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Skills WORKSHOP

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Package deal

A landmark moment
in HVAC&R training



A COOLER FUTURE

The path ahead for CO₂ refrigeration

PACKAGE DEAL

When veteran educator Steve Smith wrote his assessment materials for the updated electrotechnology training package, it was a gamechanger for trainers and students around the country. Louise Belfield reports.

In 2020, Australia's skills ministers endorsed an updated electrotechnology training package that heralded big changes to the Certificate III in Air Conditioning and Refrigeration. These included the latest refrigerants, technologies, standards, codes, and environmental/sustainability and work health and safety requirements.

Although this long-overdue update for RAC training was welcomed by educators, it also presented a challenge. The package details the units of competency covered in each course, but it is up to the registered training organisations (RTOs) to develop their own assessment materials to test those competencies. This is a labour-intensive process, particularly for smaller RTOs.

Veteran educator Steve Smith, Affil.AIRAH, had a different idea. When his RTO, Superior Training Centre, asked him to write the assessment materials, he saw an opportunity for STC to also make them freely available to all other RTOs in Australia. STC agreed.

RAC REVOLUTION

"It was a game-changer," says Paul Wright, Affil.AIRAH, another long-term RAC educator with 19 years of teaching at the Canberra Institute of Technology (CIT) and graduate certificates in both adult education and management under his belt. Along with Smith, Wright

has been co-chairing the National Refrigeration and Air Conditioning Trainers Alliance (RACTA) since its inception in 2015. The two share a deep appreciation of the camaraderie, passion and support that the RAC teachers around the country provide each other.

Smith, a teacher in the industry now for 34 years, also holds numerous qualifications on top of his original trade certificate, including a Diploma in Teaching (technical), Advanced Diploma in Management, Lead Auditor Certification, and the skillsets on ammonia, carbon dioxide and hydrocarbon refrigerants.

He was "underwhelmed" by the 2020 update of the electrotechnology training package.

"It was essentially the same product that was released when training packages were first introduced to the vocational training sector back in 1998," Smith says.

"The primary objective of the update was the alignment of the course documentation to the Word templates that were mandated by the federal government in 2011, and it was only towards the end of the project that educators were permitted to make a few minor changes, but nothing of any real substance.

"It was a terrific example of how slow and cumbersome the maintenance of the training package model had become."

A FRAGMENTED SYSTEM

Apart from these issues, Smith was concerned about the way each RTO was developing assessment materials to go with the units of competency. He'd seen the results of such practices early on in his career when, as a new teacher, he quickly discovered every teacher wrote their own lesson notes for each subject in the trade course.

"It was actually an expectation, and seen as a sort of initiation process," he says. "Every teacher – we had 24 – possessed a lot of knowledge and experience in a few subjects but virtually nothing on other subjects.

"This problem was compounded by the fact that every teacher also wrote their own assessments. It wasn't a big problem for the students in each class group, but over the years I came to realise that each group was receiving different content and being assessed at a different level!"

Ultimately, he says, there was no consistency.

Then, in the late 1990s, Smith was invited along to some of the national meetings that were being initiated. This opened his eyes to the fact that this



Students perform tasks in a TAFE workshop and assessment area.



Left to right: Noel Munkman, M.AIRAH, Steve Smith, Affil.AIRAH, and Paul Wright, Affil.AIRAH.

"[STC was a] training organisation with a keen desire to help the RAC industry develop and grow," he says. "I agreed because they offered 'hands-off' management; something I couldn't hope to experience in the TAFE world."

And when Smith suggested this work be made freely available to all the other colleges around the country, he was delighted to receive a positive response.

"The drivers behind my request were therefore twofold," Smith says. "I was being provided the opportunity to realise a lifelong goal, and also share it with colleagues across the nation that I hold in high esteem."

MORE TIME FOR TEACHING

For CIT's Paul Wright, it was the salve the system needed and was well overdue. While he believes the updated 2020 training package covers off on the fundamentals of an air conditioning and refrigeration technician, it was a major challenge for RTOs to comply with the Australian Skills Quality Authority (ASQA) requirements, such as training package evidence collection requirements, and the time frame and resources required to be able to get that completed.

"[Before Steve's work] it was a massive task," he says. "You'd have to develop everything from the learning resources right the way through to all the assessment resources, and then recognition of prior learning resources."

Instead, Smith mapped all the assessment resources to each of the units of competence and qualification, giving time back to teachers to modify, adapt and update their learning resources for the students.

"It significantly reduced the compliance side of having to get a qualification on scope," says Wright, "and it also provided consistency right across the board, because not every RTO has all the same resources."

It also focused directly on demonstrating students' competency through the knowledge they gained by doing tasks practically and homing in on skills outcomes.

"That is, 'Can you do it?' And the answer is either yes or no," Wright says. "Our colleges and students love that aspect of practical skills, with minimal theory assessment requirements."

Ultimately, Wright says, Smith's work freed up trainers to be able to focus on the learning in the delivery, and assessing the fundamental requirements.

A WEIGHT LIFTED

Darron Febey, AM.AIRAH, from TasTAFE is another RAC teacher who started out as an electrician back in 1986 and accumulated a swag of certificates and a post-graduate qualification in business studies along the way.

He found himself on the technical advisory committee for the new training package, and had the opportunity to listen to views from industry, unions, TAFEs and other stakeholders during its implementation.

"The deeper the discussion, the more it was realised that [updating the package] was an opportunity to make some changes to the 2011 version," Febey says. "Large competencies were able to be broken down into parts, allowing the delivery to be more focused, and content distributed across two competencies, which I believe allows the apprentices to retain knowledge better overall."

"Being part of the RACTA organisation is a terrific networking and resource sharing centre, but this also showed that there were differences in the assessment tools used across other TAFEs."

A national collective approach was always discussed at the meetings he attended, Febey says.

"[We knew that] a national approach would ensure that all TAFEs are assessing at the same level, training resources are consistent and student outcomes should be similar across the board," he says.

"When I [and the other TasTAFE teachers] discovered that Steve Smith, with his employer's support, was going to write the training package assessments for the new UEE32220 qualification, we felt that a weight had been lifted from our shoulders; we could keep delivering our current training with our limited teaching resources and still be involved through peer group meetings in the knowledge that through Steve's extensive experience we would have the best assessment pack we could have imagined."

"We have been using the assessment for a year now, so the whole qualification has a look, from stage one to stage four, student feedback has been positive, and I am confident that a small delivery team from Tasmania can deliver the same quality tools as the larger organisations."

"It has meant that the whole qualification can be delivered consistently across the nation, which must make industry feel confident with their apprentice training as well. Validation and moderation can now be conducted on one assessment tool, and improvements made that will benefit all participants."

inconsistent delivery and assessment approach was occurring at every college around the country. Creating a new approach became something of a Holy Grail for him.

He had already been compiling his own delivery notes into printed form for his own use, which he expanded into the compilation of two large folders for his students. A year or so later, he found every teacher had adopted them. It was his first experience of consistency in the field.

Then, while still with TAFENSW, he was appointed as product manager for RAC courses, as well as renewable energy. The new position was a move away from a single college, with responsibility increasing to all colleges in NSW that delivered the RAC course, Smith says.

"I was responsible for the production of assessment and delivery documentation for NSW; a position I was excited to gain, but this soon turned to disappointment when I realised the entire mechanism was thwarted with excessive administration and compliance processes."

It was around this time his current employer, Superior Training Centre, approached him and invited him to produce the assessment documents for the recently released course version.

CONSISTENCY THE KEY

Noel Munkman, M.AIRAH, is another stalwart of the RAC teachers' group. He started teaching the RAC trade course in June 1981 at TAFE NSW's Ultimo Campus in Sydney, then held other TAFE positions over the next years before moving on to E-Oz Energy Skills Australia and then on to his current position of Technical and Training Manager at the Australian Refrigeration Council (ARC) in 2016.

Like his peers, Munkman boasts a long list of qualifications in the RAC arena and knows the system inside out. In his view, the 2020 Electrotechnology Training Package updated the 2011 version primarily to meet the 2012 Standards for Training Packages, but also included some technical updates.

"Relevant evidence is required to demonstrate competence in a unit of competence that satisfies all the requirements of its elements, performance criteria and range of conditions on at least two separate occasions," Munkman says.

"However, these were open to interpretation by each of the 26 RTOs in 42 locations across Australia to deliver the new RAC qualification."

Accordingly, the new assessment materials developed by Steve Smith include elements; performance criteria and range of conditions mapping; knowledge assessments and answers; and performance assessments and answers.

"Each RTO can use them as they are or adapt them to suit their local students, resources and industry, which saves them the time, effort and money [they would spend] if they developed their own from scratch," says Munkman. "The use of these resources by RTOs across the country will also result in greater consistency of assessment and student outcomes."

A NEW BENCHMARK

Smith gives the kudos for this success to his employer.

"STC has spent many years working hard to develop and foster a deep affiliation with the future of this industry, and that ideal encompasses the up-and-coming tradies of the future," he says.

"What better way for a private training organisation to demonstrate that ideal than to share a product that will finally move the nation toward a consistent training platform at a national level. I applaud their stance and the energies they pour into this industry."



Students around the country will receive more consistent training thanks to the new assessment materials. Photo courtesy of STC.

He is also grateful to colleague and then head teacher of RAC trades at Kingswood TAFENSW, Ian Paul, for assisting him with the project.

"Ian retired from [that position] back around 2012, a position he had held for some 20-plus years," says Smith. "He was a great help."

And although initially received with a degree of scepticism because the work was produced by a private training organisation, most of the public training colleges (TAFEs) around the country have also adopted it in some form, Smith says.

"This was inevitable as some states persist in functioning as a separate country, with the need to do things their own way, even though one of the initial goals was to dramatically reduce the expenditure required to create the assessment tools at each college," he says.

"The one outstanding outcome to my mind is that we now have a benchmark for future national discussions around where and how changes are made to trade training in this fantastic industry." ■

KEY CONTRIBUTION FROM THE ARC

According to Australian Refrigeration Council CEO Glenn Evans, Affil.AIRAH, and Technical and Training, Manager Noel Munkman, M.AIRAH, the 2020 Electrotechnology Training Package updated the 2011 version primarily to meet the 2012 Standards for Training Packages. However, some technical information in the UEE32220 Certificate III Air Conditioning and Refrigeration qualification was also revised, such as the inclusion of A2/A2L and A3 refrigerants and updating relevant standards, codes, and work health and safety requirements.

For example:

- Adding Class A2/A2L and A3 flammable refrigerants and CO₂ refrigerant to relevant units of competencies. This is an important inclusion because the A2L refrigerant R32 has grown to be the main refrigerant used in the air conditioning sector.
- Replacing the separate units of competency on installing, commissioning and diagnosing/rectifying faults in RAC systems with new low temperature, medium temperature and air conditioning units of competencies covering their installation, commissioning, servicing and maintenance.
- Splitting the large refrigerant unit of competency into two units.
- Splitting the large motors and controls unit of competency into two units.

"The A2/A2L competency and the associated resource materials were developed by the ARC and the new standards incorporated in the Certificate III," says Evans. "These resources were also provided free to the industry." ■



The new training materials focus on practical assessment. Photo courtesy of STC.