



ENERGY, PROCESS ENGINEERING AND AUTOMATION CAPABILITY STATEMENT



GOVERNMENT OF
WESTERN AUSTRALIA



South
Metropolitan

South Metropolitan TAFE

South Metropolitan TAFE (SM TAFE) has a proven track record of delivering positive student outcomes and training solutions to corporate and government enterprises across the full spectrum of industry.



We are Western Australia's most diverse registered vocational training and higher education provider. Our expertise includes a wide range of trade, technical and professional disciplines through nationally accredited higher education and vocational qualifications, apprenticeships, traineeships and short courses.

We have partnerships with employers locally, nationally and around the world. Our training prepares students for the rigours of their chosen industry and builds upon their existing skills base to improve their capabilities and value to business.

SM TAFE provides training to 25,000 students, offering over 300 courses and qualifications at 12 major campuses across south metropolitan Perth.

Approximately 1400 international students choose to study with SM TAFE each year.

SM TAFE also delivers customised, demand-driven training and skills development to meet workforce requirements and industry changes. This flexible, innovative approach allows us to create and deliver qualifications to all fast-growth, high demand industries.



Engineers Australia International Accreditation

South Metropolitan TAFE is endorsed by Engineers Australia (EA) with accreditation for several of its engineering courses. The accreditation confirms SM TAFE consistently meets national and international benchmarks with respect to the academic rigour of this program, including delivery and innovation in program design.

SM TAFE also offers university pathway qualifications, providing students the opportunity to gain entry into second year engineering programs at leading universities.

We have simulation technologies for training which replicate real life conditions and situations in industry. Customised training includes on-site training and assessment, video conferencing, e-learning and remote access facilities. Ongoing consultation with industry advisory boards actively informs the planning, design and delivery of its programs, ensuring graduates are equipped to enter the current market.





Energy, Process Engineering and Automation training at Munster campus

SM TAFE's Munster campus was established in 2006 as the Australian Centre for Energy and Process Training (ACEPT) and is the only training facility of its kind in the Southern Hemisphere delivering energy process training. It is a leading example of State Government and industry collaboration to address workforce skills demand and to ensure job opportunities for graduates.

SM TAFE is the leading future skills provider in Western Australia. Training is provided to para-professionals, pre-apprentices, apprentices and trainees that lead to jobs in energy, process engineering and automation industries. Training is mapped to multiple career levels, from technician to process operator, trade specialist to site manager, and beyond.

Training is delivered by lecturers with qualifications and experience across a multitude of disciplines. These include process plant operations and management, instrumentation, engineering, automation, industrial electrical, plant maintenance, process control systems and working in a high risk and highly regulated environment.

Training facilities include:

- Live three-phase separation pilot plant (oil, gas and water)
- Live binary distillation column trainer
- Two automated control rooms fitted with distributed control systems (DCS) for the pilot plant and a separate DCS for the distillation column, with partners Honeywell and Emerson
- Static dehydration package, and pump and valve cutaways
- Process (computer based) simulators
- Pigging circuit
- Water treatment package
- Robotics and electrical.

Local clients employing our graduates include Shell, Woodside, BHP, Rio Tinto, Chevron, Santos, BP, INPEX, Tronox, ConocoPhillips, Alcoa Australia and Kleenheat. In addition, many engage SM TAFE to deliver customised training for their own workforce requirements.



Facilities to meet future industry demand

LIVE THREE PHASE SEPARATION PILOT PLANTS (OIL, GAS AND WATER)

Training function:

Process plant operator, control room operator and supervisor training includes:

1. Prestart, start-up, steady state, normal shutdown, maintenance shutdown and restart, emergency shutdown
2. Permit to work (PTW), lock out tag out (LOTO); interpreting process plant schematics (P&IDs, PFDs, PEFs)
3. Hazard identification, risk analysis and control
4. Gas testing, preparation and isolation for maintenance
5. Minor maintenance
6. Fault finding and troubleshooting
7. Recordkeeping
8. Report writing
9. Water treatment.

LIVE BINARY DISTILLATION TRAINER AND TWO DISTRIBUTED CONTROL SYSTEMS

Training function:

Separating liquid mixtures and recovering the components typically involved in the distillation process. The Live Binary Distillation Trainer is equipped with industry-typical process measurement and control devices and is controlled from a DCS or local control panel, in partnership with Honeywell and Emerson.

Training includes:

1. Continuous variable flow
2. Variable temperature and pressure conditions
3. Glass distillation column with bubble-cap trays
4. Liquid sample and temperature of each tray
5. Heat exchangers and reboiler.

AUTOMATION

Training function:

Focuses on automated workplaces, how they operate, what unique safety systems are present, how the human-machine interface operates and what, why and how data is used within such workplaces.

Training includes:

1. Two distributed control systems in partnership with Honeywell and Emerson
2. Drones
3. Robotics



Facilities to meet future industry demand (continued)

STATIC DEHYDRATION PACKAGE AND PUMP AND VALVE CUTAWAYS

Training function:

Interpreting plant schematics (P&ID's, PFD's, PEF's), equipment and systems identification and process operations (isolation, flanging, bolting).

PROCESS SIMULATORS: 3 PHASE SEPARATION, DISTILLATION AND LNG

Training functions include:

- Feed and product specifications
- Process flow and ID diagrams
- Controls and instrumentation
- Interlocks
- Normal operations
- Normal production monitoring
- Monitoring and adjusting plant operation
- Pre start-up, start-up, steady state, shut down
- Emergency operations
- Faults and trouble-shooting
- What-if exercises
- Loop tuning.

The process simulators cover the following non-exhaustive list of systems and processes:

- Fluid flow and pumping systems
- Scrub column
- Compressors – centrifugal and reciprocating
- Distillation and Vacuum distillation
- Heat exchangers
- Dehydration
- Liquefaction - Joule-Thompson (JT) control valves.

The Process Simulators are designed to emulate the following DCS: Emerson Delta V, Honeywell GUS or TDC3000 and is able to superimpose other system interfaces for students to use accordingly.



Delivery

In addition to customised training, we offer a range of other accredited courses at Munster Campus, including:

- Engineering (certificate II to advanced diploma): Instrumentation, Maintenance and Process Control
- Process Plant Operations (certificate II & III)
- Industrial Electrician (certificate III)
- Process Plant Technology (certificate IV to advanced diploma).

We consult the industry at all stages, from planning, to design, to delivery, to ensure graduates have the skills and training to meet the demands of the workplace.

AUTOMATION

A landmark partnership with Rio Tinto has resulted in the development of Australia's first qualifications and skills sets in automation. The new courses are designed to equip current and future workforces with STEM skills that automation and technology require and provide new education pathways to employment in the Australian resources sector. In partnership with Rio Tinto, SM TAFE has developed two new qualifications, which are the first accredited automation qualifications in Australia:

- 52845WA Certificate II in Autonomous Workplace Operations
- 52844WA Course in Working Effectively in an Automated Workplace

QUALITY MANAGEMENT

SM TAFE's quality management and continuous improvement processes are developed under the Australian Quality Training Framework (AQF) and equivalent to ISO 9000 series standards, achieving:

- Consistent and high standards of education delivery and assessment
- Student capabilities and competencies to enable graduates to be work ready and meet industry skills demands
- Customised, sustainable training and consultancy solutions for institutional clients and partners – locally and internationally
- Programs which greatly improve employability of individuals and a sustainable workforce.

Quality management processes include student and employer satisfaction surveys.

Partnerships

- The ACEPT Industry Advisory Board guides the strategic direction of future training at Munster Campus and consists of members from the WA resources sector.
- Chevron Australia, providing workforce training and work readiness programs. Areas include business, logistics and engineering and with significant customised delivery to meet indigenous training needs.
- The National Energy Technician Training Scheme (NETTS) is a collaboration with Programmed and major oil and gas organisations to build a skilled workforce for the future. In addition to their studies at SM TAFE, apprentices benefit from exposure to different industry settings, plants and equipment while completing secondments at host companies across Perth and regional WA.
- Gilmore College and Kwinana Industries Council to provide a talent pipeline for prospective students to enter the oil and gas, resources and chemicals industries.

Workforce Development

DOMESTIC

We provide on and off shore process and maintenance training to technicians for oil and gas companies, including Shell, ConocoPhillips, INPEX and Santos.

INTERNATIONAL

Some international partnerships include:

- Abu Dhabi Vocational Educational Training Institute (ADVETI), United Arab Emirates - ADVETI in partnership with SM TAFE assists delivery of Certificate III in Engineering (Technical) to address industry skills shortages, delivering competent, operations-ready staff to Total Oil and Gas
- Expro Marine in Malaysia, with staff undertaking both Certificate IV in Training and Assessment and Oil and Gas training at SM TAFE Munster Campus. This enables the Expro staff to deliver process plant operations skills sets to the Malaysian workforce.





Energy, Process Engineering and Automation

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