

Training for the Next Generation of Clean Energy Workforce Solutions

Keeping Australia's Workforce Ahead of Global Trends

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Acknowledgement of Country

TAFE Queensland acknowledge the Traditional Custodians of Country throughout Australia and respect the continuing connection to land, waters, cultures and family that Aboriginal and Torres Strait Islander peoples uphold.

We pay respect to Elders past, present and future. We recognise that teaching and learning has taken place on country for over 60,000 years and two-way learning is an important part of our reconciliation journey.



Artwork elements from TAFE Queensland's Reconciliation Action Plan artwork 'Connecting Knowledge - Connecting Cultures' by Riki Salam. Visit tafeqld.edu.au/RAP to view the Reconciliation Action Plan.

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OUR CAMPUS LOCATIONS

No other provider can match TAFE Queensland for scale and location options.

Choose from over 60 locations across the state; from Thursday Island in the north, down to Coolangatta in the south east corner and as far west as Mount Isa.

We have Queensland covered, no matter where you are.



Queensland is well placed for renewable hydrogen production with significant renewable energy resources, available land, and ports ideally located to support potential hydrogen exports.

TAFE Queensland – VEI Introduction to Hydrogen

This hydrogen micro-credential course provides an understanding of the key characteristics of hydrogen, the hydrogen economy, and its increased usage in industry.

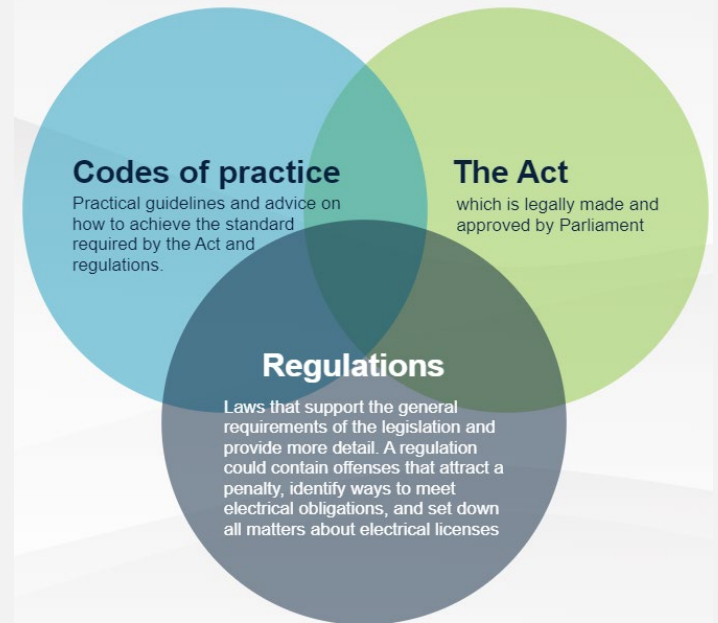
- Hydrogen characteristics and gas properties,
- Gas distribution networks
- SCADA systems used in hydrogen operations, and hydrogen fuel cell technology
- Safety WHS/OHS requirements, organisational and legislative requirements, regulations, standards, and codes of practice.

Hydrogen as a fuel has the following characteristics. Click on the icons for more information.



Key milestones

Legislation is made up of the following:



- Product development of this Micro Credential in final stages before release
- Supported by Industry as a suggested Hydrogen awareness program for all staff in the industry

TAFE Queensland – VET Hydrogen Safety

This Hydrogen safety micro-credential course provides an understanding of safety guidelines and requirements when working hydrogen. It also covers hazard identification and emergency response procedures.

- Knowledge of hydrogen safety
- Knowledge of hydrogen characteristics
- Understanding hydrogen production and storage
- Understanding the dangers when working with hydrogen
- Knowledge of environmental and sustainable energy policies and procedures
- Understanding quality and safety checks when working with Hydrogen
- Understanding monitoring and control operations when working with Hydrogen



Key milestones

Isolation and tagging of plant/machinery and equipment

Isolation methods include:

 Isolating hydrogen gas equipment	 Safety switches
 Personal danger tag	 Compressed/pressurised hydrogen gas safety
 Out of service tags	Click the icons or the arrow to learn more. 

- Product development of this Micro Credential in its final stages before release
- Supported by Industry as a suggested Hydrogen awareness program for all staff in the industry, as a potential induction training with digital certification that is attached

TAFE Queensland – VEI Hydrogen Production

In partnership with Central Queensland University the following skillsets have been developed:

UEGSS00013 Basic Hydrogen Safety Skillset

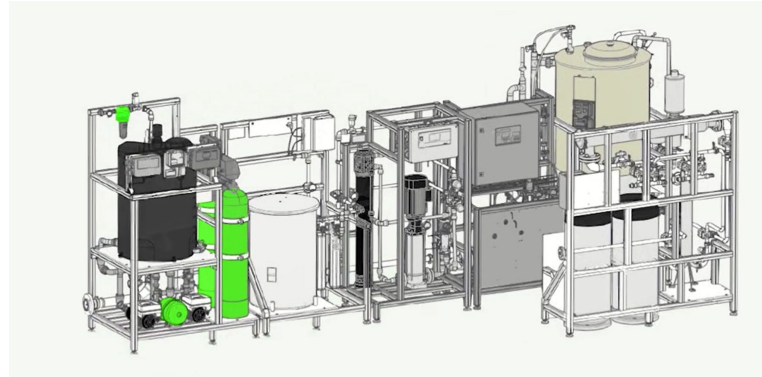
- UEGNSG901 Apply safety practices, procedures and compliance standards for handling hydrogen gas
- UEGNSG031 Prepare to work in the gas industry
- PUAFER008 - Confine small emergencies in a facility

UEGSS00014 Inject H2 into Distribution Networks Skillset

- UEGNSG904 Inject hydrogen gas into distribution networks

UEGSS00015 Monitor Hydrogen using Control Systems Skillset

- MSS402061 Use SCADA systems in operations
- UEGNSG905 Monitor and control hydrogen in gas distribution networks



Additional agreed units for development:

UEGNSG902 Commission, operate and maintain electrolysers

UEGNSG903 Fault-find and repair hydrogen storage equipment

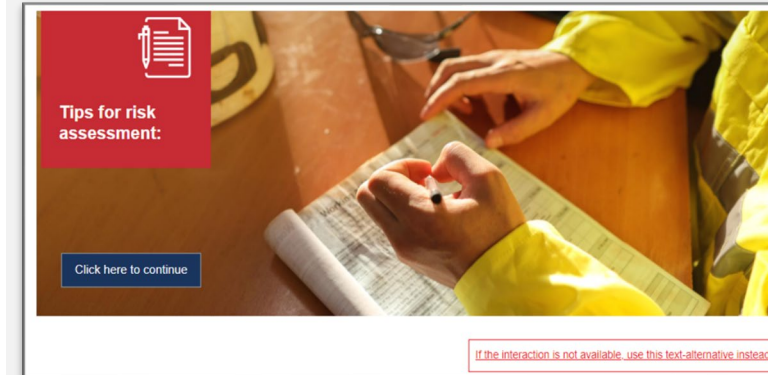
UEGNSG906 Undertake routine hydrogen storage operations

PMAOPS33 Operate and troubleshoot gas turbine systems

UEGNSG906 - Undertake routine hydrogen storage operations

Key milestones

- Product development in final stages and Industry showcase completed
- Industry Validations of assessment tools planned end of June
- Registration in progress
- Teacher Professional Development and Industry Placement commenced
- Delivery expected to commence Q3/4 2023



TAFE Queensland – VEI Hydrogen Production

Development of training resources for ten Units of Competency for
Certificate III in Process Plant Operations (PMA30120)

with the intention to upskill workers who will be new entrants to the hydrogen gas manufacturing industry

1. **MSMWHS201** Conduct hazard analysis
2. **PMAOPS306** Operate and troubleshoot production unit
3. **MSMPER201** Monitor and control work permits
4. **PMAOPS347** Create and conduct isolations in the workplace
5. **PMASUP244** Prepare and isolate plant
6. **MSMSUP240** Undertake minor maintenance
7. **PMAOPS232** Operate filtration equipment
8. **PMAOPS315** Operate and troubleshoot process control systems
9. **PMAOPS345** Operate and troubleshoot gas treatment process
10. **PMAOPS348** Operate safety, protection and shutdown systems

Key milestones

- Industry consultation has commenced with ARK Energy, Sun Metals, Senex, Origin Gas and Harness Energy
- Product development planned for the following units to support H2 transition
- Delivery expected to commence Q4 2023



TAFE Queensland – VEI Electric Vehicles

TAFE Queensland has developed programs that will train students to work with these cutting-edge vehicles and preparing students for the exciting opportunities that lie ahead.



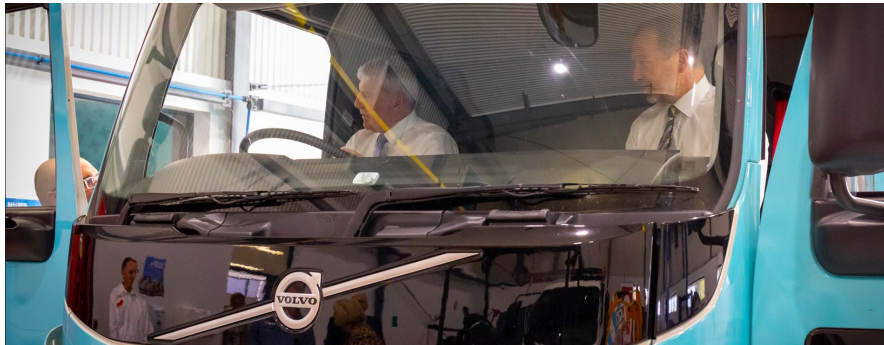
Key milestones

- Key focus on electric vehicle safety and alignment with Australian Electric Vehicle Standards AS5732:2022
- Engagement with Queensland Electrical Safety Office
- Industry meetings held to support and plan the training for the industry
- Working closely with Original Equipment Manufacturers as well as supporting upskilling of their workforce and trainers
- Identification for industry between “Competence” and “Compliance” to support the investment in Nationally accredited training

TAFE Queensland – VET Electric Vehicles

Our newest building at Acacia Ridge is in full use, upskilling current technician and apprentices in BEV technology.

Partnerships formed with large OEM's who support TAFE Queensland with training, resources and knowledge.



Key milestones

- Industry Release and specialised technical training commenced with OEM's
- AUR00064 Inspect and Service Battery Electric Vehicle Skillset being delivered weekly under Fee Free TAFE
- AUR32721 Certificate III in Battery Electric Vehicles Registered, funding submission in progress with DESBT
- BEV driver operations training in development to commence Q3 2023

TAFE Queensland – VEI Electric Vehicles and FCEV



ANCAP RESCUE App

This life-saving app is free and accessible to all emergency services - from Police, Fire and Rescue and State Emergency Services personnel.

ACTIVITY

Download and install the ANCAP RESCUE app. Locate and review the following Electric Vehicles' specification sheets:

- Tesla Model S 2017
- Mitsubishi Outlander PHEV 2018
- BMW i3 2014

Development of First Responder Electric Vehicle training is in progress and leveraging off work completed by Energy Skills Queensland.

This training will be available to all first responders including Fire Services, Police, Ambulance and tow and breakdown service staff.



Key milestones

- Industry consultation to access current information and processes
- Agreement in place with Energy Skills Queensland
- Review completed and project scoped for Hydrogen first response extending outside of electric vehicles



TAFE Queensland – VEI Hydrogen Fuel Cells

As more Battery Electric Vehicles are on Australian roads, there will be a swift evolution to FCEV. Providing training for Battery Electric and Hydrogen Fuel Cell Vehicles for service and repair technicians in the light, heavy and mobile plant sector is critical to workforce development.

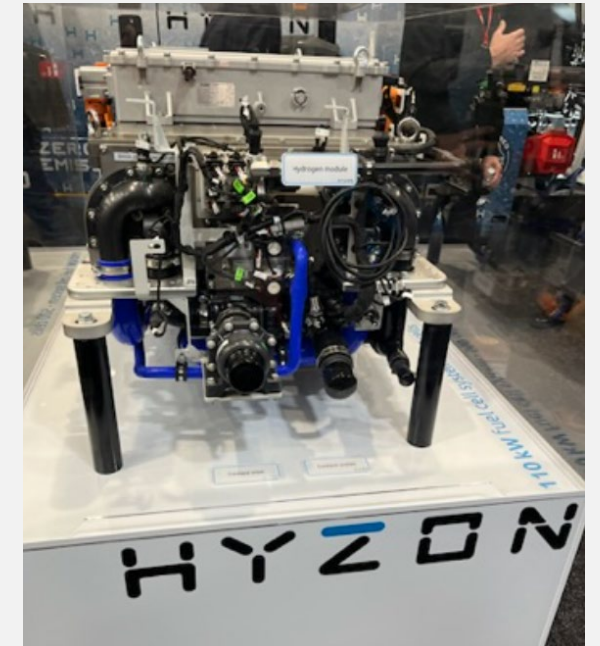
This unit will cover the following:

- **Hydrogen Facts**
- **What is a Hydrogen Fuel Cell**
- **Working safely with Hydrogen Fuel Cell**
- **Safety Guidelines**
- **Hazard identification and safety requirements**
- **Refuelling with Hydrogen (as a fuel)**
- **WHS/OHS, environmental and sustainable energy principles**



Key milestones

- Industry consultation is active
- Industry Release for FCEV buses taken place.
- First Responder VR Resource development around FCEV and Lithium Batteries in discussion with industry.



TAFE Queensland – VEI Energy Efficiencies

Maximising Energy Efficiency through Insulation Training for Construction Apprentices

Construction apprentices build house frames and go on to become builders – this is the perfect time to instil knowledge about insulation which will improve houses built by these future builders.

KNAUFINSULATION



Key milestones

- Industry consultation is active
- Industry release for insulation installation in progress
- Industry partnerships formed with Knauf Insulation
- Program materials being developed to support apprentice training
- Planning in place for delivery in Q2 2023

TAFE Queensland – VEI Wind Global Organisation

Wind farms are predicted to become more prevalent in Queensland which currently lacks the infrastructure with a significant skills and training gap.

There are currently no Queensland based RTOs to deliver Global Wind Organisation (GWO) Basic Safety Training.

As prevalence of wind farms increases in Queensland, ensuring workers remain safe is critical.



Key milestones

- **Participate:** (in a CIT GWO BST course 5 days in Canberra)
Completed
- **Observe:** (the delivery of another GWO CIT BST course in Canberra)
- **Co-deliver:** (a GWO BST course with the CIT trainer in Canberra or Brisbane)
- **Deliver and be assessed:** (deliver course and be assessed by CIT trainer in Brisbane)



TAFE Queensland – VEI Wind Global Organisation

A few examples of our Industry Collaboration and Support Partnerships



Key Restraints

- Timeline in building strong relationships
- Accessing current information to build resources
- Access to subject matter experts
- Teacher currency and professional development
- Purchasing of assets
- Continual advancement in technology
- Procurement processes vs Leasing options
- Development cost and constant changes to maintain current and relevant training

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Thank you

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