand-alone courses for existing automotive workers and integrate components within automotive apprenticeship qualifications.

#### **BUILDING AND CONSTRUCTION**

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Box Hill Institute offers a range of building and construction courses that integrate specialised units highlighting the principles of the clean economy. These units concentrate on crucial topics including waste reduction, energy efficiency, water management and sustainable building design.

#### AIR CONDITIONING AND REFRIGERATION

Box Hill Institute provides training in natural refrigerants and has been working with large organisations such as Coles and Woolworths to upskill existing workers. Natural refrigerants training is being embedded into the Certificate III in Air Conditioning and Refrigeration for apprentices and is a positive step towards contributing to the clean economy. In addition to local industry training, Box Hill Institute has been working collaboratively with industry partners in a 'train the trainer' program to upskill Pacific Islander trainers in natural refrigerants.

#### Clean economy courses offerings

#### AGRICULTURE AND CONSERVATION

Diploma of Conservation and Ecosystem Management	AHC51120
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#### AUTOMOTIVE

Certificate II Automotive Air Conditioning Technology	AUR20220
Certificate II of Automotive Servicing Technology	AUR20520
Certificate III Light Vehicle Mechanical Technology	AUR30620

#### **BUILDING AND CONSTRUCTION**

Certificate IV of Building and Construction (Building)CPC40120Certificate IV Surface Extraction OperationsRII40120Diploma of Surface Operations ManagementRII50120Advanced Diploma of Building Design (Architectural)22477VICCertificate III of Landscape and ConstructionAHC30921Certificate II in Plumbing (Pre-apprenticeship)22569VIC		
Certificate IV Surface Extraction OperationsRII40120Diploma of Surface Operations ManagementRII50120Advanced Diploma of Building Design (Architectural)22477VICCertificate III of Landscape and ConstructionAHC30921Certificate II in Plumbing (Pre-apprenticeship)22569VIC	Certificate III in Air Conditioning and Refrigeration	UEE32220
Diploma of Surface Operations ManagementRII50120Advanced Diploma of Building Design (Architectural)22477VICCertificate III of Landscape and ConstructionAHC30921Certificate II in Plumbing (Pre-apprenticeship)22569VIC	Certificate IV of Building and Construction (Building)	CPC40120
Advanced Diploma of Building Design (Architectural)22477VICCertificate III of Landscape and ConstructionAHC30921Certificate II in Plumbing (Pre-apprenticeship)22569VIC	Certificate IV Surface Extraction Operations	RII40120
Certificate III of Landscape and Construction     AHC30921       Certificate II in Plumbing (Pre-apprenticeship)     22569VIC	Diploma of Surface Operations Management	RII50120
Certificate II in Plumbing (Pre-apprenticeship) 22569VIC	Advanced Diploma of Building Design (Architectural)	22477VIC
	Certificate III of Landscape and Construction	AHC30921
Certificate III in Plumbing CPC32420	Certificate II in Plumbing (Pre-apprenticeship)	22569VIC
	Certificate III in Plumbing	CPC32420

#### ELECTRICAL AND RENEWABLES

Certificate III in Electrotechnology electrician	UEE30820
Certificate II in Electrotechnology (Pre-vocational)	22499VIC

TRAINING PROVISION

#### Pacific Islands training in natural refrigerants

Box Hill Institute hosted 2 groups of trainers from the Pacific Islands for a 2-week 'train the trainer' program in natural refrigerants.

#### ABOUT THE INITIATIVE

Box Hill Institute recognises the profound impact of the heating, ventilation, air conditioning and refrigeration (HVACR) industry on influencing energy consumption, greenhouse gas emissions and the overall sustainability of built environments. In light of the global challenges posed by climate change and the increasing need for environmental responsibility, there is a crucial demand for enhanced training and education in this industry.

In response to the pressing need for enhanced education in this sector, Box Hill Institute launched the Pacific Islands Training Program. The Institute hosted 2 groups of trainers from the Pacific Islands for a 2-week 'train the trainer' program in natural refrigerants at the renowned Refrigeration and Climate Control Centre of Excellence (RCCC).

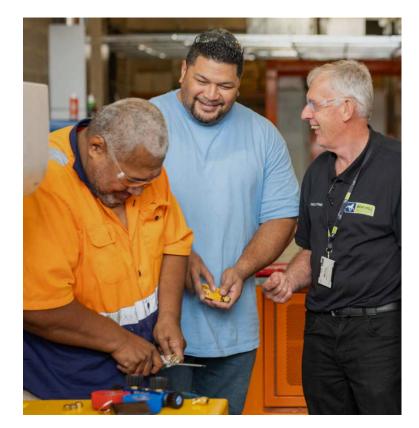
The investment in this initiative stems from partnerships with the Australian Government, the United Nations Environment Program (UNEP) and the Air Conditioning and Refrigeration Equipment Manufacturers Association of Australia (AREMA). This collaborative effort demonstrates a commitment to addressing global environmental challenges and the necessity for high-quality training and education in the HVACR sector.

#### OUTCOMES AND NEXT STEPS

A total of 13 trainers from diverse Pacific Island nations – including the Cook Islands, Fiji, Kiribati, Vanuatu, Tonga, Solomon Islands, Micronesia, Palau and Samoa – benefitted from the training program.

Box Hill Institute successfully completed this project in 2023, achieving the following key objectives:

- Delivering training and education to individuals within the HVACR industry, empowering them to implement climate-friendly practices
- Contributing to the Hydrochlorofluorocarbon (HCFC) phase-out under the Montreal Protocol by enhancing training capacity and service practices in the Pacific Island countries
- Facilitating the transfer of knowledge to trainers in the Pacific Islands, creating a ripple effect that not only builds knowledge and capability, but also strengthens relationships with neighbouring countries.



APPRENTICESHIP OFFERING EXPANSION



### Expansion of automotive apprenticeship training into the EV and PHEV technologies

Box Hill Institute has enhanced its automotive apprenticeship program by incorporating training for electric and hybrid vehicles, attracting interest from major dealerships and elevating its standing among students.

#### ABOUT THE INITIATIVE

The automotive industry is witnessing a significant shift as electric and hybrid vehicles gain market share, driven by technological advancements and increased environmental concerns. Consumer awareness and government targets for emission reduction catalyse the move away from combustion engines toward these greener alternatives.

Box Hill Institute completed a project to advance and expand automotive apprenticeship training into the inspection, diagnostic, servicing and repairs of electric and hybrid vehicles.

Working on electric and hybrid vehicles requires advanced knowledge of highvoltage systems, isolation and monitoring to ensure safety. As part of the program, participants train on new equipment and technologies to meet the necessary safety and sustainability requirements.

#### OUTCOMES AND NEXT STEPS

The new electric and hybrid vehicles apprenticeship program attracted interest from major vehicle dealerships for training of their future workforce.

As part of the project, Box Hill Institute:

- acquired 3 electric vehicles (different makes), safety equipment (EV fire blankets), and a range of EV/HV service, maintenance and repair tools
- implemented virtual reality technologies in fire safety training for the automotive and service industries, enabling students to engage in interactive scenarios for handling electric and hybrid vehicle incidents
- equipped the automotive training room with specialised simulators for electric and hybrid vehicle systems, providing a safe learning space for the students.

Box Hill Institute is looking into engaging with potential partners and developing units to deliver electric vehicle skill sets in 2024.

# CHISHOLM INSTITUTE



### Chisholm Institute focuses its clean economy efforts in the automotive and solar sectors.

Chisholm Institute is one of Victoria's premier public vocational education and training providers, offering over 250 courses ranging from certificates and diplomas to advanced diplomas, bachelor's degrees and graduate certificates.

Its offerings are cover a broad array of study areas (e.g. traditional trades, engineering, beauty hospitality) and designed in close consultation with industry.

Chisholm Institute's footprint is spread across 6 locations in Victoria: Dandenong, Frankston, Berwick, Cranbourne, Wonthaggi and Rosebud.

Chisholm

#### AUTOMOTIVE

Chisholm Institute has been involved in automotive training on electric vehicles (EV) and hybrid vehicles (PHEV) since 2019. Chisholm Institute offers a Depower and Reinitialise EV Batteries short course. In addition, EV units (e.g. Battery EV Service and Maintenance) are also delivered within existing automotive offerings.

In response to the growing interest from industry stakeholders, Chisholm Institute is committed to expanding its automotive and battery capabilities. This involves a revitalisation of existing courses to incorporate electric vehicle (EV) content. Furthermore, Chisholm Institute is actively considering the development of a comprehensive EV apprenticeship program.

#### SOLAR

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Chisholm Institute offers a highly popular course on working safely in the solar industry. As part of its commitment to advancing solar education, the institute is actively establishing dedicated infrastructure for solar training at its Frankston campus.

Chisholm Institute is investigating the inclusion of 'alternative' energy sourcing units in electrotechnology offerings, both for existing electricians and apprenticeships.

#### Clean economy courses offerings

#### AUTOMOTIVE

Certificate III in Automotive Body Repair Technology (Apprenticeship)	AUR32120
Certificate II in Automotive Servicing Technology (Pre-apprenticeship)	AUR20520
Certificate III in Heavy Commercial Vehicle Mechanical Technology (Apprenticeship)	AUR31120
Certificate IV in Automotive Management	AUR40116
Depower and Reinitialise Battery Electric Vehicles	SC601A
Certificate III in Mobile Plant Technology (Apprenticeship)	AUR31220
Certificate III in Light Vehicle Mechanical Technology (Apprenticeship)	AUR30620

#### **BUILDING AND CONSTRUCTION**

Certificate II in Plumbing (Pre-apprenticeship)	22569VIC
Certificate III in Plumbing (Apprenticeship)	CPC32420
Certificate IV in Plumbing and Services	CPC40920
Advanced Diploma of Building Design (Architectural)	22477VIC

#### ELECTRICAL AND RENEWABLES

Certificate III in Electrotechnology Electrician (Apprenticeship)	UEE30820
Course in Working Safely in the Solar Industry	22515VIC
Certificate II in Electrotechnology (Career Start)	UEE22020

#### ENGINEERING

Certificate III in Engineering – Fabrication Trade (Apprenticeship)	MEM30319
Certificate III in Engineering – Mechanical Trade (Apprenticeship)	MEM30219

TRAINING PROVISION

#### Basic electric vehicle (EV) training

Chisholm Institute is collaborating with the Victorian Automotive Chamber of Commerce (VACC) to provide basic EV training to its industry members.

#### ABOUT THE INITIATIVE

There is an ongoing requirement for training and education in the EV space, as the automotive industry develops and transitions into a more EV-dominated industry.

In conjunction with the VACC and its members, Chisholm Institute provided a unit of competency to train industry to work on EVs (AURETH101 – Depower and Reinitialise Battery EVs). This unit was identified as the preferred competency unit following extensive engagement with industry and VACC members.

Chisholm Institute and the VACC have a long relationship, including delivering apprenticeship training in multiple disciplines in the automotive industry. Chisholm Institute also delivers bespoke training courses to VACC members through the partnership.

#### OUTCOMES AND NEXT STEPS

Chisholm Institute delivered the AURETH101 unit of competency training to 120 VACC members (10 groups of 12 participants) in 2022 at its Frankston campus. Members who completed the training were then able to work safely on EVs through their respective lines of work.

Chisholm Institute's ability to effectively deliver training to a sizeable participant group positions it as a leading education provider in the EV space.

The program will focus on the following key next steps:

- Ensure that future opportunities in the EV training space are explored through an ongoing relationship with the VACC
- Explore the need and appetite to increase the depth and detail of the training (i.e. from current basic training to more intermediate and advanced).



## FEDERATION TAFE

#### Federation TAFE is a leading academic and research institution for wind energy, closely collaborating with industry frontrunners such as GPG, Tilt Energy, Acciona, Vestas and Goldwind.

Federation TAFE is a dynamic hub for vocational education and training in Victoria and offers a wide range of industry-aligned programs and qualifications, preparing students and employees for success in today's evolving and competitive market.

Part of Federation University Australia, it offers a broad range of pre-employment, employment, trade and posttrade qualifications across the clean energy sector.

Federation TAFE operates across 5 campuses in Victoria: 4 in Ballarat (Gillies Street, Mt Helen, Mt Rowan and SMB) and one in Horsham.





#### WIND ENERGY

Federation TAFE has strategically identified renewable energy as a core focus of the institution. Federation TAFE offers Global Wind Organisation (GWO) Standard courses, GWO Basic Safety Training, and GWO Basic Technical Training. It is also the first in Australia to offer an apprenticeship for wind turbine blade technicians, which involves adapting the Certificate III of Engineering (Composites) to suit blade repair technician roles.

Given the onshore and offshore regional wind energy project opportunities nationally, Federation TAFE is in the process of developing a dedicated Wind Turbine Technician program based on the Germany Standard Bildungszentrum für Erneuerbare Energien (BZEE) foundational technical training program for wind operators, as well as a dedicated turbine technician training workshop.

#### CONSERVATION AND ECOSYSTEM MANAGEMENT

Federation TAFE has embedded climate mitigation skills within agriculture, horticulture and conservation offerings. It will continue to identify opportunities and work with industry to incorporate ecosystem management practices into its courses and qualifications.

#### HYDROGEN

Federation University is collaborating closely with Southwest TAFE and Deakin University to create an accredited course for hydrogen fuel cell use in heavy vehicle operations, with plans to run 3 pilot groups by the end of 2024.

Federation University is also expecting to collaborate with TAFE Gippsland to support the transition of thermal energy generation workers.

#### Clean economy courses offerings

#### AGRICULTURE AND CONSERVATION

Certificate II in Agriculture	AHC20122
Certificate III in Agriculture	AHC30122
Certificate III in Horticulture	AHC30722
Certificate III in Parks and Gardens	AHC31021
Diploma of Conservation and Ecosystem Management	AHC51120
Certificate III in Conservation and Ecosystem Management	AHC31421

#### AUTOMOTIVE

#### **BUILDING AND CONSTRUCTION**

Certificate IV in Building and Construction	CPC40120
Advanced Diploma of Building Design (Architectural)	22627VIC
Advanced Diploma of Building Surveying	CPC60121
Certificate II in Plumbing (Pre-apprenticeship)	22569VIC
Certificate III in Plumbing	CPC32420

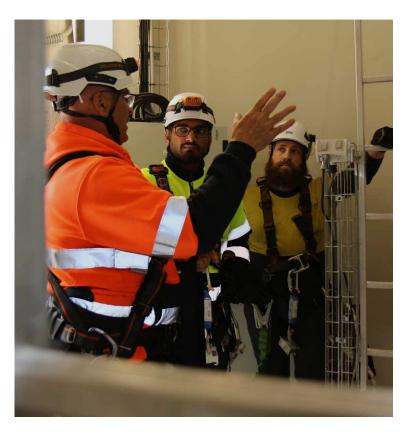
#### ELECTRICAL AND RENEWABLES

Certificate III in Electrotechnology Electrician	UEE30820
Global Wind Organisation (GWO) Basic Safety Training (BST)	Short Course
Global Wind Organisation (GWO) Basic Safety Refresher Training (BSTR)	Short Course
Global Wind Organisation (GWO) Basic Technical Training (BTT)	Short Course
Certificate II in Electrotechnology (Career Start)	UEE22020

#### ENGINEERING

Certificate III in Engineering – Fabrication Trade	MEM31922
Certificate IV in Engineering	MEM40119
Certificate IV in Engineering Drafting	MEM40422
Certificate III in Engineering Composites	MEM31119
Diploma of Engineering – Technical	MEM50222

INVESTMENT FOR COURSE EXECUTION



#### Australia's first wind turbine technician instructor

Federation TAFE has signed an exclusive agreement with the BZEE Network in Germany to deliver the globally-recognised post-trade Turbine Technician Training Course.

#### ABOUT THE INITIATIVE

There is increasing demand for renewable energy sector skills which are currently in low supply within the Australian workforce.

Federation TAFE invested in the upskilling of an automotive instructor in wind turbine technician training. This involved the instructor completing an 8-week BZEE program at the Wind Turbine Technician Academy at Kalamazoo Valley Community College (KVCC) in the United States of America.

This BZEE certification is globally regarded as a key qualification in enabling employment in the wind energy industry.

The initiative involved an exclusive agreement between Federation TAFE and the BZEE Network in Germany to deliver the globally-recognised post-trade Turbine Technician Training Course.

#### OUTCOMES AND NEXT STEPS

The instructor successfully obtained the qualification in early 2023, resulting in the first BZEE-accredited wind turbine technician instructor in Australia.

The ability to provide additional teaching expertise ('train the trainer'), positions Federation TAFE as a leader in supporting the growth of the renewable energy sector in Victoria.

Federation TAFE will be the first Victorian TAFE to deliver the BZEE post-trade Turbine Technician Training Course.

The initiative will focus on the following key next step:

• Training teachers to deliver the post-trade Turbine Technician Training Course at the Asia Pacific Renewable Energy Training Centre (APRETC) in Ballarat.

BEST PRACTICE TRAINING PROVISION

#### Leading the way for a renewable energy future

Federation TAFE, in collaboration with industry partners, has developed several wind energy initiatives, with the aim to build a skilled renewable-energy workforce in Western Victoria.

#### ABOUT THE INITIATIVES

The demand for technical skills in renewable energy is increasing, yet there is currently a shortage of these skills in the Australian workforce.

Federation TAFE has invested in several initiatives aiming to build a skilled renewable-energy workforce in Western Victoria.

Federation TAFE launched Australia's first working-at-heights simulated training tower to support training in the renewable wind energy sector at Ballarat. Stage 1 of this project was supported by leading renewable energy companies such as Vestas, ACCIONA Energia, GPG and Tilt Renewables.

An additional initiative is the delivery of the Global Wind Organisation (GWO) Standards Basic Safety Training and Basic Refresher Training, along with Certificate III in Engineering Composites.

#### OUTCOMES AND NEXT STEPS

The ability to provide innovative training facilities and unique course offerings at the Ballarat campus positions Federation TAFE as a leader in supporting the growth of the renewable energy sector in Victoria.

These initiatives will focus on the following key next steps:

- Building a skilled workforce for the fast-growing wind energy sector
- Supporting the growth of wind farm and battery storage developments in Western Victoria
- Supporting the transition away from coal-fired power generation in the Latrobe Valley.



# GOTAFE

GOTAFE has a broad clean economy presence with a focus on agriculture and technical trades, and is working with industry on the transition to natural refrigerants.

GOTAFE is the largest vocational education provider in regional Victoria. With a portfolio of over 130 courses, GOTAFE serves the educational needs of more than 9,000 students annually across 11 local government areas. The institute is deeply ingrained in the fabric of the communities it serves, with a dedicated team of more than 500 staff members.

Spanning a range of study areas, GOTAFE's offerings extend from technical trades to land and animals, ensuring a comprehensive educational experience.

GOTAFE's impact is felt across 8 campuses located in Benalla, Seymour, Shepparton, Wallan and Wangaratta.





#### AGRICULTURE

Clean economy skills have been embedded within agriculture, horticulture and viticulture offerings to ensure the surrounding region has the necessary clean economy skills. In addition, GOTAFE has secured funding to develop 10-15 short courses designed to facilitate the seamless integration of technology and clean energy practices within the agriculture sector. This initiative ensures that local professionals are wellequipped for the evolving landscape of sustainable and technologically-advanced agriculture.

#### **TECHNICAL TRADES**

GOTAFE has integrated sustainable working practices within its engineering programs, showcasing advancements such as robot welding and water jet cutting. As part of its forward-looking initiatives, the institute is actively enhancing its electric vehicle (EV) capabilities and incorporating solar technology into its hot water systems training for plumbing, with the targeted implementation scheduled by the end of 2024.

#### AIR CONDITIONING AND REFRIGERATION

GOTAFE introduced a distinctive training program in natural refrigerants in 2023. This offering was designed in collaboration with industry, featuring elements such as the service and repair of carbon dioxide refrigeration systems skill set.

#### SUSTAINABLE BEST PRACTICES

GOTAFE has embedded units that provide students with the skills to apply sustainable best practices within key sectors, including food, agriculture, transportation, and building and construction across a significant number of offerings.

#### Clean economy courses offerings

#### AGRICULTURE AND CONSERVATION

Diploma of Wine Technology	11034NAT
Diploma of Viticulture	AHC51519
Certificate IV in Horticulture	AHC40422
Certificate IV in Agriculture	AHC40116
Certificate IV in Agribusiness	AHC41019

#### AUTOMOTIVE

Certificate III in Automotive Electrical Technology	AUR30320
Automotive Air Conditioning Reskilling Course	Coming soon

#### **BUILDING AND CONSTRUCTION**

Certificate III in Air Conditioning and Refrigeration	UEE32220
Certificate IV in Building and Construction	CPC40120
Servicing Type A Gas appliances	SA4TYPEA24
Repair & Service Carbon Dioxide Refrigeration	UEESS00156
Certificate II in Plumbing (Pre-apprenticeship)	22569VIC
Certificate III in Plumbing	CPC32420
Certificate IV in Plumbing and Services	CPC40920

#### ELECTRICAL AND RENEWABLES

Certificate III in Electrotechnology Electrician	UEE30820
Certificate II in Electrotechnology (Career Start)	UEE22020
Work Health and Safety Course	SA3NATRP23

#### ENGINEERING

Certificate III in Engineering – Composites Trade	MEM31119
Certificate III in Engineering – Fabrication Trade	MEM30319
Certificate III in Engineering – Mechanical Trade	MEM30219
Certificate IV in Engineering	MEM40119

SKILL SET COURSE



#### Service and repair carbon dioxide refrigeration systems skill set

GOTAFE has created an accredited skill set in refrigeration and air conditioning, focused on the transition to  $CO_2$  natural refrigerants in collaboration with the industry.

#### ABOUT THE INITIATIVE

Following the trend towards natural refrigerants such as CO<sub>2</sub>, there is a need to enhance the related capabilities of workforces in the retail, commercial and industrial sectors.

GOTAFE has created an accredited specialised skill set focused on the transition to CO<sub>2</sub> natural refrigerants, aiming to provide the skill set needed to succeed in roles that involve managing, supervising or working in proximity to CO<sub>2</sub> refrigerant equipment.

The skill set was developed in partnership with CA GROUP SERVICES (a refrigeration specialist in the North Central Victoria region) and a large Australian supermarket chain and is being delivered using a specially-designed mobile training pod.

This initiative is a step in the right direction of the Victorian Clean Economy Strategy on a specialised yet valuable topic.

#### OUTCOMES AND NEXT STEPS

The pilot training program was rolled out in 2023 for a group of 15 attendees from the partner Australian supermarket chain and will scale up in 2024.

The program will focus on the following key next steps:

- Pursuing emerging industry interest to expand the program and extend it accordingly in 2024
- Reflecting on a potential nationwide roll out of the skill set.

# HOLMESGLEN INSTITUTE



#### Holmesglen Institute is a clean economy leader with a broad clean economy sector presence and focus on construction innovation and electrotechnology.

Holmesglen Institute is a leading provider of vocational and higher education and one of the largest government-owned TAFEs in the state of Victoria. It has 40 years of experience and more than 140,000 graduates.

Holmesglen Institute offers over 500 courses, ranging from skill sets and short courses to higher education diplomas and apprenticeships in an array of sectors.

The TAFE operates from 7 campuses at 6 locations across Victoria in Chadstone, Moorabbin, Glen Waverley, Bourke Street, North Melbourne and Eildon.



#### ELECTROTECHNOLOGY

Holmesglen Institute's electrotechnology curriculum spans a range of courses relevant to the clean economy. The institute places a strong emphasis on practical training tailored to industry needs, with a focus on solar energy generation, battery storage and installation and maintenance of electric vehicle charging stations.

Holmesglen's Moorabbin campus is home to its solar energy training facilities with dedicated infrastructure and technologies supporting its qualifications for pre-apprentices and apprentices, and microcredentials for existing electrotechnology tradespeople.

#### ELECTRICTY SUPPLY INDUSTRY

Holmesglen Institute plays a vital role in providing workforce solutions for the electrical supply industry, including training apprentices who are the next generation of linesworkers for both overhead and underground distribution. Programs are delivered from Australia's premier electrical supply training facility with an extensive overhead distribution pole and underground distribution yard configuration.

#### **BUILDING AND CONSTRUCTION**

Holmesglen is renowned for its building and construction trade and professional programs and has embedded sustainable building design, construction and fit out practices within them. Specialist facilities support the delivery of these programs, including a fully electric energy efficient house that incorporates smart technologies and energy efficient appliances.

The institute has also established a leadership role in undertaking applied research in collaboration with industry. Its membership in the Building 4.0 Cooperative Research Centre, is the flagship of its applied research with the building and construction industry.

#### Clean economy courses offerings

#### AGRICULTURE AND CONSERVATION

Certificate III in Parks and Gardens (Apprenticeship and Non-apprenticeship)	AHC31021
Diploma of Horticulture	AHC50416
Certificate IV in Conservation and Ecosystem Management	AHC40920
Diploma of Conservation and Ecosystem Management	AHC51120

#### BUILDING AND CONSTRUCTION

Certificate IV in Building and Construction (Building)	CPC40120
Course in Civil Construction Pathway	22617VIC
Certificate III in Bricklaying and Blocklaying (Apprenticeship)	CPC33020
Diploma of Building and Construction (Building)	CPC50220
Advanced Diploma of Building Design (Architectural)	22477VIC
Certificate II in Plumbing (Pre-apprenticeship)	22569VIC
Certificate III in Plumbing – General Plumber Roofing and Mechanical (Apprenticeship)	CPC32420
Certificate IV in Plumbing and Services (Operations)	CPC40920

#### ELECTRICAL AND RENEWABLES

Certificate II in Electrotechnology (Career Start)	UEE22020
Certificate III in Electrotechnology Electrician (Apprenticeship)	UEE30820
Certificate III in Electrical Fitting (Apprenticeship)	UEE33020
Certificate III in ESI – Distribution Overhead (Apprenticeship)	UET3062
Certificate III in ESI – Distribution Underground (Apprenticeship)	UET3082
Course in Electric Vehicle Charging Infrastructure up to 22kW	22609VIC
Course in Working Safely in the Solar Industry	22515VIC
Grid-connected Photovoltaic Systems Designer-Installer (Skill Set)	UEESS00194
Grid-connected Photovoltaic and Battery Storage Systems Designer (Skill Set)	UEESSO0193
Grid-connected Battery Storage Systems Designer-Installer (Skill Set)	UEESSO019
Off-grid Photovoltaic/Generating Set Systems Designer-Installer (Skill Set)	UEESSO019
Off-grid Photovoltaic/Generating Set Systems Designer-Installer (Skill Set)	UEESS00205

#### ENGINEERING

Certificate III in Engineering – Fabrication Trade (Apprenticeship)	MEM30319
Certificate IV in Engineering (Welding Pathway)	MEM40119

#### OTHER

Bachelor of Fashion Design	BFD23
Diploma of Outdoor Leadership with Certificate III in Tourism	SIS50421

TRAINING PROVISION

#### Micro energy generation – grid connect

Holmesglen Institute has incorporated its renewable energy supply infrastructure into the training undertaken by electrical supply overhead distribution and underground distribution/cable jointing apprentices.

#### ABOUT THE INITIATIVE

In 2022, Holmesglen Institute installed photovoltaic panels to generate 330 kW of electricity at its Drummond Street campus. This electricity is used by the campus and the local community. The connection between the campus supply and the surrounding electrical network distribution infrastructure has been installed in a way that apprentices can observe and understand these connections.

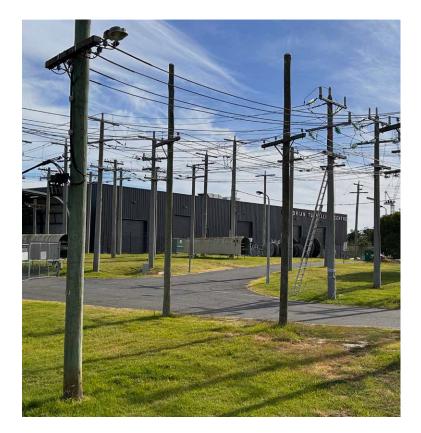
The need for apprentices to have the opportunity to observe and understand electrical connections from generation sources greater than 100 kW was identified by the Electrical Linesworker Apprentice Committee. The committee comprises representatives of the providers who install and maintain electrical networks across Victoria. It meets quarterly with Holmesglen staff to advise on training needs, changes in electrical infrastructure and apprentice progress.

The electrical linesworker facility at the Drummond Street campus is a purpose-built training centre for distribution overhead and underground distribution/cable jointing apprentices. The campus is located adjacent to the Monash Freeway enabling apprentices from across the state to travel to a geographically centralised location for their training.

#### OUTCOMES AND NEXT STEPS

Demand for skills to install and maintain large-scale grid connections has increased as businesses with large amounts of roof space install energy generation plants utilising photovoltaic panels that generate large amounts of power for use by the business or to transfer into the local distribution network. The large-scale grid connection at Drummond Street has enabled apprentices and existing linesworkers to build their knowledge and understanding of grid connections as part of their existing apprenticeship and skill development.

Electrical distribution networks are moving from the generation of large amounts of energy in a few locations to the generation of energy across thousands of micro generation sites. This will require electrical linesworkers to install and maintain systems that control energy flow and store energy in pole top and community batteries. Holmesglen's existing relationships with industry will enable it to quickly respond with training solutions to meet industry needs at the linesworker training centre.



TRAINING PROVISION



#### Installation and maintenance of Electric Vehicle charging infrastructure

Holmesglen Institute has incorporated its renewable energy supply infrastructure into the training of electricians to undertake the installation and maintenance of Electric Vehicle charging stations at its Moorabbin campus.

#### ABOUT THE INITIATIVE

In 2022, Holmesglen Institute installed two large carports in the car park of its Moorabbin campus. The roofs of these carports are made up of photovoltaic panels, which generate electricity that is stored in batteries adjacent to the carport. The electricity stored in these batteries is then used by motorists to charge their vehicles when they are visiting the campus to take classes or attend the Holmesglen Private Hospital.

Demand for electric vehicle charging stations has risen sharply and Holmesglen has worked with the Electrical Trades Union, the electric vehicle association, electrical contractors and Energy Safe Victoria to develop and pilot the Course in Electric Vehicle Charging Infrastructure up to 22kW. This program is structured to provide electricians with the skills and knowledge to install and provide ongoing maintenance for electric vehicle charging stations.

#### OUTCOMES AND NEXT STEPS

This course has enabled Victoria's electricians to gain the skills required to enable them to install and maintain Electric Vehicle charging stations across the state. It complements the programs Holmesglen offers in the design and installation of photovoltaic panels and battery storage and is creating a new group of electricians who a working with the new energy technologies that are supporting Victoria's transition to a clean economy.

The capability of Holmesglen's renewable energy trainers will enable them to quickly adopt and develop training programs that utilise the latest technologies for the generation and storage of renewable electricity. This mindset will also be passed onto the next generation of electrical apprentices who undertake their apprenticeship in renewable energy at Holmesglen Institute.

# MELBOURNE POLYTECHNIC



Melbourne Polytechnic showcases its commitment to the clean economy with cutting-edge electrotechnology programs for building electrification, pioneering construction waste management, and offerings in sustainable agriculture, horticulture and circular economy innovation.

Melbourne Polytechnic stands out for its century-long history in vocational training and is one of Victoria's largest educational providers, offering a blend of practical TAFE and degree courses designed for real-work skills.

The institute prides itself on industry-experienced teachers, personalised and flexible learning pathways and training facilities that simulate real-work environments.

Committed to inclusivity and equality, Melbourne Polytechnic fosters a diverse and respectful community for students and staff.

Melbourne Polytechnic delivers from 7 campuses in Collingwood, Epping, Fairfield, Greensborough, Heidelberg, Prahran and Preston.



#### ELECTROTECHNOLOGY

Melbourne Polytechnic is known for its exceptional electrical programs and is proactively enhancing its curriculum to support the transition to the electrification of residential and commercial buildings.

#### CONSTRUCTION

Melbourne Polytechnic is modelling best practices for waste management on building and construction sites, with units embedded across all offerings.

#### AGRICULTURE AND HORTICULTURE

Melbourne Polytechnic offers courses in agriculture and conservation with units related to the clean economy, covering topics such as future farming technologies, environmental management, agronomy and sustainable horticulture practices.

#### 32 CIRCULAR ECONOMY INNOVATION

Melbourne Polytechnic has been at the forefront of circular economy innovation for a decade, demonstrating its commitment to embedding these principles across its entire portfolio.

#### Clean economy courses offerings

#### AGRICULTURE AND CONSERVATION

Bachelor of Agriculture and Technology – Agronomy	HEPIBAT
Certificate IV in Horticulture	AHC40416
Diploma of Horticulture	AHC50416
Undergraduate Certificate in Viticulture and Winemaking	HEUGCVM
Diploma of Conservation and Ecosystem Management	AHC51120

#### BUILDING AND CONSTRUCTION

Advanced Diploma of Building Design (Architectural)	22477VIC
Certificate IV in Building and Construction	CPC40120
Certificate II in Plumbing (Pre-apprenticeship)	22569VIC
Certificate III in Plumbing	CPC32420
Short Course in Plumbing Examination Revision	NA
Short Course in Plumbing Registration Exam	NA

#### ELECTRICAL AND RENEWABLES

Certificate III in Electrotechnology Electrician	UEE30820
Certificate II in Electrotechnology (Pre-vocational)	22499VIC

#### ENGINEERING

Certificate III in Engineering – Fabrication Trade – Boiler making/Welding	MEM30319
Certificate III in Engineering – Fabrication Trade – Sheetmetal Working	MEM30319
Certificate III in Engineering – Mechanical Trade	MEM30219
Bachelor of Engineering Technology (Civil)	HEBETC
Advanced Diploma of Engineering Technology – Civil Engineering Design	22479VIC

SUSTAINABLE TECHNOLOGY

#### The SLURRYTUB

Melbourne Polytechnic incorporates the SLURRYTUB in landscaping workshops to recycle sand and lime, and to educate students on proper waste management.

#### ABOUT THE INITIATIVE

Recycling landscaping waste, such as sand and lime, contributes to the state's waste reduction targets by diverting material from landfills and reducing the need for new resources. Such recycling initiatives support the transition to a circular economy by ensuring materials are reused and recycled.

Since 2022, Melbourne Polytechnic has been using the SLURRYTUB to recycle sand and lime in the landscaping workshops.

The SLURRYTUB is a portable filtering system that captures and filters wet trade slurry. The Australian invention provides a versatile, eco-friendly method for cleaning tools and equipment. Its mobile design makes it suitable for a wide range of trade applications.

Melbourne Polytechnic was the first Victorian TAFE to adopt the SLURRYTUB and provide best practice waste-management tools for the landscaping trade.

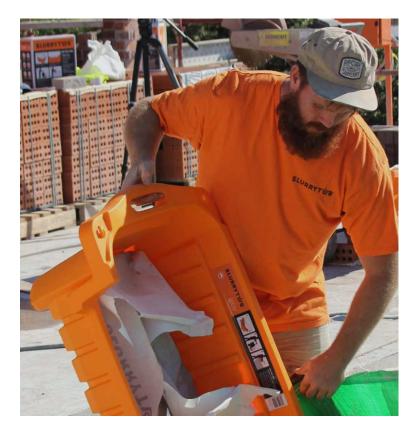
#### OUTCOMES

The SLURRYTUB has the potential to reduce waste by approximately 3m3 of sand mix (4.5 tonnes) per annum at the Melbourne Polytechnic Fairfield campus.

By using the SLURRYTUB, students are trained on proper waste management and environmental practices. Both students and teachers are trained on the application and benefits of the SLURRYTUB.

Students are encouraged to highlight the benefits of the SLURRYTUB to their employers, with numerous students having effectively influenced their employers to invest in a unit.

Moving forward, Melbourne Polytechnic aims to extend the use of the SLURRYTUB to other trade courses.



INVESTMENT FOR COURSE EXECUTION



#### Advanced Manufacturing Centre of Excellence

Melbourne Polytechnic's Advanced Manufacturing Centre of Excellence (AMCOE) brings together the very best of manufacturing technology with world-class training to enable students and industry to develop clean economy and circular economy innovations.

#### ABOUT THE INITIATIVE

Since opening its doors in June 2022 at Melbourne Polytechnic's Heidelberg campus, AMCOE's student numbers have grown 280%, with 68 apprentices connected to industry and 19 already completing their Certificate III in Mechanical Engineering.

The \$3.22 million AMCOE facility was funded with the help of \$1.4 million from Apprenticeships Victoria to help up-skill existing workers and supply the future workforce. A range of employers and industry partners have been involved in the development of AMCOE, including Sutton Tools and Integra Systems.

AMCOE students gain a thorough understanding of traditional manufacturing processes together with the latest technologies and approaches used in advanced manufacturing, such as the redesign and reimagining of products through the use of circular economy principles.

#### OUTCOMES

While AMCOE already delivers industrystandard workforce training in advanced manufacturing technologies through its engineering trades qualifications, it is also open to new opportunities and collaborations with a clean economy focus.

Melbourne Polytechnic is keen to hear from industry partners that can provide students with access to leading-edge technology and machinery used in current advanced manufacturing industry settings, as well as exploring applied research projects that support the transition to more efficient and sustainable manufacturing practices.

INNOVATION IN COURSE DELIVERY

### Mobile bee-keeping classroom

Melbourne Polytechnic's Certificate III in Beekeeping is the first of its kind in Victoria, delivering the knowledge and skills to provide crucial pollination services for the agricultural industry and ecosystems through a solar-powered mobile classroom.

#### ABOUT THE INITIATIVE

An innovative and sustainable course delivery model was required to bring hands-on beekeeping training to students, industry partners and communities spread across the state. Melbourne Polytechnic developed a solar and battery-powered mobile classroom for beekeeping education, affectionately known as 'the Polynator.'

Melbourne Polytechnic partnered with advanced manufacturing experts MaxiTRANS to create an off-grid trailer specifically designed for hands-on beekeeping training to be delivered where bees are already working. Nine solar panels were installed on the roof, lying flat to comply with height and wind resistance restrictions. These panels power batteries built into the trailer, generating enough electricity to run the equivalent of 2 households. Beneath the batteries is a water storage unit, providing hot water, essential for honey extraction and other tasks.

Not only has this initiative bridged a regional gap in educational delivery, but it has also demonstrated the use of clean energy production and storage to support flexible agricultural education.

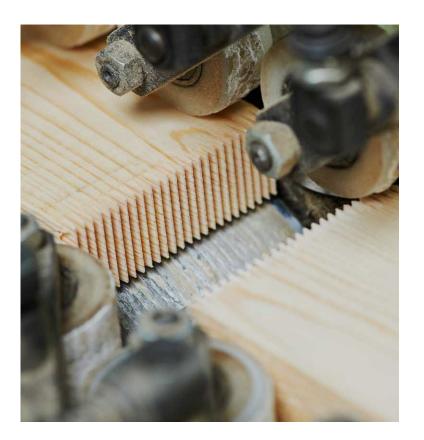
#### OUTCOMES AND NEXT STEPS

The mobile beekeeping classroom embarked on its first course in 2023, providing students and industry partners with a unique and practical learning experience not achievable in a traditional classroom. The positive early buzz highlights the success of this initiative and its possible broader applications for training delivery with a clean economy focus.

Melbourne Polytechnic's diverse course offerings open the possibility of revolutionising vocational education through mobile, off-grid classrooms, offering handson training in fields such as agriculture, horticulture, plumbing and locksmithing.



INFRASTRUCTURE PROCUREMENT



## Finger jointing machine

At Melbourne Polytechnic Heidelberg campus, the technical staff took a proactive step to address significant construction waste issues. Implementing the finger jointing machine is an innovative solution to minimise new timber purchases and lessen landfill waste through recycling timber offcuts.

#### ABOUT THE INITIATIVE

Recycling timber waste contributes to reducing landfill waste and is important for advancing towards a circular economy by repurposing wood resources.

The Melbourne Polytechnic Heidelberg campus has implemented the finger jointing machine as an innovative approach to addressing one construction waste issue – timber waste.

This machine facilitates the adhesive bonding of 2 wood pieces to create a robust joint and form a complete piece. Its application extends across various disciplines such as joinery, cabinet making, shop fitting, carpentry, construction and furniture making.

#### OUTCOMES AND NEXT STEPS

Since using the finger jointing machine, Melbourne Polytechnic has diverted 176 tonnes of timber waste from landfills annually, reducing waste removal costs and minimising timber procurement expenses.

This initiative allowed students to learn how to work with the machine and understand the financial and environmental advantages of proper waste management and recycling technologies.

To expand on waste management initiatives, Melbourne Polytechnic has plans to install a sawdust briquette machine to capture sawdust waste from the machinery workshop.

# RMIT



# RMIT is developing its clean economy capabilities, working on a dedicated strategy, and has established clean economy capabilities in specific sectors.

RMIT College of Vocational Education (CoVE) incorporates social care and health, business and enterprise, future technologies, creative industries, and the built environment and sustainability.

Employing more than 1,000 teachers and employees, the CoVE provides industry-relevant programs and exceptional student experiences to approximately 16,000 VET students and a further 4,500 Associate Degree students both onshore and offshore.

The RMIT University Group has 3 campuses (Melbourne city, Bundoora and Brunswick) and 2 sites (Point Cook and Bendigo) in Victoria, 2 campuses in Vietnam and a research and industry collaboration centre in Spain.



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# Clean economy focus areas

#### ELECTROTECHNOLOGY

RMIT has a great reputation for trades programs, especially in electrotechnology, and has embedded clean economy topics (e.g. solar) within them. RMIT is continually reviewing offerings to maintain their relevance by actively conducting skills-gap analysis with subject matter experts and following up on emerging trends (e.g. building electrification).

#### FASHION AND TEXTILE

RMIT has created a strong legacy in the fashion and textile space. Related programs have a well-established sustainability focus on circularity and have general sustainability best practice units embedded.

#### **BUILDING AND CONSTRUCTION**

RMIT has several offerings in building and construction and is working to deepen the focus on sustainability and clean economy in these qualifications. It is also engaged with industry partners to develop skill sets in sustainable building design and has a partnership with the City of Melbourne, the University of Melbourne and Trades Hall on the retrofitting, refurbishment and re-purposing of a collection of CBD buildings.

# Clean economy courses offerings

#### AGRICULTURE AND CONSERVATION

Diploma of Conservation and Ecosystem Management AH	HC51120
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#### BUILDING AND CONSTRUCTION

Certificate III in Air Conditioning and Refrigeration	UEE32220
Advanced Diploma of Building Design (Architectural)	22477VIC
Diploma of Building and Construction (Building)	CPC50220
Certificate II in Plumbing (Pre-apprenticeship) – RMIT University	22569VIC
Certificate III in Plumbing – RMIT University	CPC32420
Journeyman's Exam: Plumbing Registration	NA
Journeyman's Exam: Plumbing Registration repeat	NA

#### ELECTRICAL AND RENEWABLES

Certificate II in Electrotechnology (Pre-vocational)	22499VIC
Certificate III in Electrotechnology Electrician	UEE30820
Course in Working Safely in the Solar Industry	CONISS012

#### ENGINEERING

Advanced Diploma of Electronics and Communications Engineering	UEE60220
Advanced Diploma of Engineering (Mechanical)	MEM60112
Advanced Diploma of Engineering Technology – Electrical	UEE62111
Advanced Diploma of Engineering Technology (Civil Engineering Design)	22479VIC

#### OTHER

Certificate III in Clothing and Textile Production (Clothing Production)	MST30119
Certificate IV in Textile Design, Development and Production	MST40119

COURSE DEVELOPMENT

RMIT

# Clean Economy Workforce Capability Building Fund – Sustainable Building Design Project

RMIT Centre of Vocational Education (CoVE) is currently developing 3 new skill sets around sustainable building design in partnership with industry and employer networks.

#### ABOUT THE INITIATIVE

The construction industry is one of the major contributors to carbon emissions and waste globally. Therefore, new qualifications in the area are highly relevant, tackling various aspects of cleaner construction (e.g. building design, material reuse).

As part of the Clean Economy Workforce Capability Building Fund, the CoVE is developing 3 new skill sets that can be delivered as standalone skill sets or combined to form a stackable Certificate IV gualification in Sustainable Building Design.

Industry has been heavily involved in the development of the skill sets through consultation and co-design. Other key stakeholders in the partnership include employer networks and the Melbourne Chamber of Commerce.

The resulting skill sets aim to be highly accessible, as they can be undertaken by current students, upskilling employees and construction project managers to complement broader qualifications.

#### OUTCOMES AND NEXT STEPS

The program will generate 3 skill sets in partnership with industry and employer networks to complement existing programs. They will also be proposed as a standalone certificate program to create a formal qualification. These will be available on the Melbourne City campus in 2024.

The course development program will focus on the following key steps:

- Delivering a pilot program to 2 cohorts per skill set to test and refine the product scope and delivery model
- Pursuing accreditation and funding for related skill sets and proposed Certificate IV program.



# SOUTH WEST TAFE

South West TAFE leverages its prime location in one of Victoria's renewable energy zones to enhance its solar and battery storage offerings and foster strong industry partnerships to address evolving workforce demands.

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South West TAFE, located along Victoria's Great Ocean Road region, is the leading vocational education provider in southwest Victoria.

The institution offers more than 150 practical and industryrelevant qualifications and short courses. The courses are designed to meet current workplace demands, ensuring students gain the skills necessary for their future careers through flexible and up-to-date teaching methods.

South West TAFE delivers training from 5 campuses across Warrnambool, Hamilton, Portland and Colac, with training facilities at Glenormiston and Sherwood Park (Deakin Warrnambool).





### Clean economy focus areas

#### SOLAR AND SOLAR BATTERY STORAGE

South West TAFE currently offers highly reputable solar training. The key offering is a course in safe work practices within the solar industry, with an upcoming addition focusing on solar battery storage installation.

#### PRIVATE AND PUBLIC TRANSPORT

South West TAFE is currently engaged in 2 partnership programs focused on reducing the emissions associated with private and public transport.

#### AGRICULTURE AND CONSERVATION

South West TAFE offers a diverse range of agriculture and conservation courses. In these courses, students have the opportunity to learn the necessary skills and knowledge to excel in sustainable practices. Students can study units relevant to soil health, biosecurity measures and plant establishment programs.

#### SUSTAINABLE BEST PRACTICES

South West TAFE offers units that provide students with the skills to apply sustainable best practices within key sectors, including transportation, building and construction, and agriculture.

### Clean economy courses offerings

#### AGRICULTURE AND CONSERVATION

Diploma of Conservation and Ecosystem Management	AHC51120
Certificate II in Agriculture	AHC20116
Certificate III in Agriculture	AHC30116
Certificate IV in Agriculture (Traineeship)	AHC40116
Diploma of Agriculture	AHC50116
Certificate III in Horticulture (Traineeship)	AHC30716
Certificate III in Horticulture	AHC30716
Certificate III in Nursery Operations (Apprenticeship)	AHC31120

#### AUTOMOTIVE

Certificate II in Automotive Vocational Preparation	AUR20720
Certificate III in Light Vehicle Mechanical Technology (Apprenticeship)	AUR30620
Certificate II in Automotive Air Conditioning Technology	AUR20220

#### **BUILDING AND CONSTRUCTION**

Certificate IV in Building and Construction	CPC40120
Certificate III in Civil Construction – Road Construction and Maintenance (Traineeship)	RII30920
Certificate III in Landscape Construction (Apprenticeship)	AHC30921
Certificate III in Plumbing (Apprenticeship)	CPC32420
Certificate IV in Plumbing and Services	CPC40920

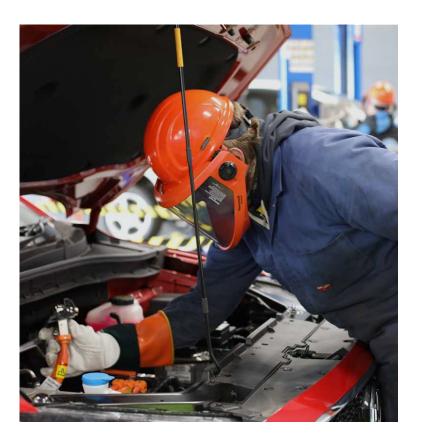
#### ELECTRICAL AND RENEWABLES

Certificate II in Electrotechnology Studies (Pre-vocational)	22499VIC
Certificate III in Electrotechnology Electrician (Apprenticeship)	UEE30820
Course in Working Safely in the Solar Industry	22515VIC
Solar Battery Storage Installation	Coming soon

#### ENGINEERING

Certificate III in Engineering – Fabrication Trade (Apprenticeship)	MEM30319
Certificate III in Engineering – Mechanical Trade (Apprenticeship)	MEM30219
Certificate IV in Engineering	MEM40119

INVESTMENT FOR COURSE DELIVERY



### South West Victoria eVehicle Program

In partnership with the automotive industry, South West TAFE has leveraged the South West Victoria eVehicle Funding Program to train new, and upskill existing regional workers on EVs.

#### ABOUT THE INITIATIVE

As the automotive industry rapidly pivots towards electric vehicles, it is essential for mechanics to acquire new skills and upskill to maintain and repair the electrical systems and components specific to electric vehicles.

The South West Victoria eVehicle Funding Program has enabled South West TAFE to offer new units in electric vehicle technology to empower mechanics with the latest skills in EV maintenance and repair.

This program has been achieved in partnership with Callaghan Motors, Norton Motor Group and the Warrnambool Automotive Group, who have supported the initiative and consistently chosen South West TAFE to train their automotive apprentices over many years.

This investment allows South West TAFE to put itself at the forefront of specialised EV training, adapting to industry trends and ensuring the regional workforce remains at the cutting edge of automotive technology.

#### OUTCOMES AND NEXT STEPS

The funding enabled South West TAFE to offer 4 units of competency and a fifth non-accredited short course for first responders. In addition, the fund was used to modernise and upgrade learning spaces and facilities, and to purchase new and advanced learning simulators, diagnostic software and other learning assets.

Located in Warrnambool, the initial pilot program commenced in 2022 and in 2024 will move into a business-as-usual model.

The partnership is delivering the following outcomes:

- Running the program as an ongoing part of apprenticeship training in the region
- Conducting a first responders course
- Upskilling existing mechanics
- Acquiring pre-owned EVs for the teaching department that offer cost savings and a greater variety of diagnostic challenges.

COURSE DEVELOPMENT PARTNERSHIP

## Hydrogen Fuel-cells in Heavy Vehicle Operations Project

South West TAFE, collaborating with industry leaders and academic experts, has developed a unique course focused on the application of hydrogen fuel-cells in heavy vehicle operations.

#### ABOUT THE INITIATIVE

As the Victorian Government focuses on reducing emissions across all sectors, considering the high emissions from the public transport sector, hydrogen fuelcell technology offers a clean alternative that can significantly reduce emissions and environmental impacts of the sector. The worldwide adoption of hydrogenpowered electric buses demonstrates the environmental advantages of this technology.

South West TAFE, Warrnambool Bus Lines, AC Transit, Deakin University and Federation University are working in collaboration to develop and deliver a new set of accredited units critical for hydrogen use and fuel-cell electric buses. Training will be available for employees, drivers and mechanics and is adaptable for various FCEV bus types.

The strength of the partnership with industry, researchers and educators is pivotal to the success of this project, with all bringing specialised expertise and resources to drive the initiative forward.

#### OUTCOMES AND NEXT STEPS

Located in Warrnambool, the pilot program commenced in 2022 and in late 2024 will move into a practical phase.

The aim of the collaboration is to provide flexible learning and assessment resources that are accessible online and in person.

In addition, the program seeks to develop an equipped mobile skills lab fitted out with specialist FCEV training equipment.

The partnership will focus on the following key steps:

- Obtaining VRQA approval
- Commencing course resource writing and instructional design work in early 2024 and concluding in mid-2024.



# SUNITAFE

SuniTAFE excels in providing targeted education and partnerships in clean economy initiatives, with a focus on hydrogen technology, high-tech agriculture and electric vehicle safety.

44 Founded more than 40 years ago, SuniTAFE offers a wide range of vocational courses designed to prepare students with employable skills and the opportunity for university advancement through its University Pathway program.

> SuniTAFE is concentrating on industries such as horticulture, transport, logistics, automotive and health, identified as growth areas in the region, to better serve its students, industry and local communities.

With 2 campuses, in Mildura and Swan Hill, and a training farm in Cardoss, SuniTAFE has extended its reach across all states and territories through educational partnerships.





### Clean economy focus areas

#### AGRICULTURE

SuniTAFE has a dedicated facility, a SMART Farm campus, and courses focused on cuttingedge agricultural and horticultural tech and techniques. Moreover, SuniTAFE is active in the Loddon Mallee Circular Economy Plan, examining waste management solutions given the area's extensive food production.

#### CONSERVATION AND ECOSYSTEM MANAGEMENT

SuniTAFE offers robust programs in conservation and ecosystem management, including biosecurity in its Nursery Operations course. A new Protected Horticulture course is enhancing its educational suite in these vital areas.

#### ELECTRIC VEHICLES

SuniTAFE offers a concise course on EV risks and fundamental safety measures, designed for local dealerships and emergency personnel. This has led to strategic alliances with key regional auto dealerships.

#### HYDROGEN

SuniTAFE Mildura campus is strategically positioned to support hydrogen hub development. The Mallee Region Innovation Centre, collaborating with Melbourne University and Latrobe University, explores hydrogen use in tractors and cars, aligning with industry partners. SuniTAFE is crucial in delivering targeted training for the integration of hydrogen vehicles and gas network transition in the region.

## Clean economy courses offerings

#### AGRICULTURE AND CONSERVATION

Certificate III in Nursery Operations	AHC31120
Certificate II in Conservation and Ecosystem Management	AHC21020
Certificate III in Conservation and Ecosystem Management	AHC31421
Certificate IV in Conservation and Ecosystem Management	AHC40920
Diploma of Conservation and Ecosystem Management	AHC51120
Certificate II in Protected Horticulture	AHC21819

#### AUTOMOTIVE

Hybrid and Electric Vehicle Course	SCAUR30620HE
Certificate III in Light Vehicle Mechanical Technology	AUR30620
Certificate III in Automotive Electrical Technology	AUR30320

#### **BUILDING AND CONSTRUCTION**

Certificate II in Plumbing (Pre-apprenticeship)	22569VIC
Certificate III in Plumbing	CPC32413

#### ELECTRICAL AND RENEWABLES

Certificate III in Electrotechnology Electrician	UEE30820
Certificate III in Electronics and Communications	UEE30920
Course in Working Safely in the Solar Industry	22515VIC
Certificate II in Electrotechnology (Career Start)	UEE22020

#### ENGINEERING

Certificate II in Engineering Pathways	MEM20413
Certificate III in Engineering – Mechanical Trade	MEM30219
Certificate III in Engineering – Fabrication Trade	MEM30319

RESEARCH PARTNERSHIP



# Mallee Hydrogen Technology Cluster

SuniTAFE collaborates with industry and academic partners as part of the Mallee Regional Innovation Centre and is committed to contributing to accelerating the development of the hydrogen ecosystem in the region.

#### ABOUT THE INITIATIVE

Hydrogen holds immense potential for transforming the agriculture sector and offers a wide range of applications within the sector.

SuniTAFE, in partnership with Victorian Government, University of Melbourne, Latrobe University and industry collaborators like Dried Fruits Australia, HyperSens, Murray Darling Basin Authority and One Basin CRC, forms part of the of the Mallee Hydrogen Technology Cluster.

Directed by the Mallee Regional Innovation Centre (MRIC), the cluster aims to accelerate the development of a hydrogen ecosystem within 3-5 years, concentrating on fostering innovation and research, enhancing skills and capabilities, and attracting investment to advance the hydrogen sector forward.

#### OUTCOMES AND NEXT STEPS

The cluster has generated multiple reports, strategies such as Hydrogen Roadmap-Mallee and project plans for integration of hydrogen into the heavy transport sector.

Future steps include continued partnership, research advancements and advocacy efforts to propel the hydrogen industry forward.

COURSE DELIVERY

## **Beon Energy Solutions Solar Farm**

SuniTAFE successfully delivered a training program that brought 17-20 apprentices up to industry standards for the Beon Energy Solutions Solar Farm Project.

#### ABOUT THE INITIATIVE

Solar energy is a crucial technology for Victoria to achieve its net zero targets due to its ability to generate clean and renewable energy.

Within an 18-month period, SuniTAFE provided workforce training for the Beon Energy Solutions' 120MW solar farm project south of Mildura.

#### OUTCOMES AND NEXT STEPS

Throughout the project, SuniTAFE trained apprentices to meet industry benchmarks, facilitating the project's successful execution.

SuniTAFE aims to increase investment in solar training programs to continue meeting the evolving demands of the industry.



PROJECT PARTNERSHIP



# Agriculture crop development and water usage

SuniTAFE has collaborated with Agromillora, providing land to facilitate planting, research and harvesting activities, aiding in the effective shift from grape cultivation to other appropriate crops.

#### ABOUT THE INITIATIVE

In response to a decline in grape demand, dwarf plantings of almonds and olives were considered to enable vines to be removed and replaced by dwarf plantings in the same lines.

SuniTAFE is working in collaboration with Agromillora to facilitate an efficient changeover of plantings from grape to alternative harvests.

Land supplied by SuniTAFE is being used for purposes of planting, research and harvesting.

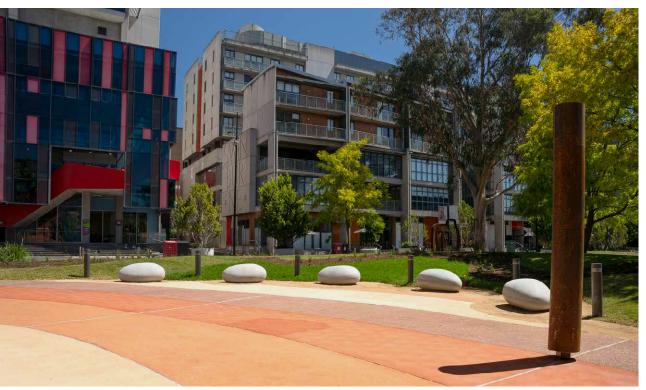
This project demonstrates innovative re-use of existing land and resources to enhance sustainability.

#### OUTCOMES

This project is supporting the establishment of pilot crop production and development of dwarf olive and almond varieties.

SuniTAFE aims to continue providing its support and expertise for this project.

# SWINBURNE UNIVERSITY OF TECHNOLOGY



# Swinburne University is developing its clean economy capabilities with a focus on hydrogen, electrotechnology and engineering.

Swinburne University provides vocational education and training (VET) courses for students who want to gain practical skills or have the opportunity to progress to another qualification.

Swinburne University's VET study areas include design, media, ICT, business, finance, health, science, education, community services, trades and engineering technologies.

The Swinburne University network has 3 campuses based in Melbourne (Hawthorn, Croydon and Wantirna) and one in Malaysia (Sarawak).



TAFE OVERVIEW

## Clean economy focus areas

#### ELECTROTECHNOLOGY AND ENGINEERING

Swinburne University is known for offering practical, hands-on experience to students across the fields of electrotechnology and engineering. It has expanded these offerings with sustainable work practice units, especially with a focus on energy sector challenges. Swinburne University continues to build out capabilities in renewable energy, especially in high-demand electrical courses.

#### HYDROGEN

As one of the top 300 dual-sector institutions in the world, Swinburne University has extensive research capabilities (i.e., researchers, specialist institutes and centres, strategic platforms, and initiatives). Swinburne University leverages this in the Victorian Hydrogen Hub (VH2), leading the research and development of the Victorian hydrogen sector. This hub was created through Swinburne University partnering with CSIRO and Germany's AERNA 2036 (along with 14 other industry partners) and serves as a major national precinct for researching and developing the hydrogen sector.

## Clean economy courses offerings

#### **BUILDING AND CONSTRUCTION**

Certificate IV in Building and Construction	CPC40120
Diploma of Building and Construction (Building)	CPC50220
Advanced Diploma of Building Design (Architectural)	22477VIC
Certificate II in Plumbing (Pre-apprenticeship)	22569VIC
Certificate III in Plumbing	CPC32420
Certificate IV in Plumbing and Services (Operations)	CPC40920

#### ELECTRICAL AND RENEWABLES

Certificate III in Electrotechnology Electrician	UEE30820
Certificate II in Electrotechnology (Career Start)	UEE22020

#### ENGINEERING

Advanced Diploma of Engineering Technology (Civil Engineering Design)	22479VIC
Advanced Diploma of Engineering Technology (Mechanical Engineering Design)	22479VIC
Advanced Diploma of Engineering Technology (Mechatronics Engineering Design)	22479VIC
Certificate III in Engineering – Mechanical Trade	MEM30219
Certificate III in Engineering – Fabrication Trade	MEM30319
Advanced Diploma of Engineering Technology – Electrical	UEE62111

# TAFE GIPPSLAND



## TAFE Gippsland supports development of region-specific emerging sectors like offshore wind and biomanufacturing, and aligns with state-wide trends in solar and engineering.

As a local institution, TAFE Gippsland is passionate about giving everyone in the Gippsland region the opportunity to undertake quality and reliable vocational training. Teaching methods and learning environments are specially designed to give students the chance to get hands-on, develop real skills and gain the experience they need to transform their future.

TAFE Gippsland offers a diverse range of programs from pre-apprenticeships and accredited short courses to certificates and advanced diplomas in an array of sectors.

TAFE Gippsland has strong geographical presence with 13 campuses across 9 locations (Bairnsdale, Forestec, Seamec, Leongatha, Morwell, Sale, Traralgon, Warragul and Yallourn).



## Clean economy focus areas

#### SOLAR, ELECTROTECHNOLOGY AND ENGINEERING

TAFE Gippsland is established in solar and electrotechnology. On electrotechnology, TAFE Gippsland has unique offerings in Victoria, such as an apprenticeship in Certificate III in Instrumentation and Control. TAFE Gippsland offers solar, battery storage and installation qualifications and will continue to support future big battery and solar farms commencing in the region.

#### BIOMANUFACTURING

TAFE Gippsland committed and continues to commit efforts to support Gippsland's future biomanufacturing needs, especially focusing on the circular economy. Initiatives include the development of Certificate III in Biomanufacturing and Biomanufacturing Pathways Course – an industry partnership (BioPathways) to develop workforce training and a state-of-the-art training facility.

#### 52 WIND ENERGY

TAFE Gippsland currently runs partnerships to tackle gas/coal-mining power generation and transition to renewable energy with a strong focus on offshore wind energy (clean economy workforce transition framework, GRSN). It also intends to further improve its position to cater to the strong offshore wind project pipeline originating from its beneficial geography.

#### SUSTAINABLE BEST PRACTICES

TAFE Gippsland offers units that provide students with the skills to apply sustainable best practices within key sectors, including transportation, building and construction, land and marine management, manufacturing and agriculture.

### Clean economy courses offerings

#### AGRICULTURE AND CONSERVATION

Tree Felling	0417FT
Certificate III Conservation and Ecosystem Management	AHC31421
Diploma of Conservation and Ecosystem Management	AHC51120

#### BUILDING AND CONSTRUCTION

Certificate II in Plumbing (Pre-apprenticeship)	22569VIC
Certificate III in Plumbing (Apprenticeship)	CPC32420
Certificate IV in Plumbing and Services	CPC40920

#### ELECTRICAL AND RENEWABLES

Certificate III in Electrotechnology Electrician (Apprenticeship)	UFE30820
Certificate in in Electrotechnology Electrician (Apprenticeship)	0220020
Certificate III in Instrumentation and Control	UEE31220
Certificate III in Instrumentation and Control (Apprenticeship)	UEE31220
Course in Working Safely in the Solar Industry	22515VIC
Grid Connected PV Solar Systems	0417SOLAR
Certificate II in Electrotechnology (Career Start)	UEE22020

#### ENGINEERING

Certificate II in Engineering Pathways	MEM20413
Certificate III in Engineering – Fabrication Trade (Apprenticeship)	MEM31922
Certificate III in Engineering – Mechanical Trade (Apprenticeship)	MEM30219
Certificate IV in Engineering (Pathway)	MEM40119

#### OTHER

Course in Biomanufacturing Pathways	22545VIC
Certificate III in Biomanufacturing Operations	22546VIC

NETWORKING PARTNERSHIP

## Gippsland Regional Skills Network (GRSN)

TAFE Gippsland and Federation University set up the GRSN to foster connection and collaboration between government, educators and employers in sectors essential to the clean economy.

#### ABOUT THE INITIATIVE

Driving clean economy progress requires dedicated communication lines and communication between all related parties involved.

The Gippsland Regional Skills Network (GRSN) was established by TAFE Gippsland and Federation University, aiming to foster stronger connections between education, employers, community and government in Gippsland.

Five specific industry advisory groups (energy, health, agriculture-food-fibre, government and manufacturing), each with ~20 industry representatives, support the GRSN.

The Energy Industry Advisory Group's success story is especially relevant to the clean economy. It is well supported by stakeholders (e.g. Latrobe Valley Authority), and existing and emerging energy companies (e.g. AGL, Star of the South), but more importantly it works from a spirit of collaboration to develop skills and qualifications needed for the clean energy transition.

#### OUTCOMES

The energy group drove the Gippsland Energy Skills Mapping Report and welcomed many offshore wind developers in 2023.

All Industry Advisory Groups sit together in bi-annual meetings per industry at the Morwell Innovation Centre in the Latrobe Valley since July 2021.

The networking partnership will focus on:

• continuing the cooperative approach to education and employment on energy and the clean energy transition.



COURSE DEVELOPMENT PARTNERSHIP



### **BioPathways Partnership Project**

TAFE Gippsland developed a local Certificate in Biomanufacturing in collaboration with industry which supports the diversification of the regional economies.

#### ABOUT THE INITIATIVE

The Gippsland region has traditionally relied on fossil fuels industries employment and is seeking opportunities in new industries as the shift towards renewable energy has created a workforce transition imperative.

In response, the BioPathways Partnership Project co-developed a local biomanufacturing pathway that builds on Gippsland's capabilities in agriculture and food. The partnership identified an absence of related training products and set out to develop new material for local workers.

The partnership consists of TAFE Gippsland and Opal Australian Paper (pulp and paper products manufacturer).

Through the BioPathways Project, this partnership supports the future development of biomanufacturing in the Latrobe Valley and provides the opportunity for the Gippsland region to become a hub for the emerging biomanufacturing economy.

#### OUTCOMES

The partnership resulted in the development of courses and facilities which are the first of their kind in Australia and provide an example of how an industry-led partnership can support the diversification of regional economies.

This offering has been provided consistently since December 2020 at TAFE Gippsland's Yallourn campus and continues to support reskilling of workers to the emerging biomanufacturing industry.

FRAMEWORK & REPORT DEVELOPMENT PARTNERSHIP

# Clean economy workforce transition framework and pilot program

In partnership with Federation University and industry, TAFE Gippsland developed a framework with transitional pathways that enables the traditional energy workforce (e.g. coal-fired) to shift towards clean energy (e.g. offshore wind).

#### ABOUT THE INITIATIVE

The sudden closure of Hazelwood Power Station in 2016 had a significant impact on workers, their families and the community, and 3 further Gippsland power stations are due to close in the coming years.

The partnership is co-designing a skills transition framework and pilot program to upskill Gippsland's traditional energy workforce, to build workforce capacity and to develop and deliver training that supports a clean energy future. It enables working with the workforce early and assessing the transition to the emerging offshore wind energy sector.

The partnership consists of key transitions stakeholders, such as regional education providers (TAFE Gippsland & Federation University), traditional energy providers (Energy Australia Yallourn) and offshore wind developer (Star of the South).

This framework and report development partnership expresses the need for bridging the skills gap in the transition between these 2 industries.

#### OUTCOMES

The framework and final report are expected to be completed in early 2024. Additionally, a strong understanding of the skills and workforce at traditional energy providers will be obtained and renewable energy worker guides have been updated.

The partnership will focus on:

• translating the insights from the report into relevant education offerings (i.e. RPL Kits for Certificate III in Civil Construction, Pathway to Tertiary Studies via the Certificate IV in Engineering).



# THE GORDON

The Gordon is at the forefront of Geelong's clean energy transition, actively engaging with the community to drive innovation in renewable energy. The landscape is vibrant, with initiatives like Viva Energy Australia's Energy Hub, Deakin University's solar microgrid, Barwon Water's Renewable Organics Network and Geelong Port's Hydrogen Hub investment.

A standout collaboration is the Solarstore project with Deakin University. This innovative project, which is under development pending investment decisions, showcases the potential of green hydrogen and underlines The Gordon's critical role in equipping the community with the necessary skills for the burgeoning clean energy economy – preparing a workforce ready for tomorrow's challenges.

The Gordon offers a diverse range of study options, including short courses and accredited qualifications, catering for a variety of learning preferences with options for on-campus, part-time, online and workplace learning.

The Gordon delivers training from 4 campuses in Geelong, Wyndham and Colac. The Gordon operates on a partnership model, collaborating with secondary schools, universities, employers and the community and has established strong partnerships with China and Indonesia.





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## Clean economy focus areas

#### EMERGENCY SERVICES

As electric vehicles are increasingly used, incidents involving them are on the rise, necessitating specialised training. There is scope for The Gordon to design bespoke first responder training on electric and hybrid vehicle accidents for CFA, SES and Ambulance Victoria.

#### ADVANCED MANUFACTURING

The Gordon has shown commitment to meeting the needs of the advanced manufacturing sector in the Geelong region. This includes the recent launch of the Clean Economy Advanced Manufacturing Project, aimed at identifying training needs and developing a suite of solutions.

#### TRADES

Electrical courses are being adapted or specialised units are being incorporated to address the clean economy, with investments in sustainable technology to support teaching.

## Clean economy courses offerings

#### AGRICULTURE AND CONSERVATION

Certificate III in Sports Turf Management	AHC31319
Certificate III in Parks and Gardens	AHC31021
Certificate III in Nursery Operations	AHC31120
Certificate III in Horticulture	AHC30722
Certificate IV in Agribusiness	AHC41019
Certificate IV in Conservation and Ecosystem Management	AHC40920
Certificate IV in Horticulture	AHC40416
Diploma of Horticulture	AHC50416

#### AUTOMOTIVE

Certificate II in Automotive Vocational Preparation	AUR20720
Certificate III in Automotive Refinishing Technology	AUR32420
Certificate IV in Automotive Mechanical Diagnosis	AUR40216
Certificate III in Light Vehicle Mechanical Technology (Apprenticeship)	AUR30620
Certificate III in Heavy Commercial Vehicle Mechanical Technology (Apprenticeship)	AUR31120
BUILDING AND CONSTRUCTION	
Certificate III in Carpentry	CPC30220
Certificate III in Painting and Decorating	CPC30620
Certificate III in Joinery	CPC31920

Certificate III in BricklayingCPC33020and BlocklayingCertificate III in Cabinet MakingMSF30322and Timber Technology<br/>(Kitchens and Bathrooms)Certificate III in Cabinet MakingMSF30322

Certificate III in Landscape AHC30921 Construction (Apprenticeship)

#### **BUILDING AND CONSTRUCTION (CONTINUED)**

22569VIC
CPC32420
CPC40920
CPC40120
CPC50220
22627VIC

#### ELECTRICAL AND RENEWABLES

Certificate III in Electrotechnology Electrician	UEE30820
Course in Working Safely in the Solar Industry	22515VIC
Course in New Energy Technology Systems	N/A
Apply Environmental and Sustainable procedures in the Energy sector	UEERE0001

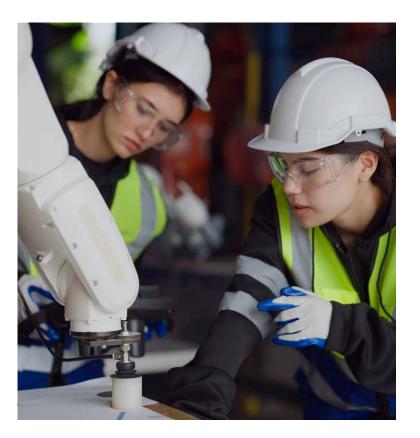
#### ENGINEERING

Certificate III in Engineering – Fabrication Trade	MEM31922
Certificate III in Engineering – Mechanical Trade	MEM30219
Diploma of Engineering – Technical	MEM50212

#### OTHER

Certificate IV in Commercial Cookery	SIT40521
Certificate III in Floristry	SFL30115
Certificate III in Hairdressing	SHB30416
Certificate III in Commercial Cookery	SIT30821
Certificate III in Hospitality	SIT30622

INVESTMENT FOR COURSE EXECUTION



# Identifying clean economy training needs for advanced manufacturing in Geelong

The Gordon, in partnership with industry and academia, is delivering a suite of projects to identify the future clean economy training needs of the advanced manufacturing industry.

#### ABOUT THE INITIATIVE

Identifying the training and skills required for the clean economy is essential to support the industry and to facilitate a seamless workforce transition.

The Gordon has established a suite of projects to identify future training needs, skills and opportunities for the education sector that will help train and prepare the advanced manufacturing workforce in the Geelong region for the clean economy transition.

The project will deliver:

- a clean economy advanced manufacturing training needs analysis
- a teacher-industry immersion program
- the Clean Economy Advanced Manufacturing Graduate Pilot Program
- a work readiness program to help prepare TAFE graduates for working in the clean economy advanced manufacturing space.

The project partnership includes The Gordon, Geelong Manufacturing Council, City of Greater Geelong, Skilling the Bay and Geelong Tech School.

#### OUTCOMES AND NEXT STEPS

The collaboration with the advanced manufacturing industry in this initiative has revealed the necessary skills for graduates and helped shape recommendations for the upcoming training phase to match industry requirements and employment trends.

The program commenced in 2022 and is expected to be completed in June 2024.

In the future, The Gordon aims to focus on:

- implementing the identified clean economy training required to meet the needs of the advanced manufacturing sector
- investigating how to implement the program more permanently if the Clean Economy Advanced Manufacturing Graduate Pilot Program is a success.

#### APPLYING BEST PRACTICES IN COURSE

### Sustainable hairdressing practices

The Gordon, in partnership with Sustainable Salons Australia, has identified products that can be recycled within a beauty salon and has also invested in more sustainable methods and materials.

#### ABOUT THE INITIATIVE

The Gordon was the first Victorian TAFE to initiate the 'Sustainable Salons Program' in their hairdressing salon, which has since extended into beauty therapy.

In partnership with Sustainable Salons Australia, the hair and beauty team recycles all used foil, paper, plastic and hair. All proceeds raised are donated to OzHarvest (Australia's leading food rescue organisation) which provide meals for disadvantaged people. Hair that is 15cm or longer is donated to make ponytail wigs for children with alopecia, while the rest is transformed into hair booms to help contain and absorb oil spills in oceans and waterways across the world. Any oil that is trapped in the hair boom is then extracted and sold back to the oil refineries.

Additionally, in partnership with Sustainable Salons Australia, the hair and beauty team has invested in more sustainable methods and materials. They have installed and been using water-saving heads on wash basins, which reduce water and energy usage by up to 65%. The team opts for sustainable, Australian-owned O&M (original and mineral) hair products that are chemical free. Unused chemical/colour products are collected, neutralised and converted back to water.

#### OUTCOMES AND NEXT STEPS

Since its inception in 2016, The Gordon's partnership with Sustainable Salons Australia has been steadfast and ongoing.

Each year, The Gordon receives a Certificate of Positive Impact, that shows the amount of recycling the area has achieved for the year and includes achievements from the program across many states and countries since its inception.

The partnership offers 2 significant benefits to the hair and beauty therapy team:

- Earning points to purchased recycled foil and compostable gloves
- Educating students on sustainability/circular economy practices that can be passed on to the businesses where they are employed.



TRAINING PROVISION



## A custom training partnership to upskill a zero-emissions vehicle (ZEV) workforce

The Gordon, in partnership with industry, is providing training in electric vehicles (EVs) and hybrid vehicles (PHEVs) to upskill its employees.

#### ABOUT THE INITIATIVE

The rapid adoption of hybrid, electric and hydrogen/fuel-cell vehicle technologies in Australia is exerting pressure on the skills capacity of the automotive workforce. The servicing and repair of ZEVs require new diagnostics, coding and electrical skills.

Industry recognised the urgency to upskill its workforces and subsequently reached out to The Gordon in February 2022 to enhance the skills of its employees in hybrid and battery electric vehicle (EV) training. Later that year, The Gordon commenced delivery of Certificate IV in Automotive Mechanical Diagnosis (accredited training AUR40216). This course can be completed by those who already have a Certificate III in an automotive qualification.

The Gordon has collaborated closely with the industry to curate and offer a comprehensive range of elective units within the accredited program. This collaborative approach ensures that participants not only attain industry recognised certification, but also receive specialised training tailored to the specific needs of their respective companies.

#### OUTCOMES AND NEXT STEPS

The Gordon has been delivering Certificate IV in Automotive Mechanical Diagnosis at its East Geelong campus since May 2022. So far, 44 industry employees have successfully completed this training and advanced their skills and expertise in ZEVs.

Upon completing the training, the automotive technicians have been given additional responsibilities in their current job roles. The comprehensive training has also notably enhanced their proficiency in various safety practices, broadening the scope of areas where they can work confidently.

Additionally, better skilled technicians provide greater confidence to current and future customers considering ZEVs. The training provided is transferrable across all ZEV systems now and into the future, which reduces the costs of retraining for the industry.

# VICTORIA UNIVERSITY



Victoria University stands out in clean economy education and training, with a highly-regarded solar program and an electrotechnology offering that includes solar grid connection and safety training.

Victoria University in Melbourne has been providing accessible education for more than 100 years.

Victoria University is one of the 6 Australian institutions offering both TAFE and higher education courses. With a range that spans from certificates to post-graduate degrees, Victoria University enables students to start at any level and advance through their education journey.

Victoria University delivers training from 6 campuses in Melbourne CBD, Footscray, St Albans, Sunshine and Werribee.



# Clean economy focus areas

#### SOLAR

Victoria University has earned a great reputation for its solar program, which offers short courses on solar grid-connection design and installation. Victoria University is expanding solar testing and battery capabilities, utilising existing expertise and resources.

#### ELECTROTECHNOLOGY

Victoria University's electrotechnology offering is highly regarded. It includes solar grid connection and working safely at heights units. Victoria University is committed to further developing its electrotechnology offerings, anticipating that it will become one of the most in-demand qualifications.

# Clean economy courses offerings

#### **BUILDING AND CONSTRUCTION**

Certificate II in Civil Construction	RII20720
Certificate III in Civil Construction Plant Operations	RII30820
Advanced Diploma of Building Design (Architectural)	22477VIC
Advanced Diploma of Building Surveying	CPC60121
Certificate II in Plumbing (Pre-apprenticeship)	22569VIC
Certificate III in Plumbing	CPC32420
Certificate IV in Plumbing and Services	CPC40920

#### ELECTRICAL AND RENEWABLES

Certificate III in Electrotechnology Electrician	UEE30820
Course in Working Safely in the Solar Industry	22515VIC
Solar Grid Connect – Design	TNABM
Solar Grid Connect – Design and Install	TNABL
Solar Grid Connect – Install	TNABN

#### ENGINEERING

Advanced Diploma of Engineering	MEM60122
Advanced Diploma of Engineering Technology – Electrical	UEE62122
Certificate III in Engineering – Fabrication Trade	MEM30319
Certificate III in Engineering – Mechanical Trade	MEM30219

# WILLIAM ANGLISS INSTITUTE



## William Angliss Institute is Australia's largest specialist centre for foods, tourism, hospitality and events education and training.

William Angliss Institute is the government-endorsed specialist training provider of TAFE courses and degrees in the food, tourism, hospitality and events industries.

For more than 80 years, William Angliss Institute has earned a strong global reputation for the delivery of innovative higher education and training solutions. William Angliss Institute's well-regarded reputation sees it boast strong connections and relationships among key industry players within Australia.

William Angliss Institute operates from 1 campus in the Melbourne CBD. It also operates a campus in Sydney, and has offices in Brisbane, Adelaide and Perth.



# Clean economy focus areas

#### FOOD TRADES AND HOSPITALITY

William Angliss Institute offers dedicated initiatives in food waste reduction, sustainable food production and responsible procurement.

#### RESEARCH

William Angliss Institute is well positioned to contribute to research in food systems, food waste reduction, sustainable food and sustainability imperatives related to tourism, hospitality and events management.

#### SUSTAINABLE BEST PRACTICES

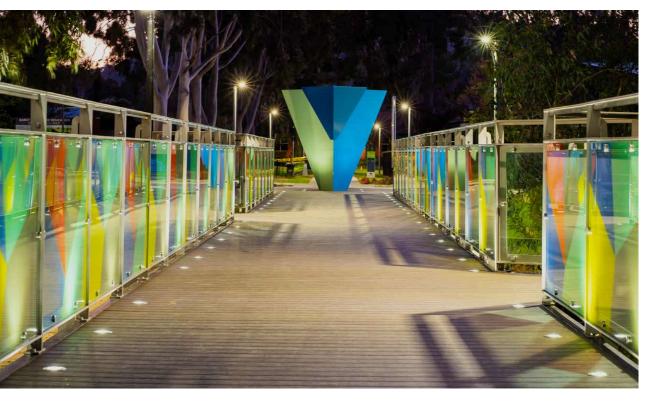
William Angliss Institute offers units that provide students with the skills to apply sustainable best practices within key sectors including food, tourism, hospitality and events.

# Clean economy courses offerings

#### HOSPITALITY

Master of Food Systems and Gastronomy	CRS1400364
Bachelor of Food Studies	CRS1400280
Bachelor of Culinary Management	CRS1201422
Bachelor of Tourism and Hospitality Management	CRS1201421
Certificate III in Commercial Cookery	SIT30821
Certificate IV in Kitchen Management	SIT40521
Certificate IV in Patisserie	SIT40721
Diploma of Food Science and Technology	FBP50121
Diploma of Hospitality Management	SIT50422

# WODONGA TAFE



### Wodonga TAFE supports the development of leadership in building and construction, solar, emergency services, advanced manufacturing, and automotive and heavy vehicle.

Wodonga TAFE is a leading regional vocational education and training provider, offering education and training programs to individuals and industry, locally and nationally.

Wodonga TAFE's success is underpinned by a commitment to driving student success, helping build communities through education, working in partnership with industry and innovative, future-focused practices.

Wodonga TAFE operates across 3 campuses in Wodonga and Shepparton and boasts an extensive national training footprint.



### Clean economy focus areas

#### **BUILDING AND CONSTRUCTION**

Wodonga TAFE is the only Victorian TAFE that currently offers the 'Certificate IV in Home Energy Efficiency and Sustainability.' This unique course is designed to meet the needs of assessors operating under the Nationwide House Energy Rating Scheme (NatHERS).

#### ADVANCED MANUFACTURING

Wodonga TAFE is currently developing an Advanced Manufacturing Centre of Excellence (CoE) at the Logical Innovation Precinct which will focus on developing skills of the advanced manufacturing workforce in new technologies and circular economy principles.

#### EMERGENCY SERVICES

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Wodonga TAFE seeks to strengthen local partnerships with regional emergency services, and to provide facilities that will enable skill building in safe driver training, including 4WD expertise. Wodonga TAFE is committed to supporting emergency services in climaterelated natural disaster responses.

#### AUTOMOTIVE AND HEAVY VEHICLE

Wodonga TAFE incorporates electric vehicles (EVs) into current automotive courses and has future plans to extend offerings within EV and hydrogen fuel-focused training into the heavy vehicle transport sector.

### Clean economy courses offerings

#### AGRICULTURE AND CONSERVATION

Certificate II in Agriculture	SIT20421
Certificate III in Agriculture	FNS40222
Certificate III in Horticulture	AHC30722

#### AUTOMOTIVE

Certificate III in Light Vehicle Mechanical Technology	NA20WELD
Certificate III in Motor Sport Technology	AUR30920

#### **BUILDING AND CONSTRUCTION**

Certificate IV in Building and Construction	CPC40120
Certificate II in Plumbing (Pre-apprenticeship)	22569VIC
Certificate III in Plumbing	CPC32420
Certificate IV in Home Energy Efficiency and Sustainability	CPP41119

#### ELECTRICAL AND RENEWABLES

Certificate III in Electrotechnology Electrician	A3LPG500
Course in Working Safely in the Solar Industry	22515VIC
Certificate II in Electrotechnology (Pre-vocational)	22499VIC

#### ENGINEERING

Certificate II in Engineering – Production Technology	FBP30521
Certificate III in Engineering – Mechanical Trade	CONISS015
Certificate IV in Engineering	MEM40412
Diploma of Engineering Technology	22478VIC

#### OTHER

Certificate III in Driving Operations	TLI31222
Diploma of Business	BSB50120

COURSE DEVELOPMENT

# Certificate IV in Home Energy Efficiency and Sustainability

Wodonga TAFE developed a Certificate IV in Home Energy Efficiency and Sustainability.

#### ABOUT THE INITIATIVE

Wodonga TAFE has implemented a course development initiative to help provide the building and construction workforce with skills to assess home energy efficiency. There is an emerging demand for this skill following the 2022 National Construction Code changes which increased the minimum energy efficiency standard to a 7-star performance rating.

Wodonga TAFE has created a Certificate IV in Home Energy Efficiency and Sustainability. This qualification is designed to meet the needs of assessors operating under the Nationwide House Energy Rating Scheme (NatHERS).

As part of this qualification, participants learn how to read plans, drawings and specifications for buildings, collect NatHERS information for assessment, conduct NatHERS assessments, adhere to regulations, and assess and advise on thermal performance enhancing.

This qualification is relevant to NatHERS assessors, enterprises, government agencies, industry regulatory bodies, community organisations, building designers, architects and other professionals associated with residential building thermal performance.

Although formal partnerships are not in currently in place, Wodonga TAFE has established collaborative connections with accrediting bodies such as Design Matters, to gain industry insights and identify training gaps.

#### OUTCOMES

The course runs with 2 intakes per year operating at maximum capacity. It is delivered online and therefore has drawn participants from across the nation.

As the exclusive Victorian TAFE offering this course, Wodonga TAFE holds a leadership position in the home energy efficiency space.

Going forward, the program aims to focus on:

- refining and elevating quality, concentrating on improved online interactivity, student engagement, peer learning and moderated discussions to support shared learning forums
- improving the overall experience of the student learning journey.



INVESTMENT FOR COURSE EXECUTION



## Advanced manufacturing and the circular economy

Wodonga TAFE's Logical Innovation Precinct will house the Advanced Manufacturing Centre of Excellence (CoE) focusing on integration of clean economy manufacturing principles.

#### ABOUT THE INITIATIVE

Wodonga TAFE has implemented this initiative to provide the advanced manufacturing workforce with relevant clean economy skills.

Wodonga TAFE's Logical Innovation Precinct will house an Advanced Manufacturing CoE in the Albury Wodonga region, with a focus on developing skills for adopting new technologies and integrating circular economy design principles.

The Advanced Manufacturing CoE will apply circular economy principles for the introduction of technologies and design processes, including Digital Twins, Design for Disassembly, 3D print components and parts, and Products-as-a-Service (PaaS).

Circular economy design principles need to be considered at the beginning of the design process to drive value and ensure that products and production systems are designed and manufactured to be reused, recycled or recovered.

#### OUTCOMES

Industry will be able to access the skills required to transition to modern manufacturing processes, whilst embedding circular economy principles into its designs.

The Advanced Manufacturing CoE will be located at the Logical Innovation Precinct in Barnawartha North. Design works commenced in October 2023.

Going forward, the program will focus on:

 researching ways to support waste reduction and decreased pollution, as well as extending the lifecycle of materials and consumables.

COURSE DEVELOPMENT

# Future fuels and the hydrogen highway

Wodonga TAFE is currently developing programs in partnership with industry to support the introduction and use of hydrogen fuel lifecycle for heavy vehicles.

#### ABOUT THE INITIATIVE

Wodonga TAFE is developing programs in collaboration with industry, to support the introduction and use of hydrogen fuel lifecycle for heavy vehicles including hydrogen storage, refuelling and hydrogen vehicle systems.

A partnership with a refuelling provider has been devised to leverage the refuelling stations and the hydrogen production facility being built in the region, to become an integral part of the training landscape for future fuels.

A current partnership with Engineers Australia involves actively participating in industry-wide efforts to develop a national accreditation framework for hydrogen.

#### OUTCOMES

At the completion of this initiative, Wodonga TAFE will have developed accredited training that can be complemented with micro-credentials and specialised elective units. This will enable individuals with existing heavy vehicle certifications to upskill for the clean economy.

Wodonga TAFE stands out as one of the few Victorian TAFEs actively developing hydrogen-related programs, positioning itself as a leader in this emerging domain.

Once developed, these programs will be delivered at the Logical Innovation Precinct in Barnawartha North, with design works having commenced in October 2023.

Going forward, the program will focus on:

- partnering with a refuelling provider to offer training on hydrogen lifecycle systems for heavy vehicles
- awaiting finalisation of Hydrogen Highway Grant details and seeking additional funding to support curriculum development.





vic.gov.au/training-clean-economy

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