



**Electrical Trades Union of Australia**  
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# Report by exception to the Electrotechnology Training Package Release 2.0

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# 1 Preliminary Summary

1. The ETU supports the principle of a nationally recognised Electrotechnology Training Package that provide workers with transportable qualifications enabling them to work productively and safely across jurisdictions, industries and enterprises.
2. The ETU supports nationally recognised training packages that;
  - a) are developed by writers with an understanding of industry expectations, and
  - b) have tri-partite input and oversight, including equal representation from Unions, Employer Associations and where appropriate Government bodies such as Electrical Regulators and Industry Training Advisory Boards (ITAB), and
  - c) calls upon advice from industry technical experts that is valued and considered, and
  - d) clearly articulates expectations to all stakeholders the requirements for a learner to become competent, and
  - e) leads to an outcome that provides valued employment opportunities for workers to contribute to a fair society and further opportunities for career progression.
3. The ETU acknowledges the in-kind contribution that various industry stakeholders have made since the inception of the current Federal framework for training package development was first introduced on 1 January 2016.<sup>1</sup>
4. The ETU does not support the proposed Release 2.0 of the Electrotechnology Training Package that has been developed by Australian Industry Standards (AIS) as the Commonwealth Government contracted Service Skill Organisation (SSO) in its current form as the training products;
  - a) contain duplicated content, and
  - b) have inadequate packaging rules, and
  - c) include inadequate qualification descriptions, and
  - d) show inconsistent application of pre-requisite units, and
  - e) do not include all pre-requisite units in the transition, as directed by the IRC, and
  - f) contain ambiguous assessment conditions within units, and
  - g) includes units in some qualifications that are unsuitable, and
  - h) were developed with a lack of authentic industry consultation, and
  - i) do not have genuine industry support for the proposed release, and
  - j) includes a deceptive and misleading Case for Endorsement (CfE).<sup>2</sup>
5. Accordingly, Release 2.0 of the Electrotechnology Training Package requires significant amendment to address the current failings and ensure that it meets the needs of electrical workers and the industry holistically.

Additional note: While the ETU in cooperation with other industry stakeholders have identified several outstanding issues contained within this report, this is by no means an exhaustive list.

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<sup>1</sup> <https://www.employment.gov.au/AISC>

<sup>2</sup> <https://www.australianindustrystandards.org.au/projects/>

## 2 Introduction

The Electrical Trades Union of Australia (ETU) is the Electrical, Energy and Services Division of the Communications, Electrical, Electronic, Energy, Information, Postal, Plumbing and Allied Services Union of Australia (CEPU). The ETU represents approximately 65,000 electrical and electronic workers around the country and the CEPU as a whole represents approximately 100,000 workers nationally, making us one of the largest trade unions in Australia.

The ETU has long and proud history as a valued stakeholder in the Vocational Education and Training (VET) system within Australia. As the peak body for Australian electrical workers, we are acutely aware of the critical importance that the VET system has on electrical workers and to Australia's economic prosperity. The value of Australia's VET system lies in its capacity to drive productivity growth, making work more valuable and promoting opportunity for workers to contribute to a sustainable society. To enable this to happen, nationally recognised and industry supported electrotechnology training products that provide workers with transportable qualifications are essential.

The electrotechnology industry in Australia impacts areas of construction, mining, manufacturing and engineering. The industry employs 352,000 people nationally, with an annual revenue of \$89.47 billion.<sup>3</sup>

The industry covers the installation, service, repair, programming and maintenance of electrical and electronic equipment across commercial, industrial and domestic applications. It includes various sectors such as electricity distribution and transmission, electricity generation, refrigeration and air-conditioning, data and communications, fire protection, instrumentation, rail, computer systems and renewable energy.

According to the latest data available from the National Centre for Vocational Education Research (NCVER), there were 36,814 apprentices or trainees enrolled in the UEE Electrotechnology Training Package for the July - September quarter of 2019. Of these apprentices, 29,448 or 80% of the total UEE enrolments are enrolled in a single qualification - UEE30811 - Certificate III in Electrotechnology Electrician.<sup>4</sup>

Technological advancements within the industry are high and continue to evolve with an ever-increasing demand for smart technology systems, home automation, expansion of programming and control of devices integrated through the internet of things (IoT).

Renewable energy is set for further rapid expansion in Australia over the coming years as is the increased demand for electrical vehicles.

With the onset of the COVID-19 pandemic, qualified workers within the electrotechnology industry are imperative to keeping Australia's electricity grid, hospitals and supermarkets running. An increase in the demand for internet, data and voice communication services due to the influx of people working from home and schools going online has exacerbated the need for such suitably qualified workers. This will become more evident to enable a successful economic recovery once the threat of the pandemic has passed.

The electrotechnology industry needs to be able to adapt to these challenges and technological advances.

This report by exception will highlight the areas of concern contained within the current Electrotechnology Training Package - Release 2.0. It will also propose appropriate solutions and recommendations for an acceptable pathway forward to a training package that industry has confidence in.

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<sup>3</sup> [2019 Electrotechnology IRC Skills Forecast](#)

<sup>4</sup> [Vocstats, NCVER – July-September quarter 2019](#)

### 3 A Brief Timeline of Events

To provide some context to this report, included below is a brief overview and timeline of some of the major decisions affecting the Electrotechnology Training Package dating back to 2015.

**May 2015** – Australian Industry and Skills Committee (AISC) established.<sup>5</sup> Noting there is no representative of employees through the Australian Council of Trade Unions (ACTU), despite their being a position allocated to Peak Employer Associations and another nominee from the Commonwealth for an additional Employer Association member.

**1 January 2016** – New model for training package development came into effect.<sup>6</sup>

**27 January 2016** – Minister Hartsuyker announces five new SSOs including AIS with responsibility of the electrotechnology training package.<sup>7</sup>

**November 2016** – Electrotechnology Industry Reference Committee (IRC) approved by the AISC.<sup>8</sup>

**December 2016** – Electrotechnology IRC holds their inaugural meeting, almost 12 months after the new framework for training package development was put in place. This majority of the meeting was taken up with induction training and the election of a Chair/Deputy Chair. It included a small conversation about transitioning the UEE training package to the 2012 Standards for Training Package Development.

**April 2017** – Two new Units of Competency (UoC) relating to battery storage approved by the AISC (this work was largely already done by previous Industry Skills Council (ISC) and discussed quickly at the December 2016 meeting). The AISC reiterated that the transition of UEE package to 2012 standards remains a priority.<sup>9</sup>

**1 November 2017** – A new Case for Change (CfC) submitted to the AISC for consideration.<sup>10</sup> Project includes a review of 43 UoC relating to Certificate II Electrotechnology (Career Start) and Certificate III Electrotechnology Electrician. The key drivers for the CfC included:

1. Ensuring Training Package products comply with the requirements of the Standards for Training Packages 2012.
2. Amendments to Critical Aspects of the Essential Performance Capabilities (EPC) requirements for Licensed Electricians, determined by the Electrical Regulatory Authorities Council (ERAC).
3. Updating UoC to align with new and emerging technologies associated with industry requirements.
4. UoC are no longer 'fit for purpose', and do not reflect industry requirements.
5. Qualification packaging rules do not meet industry requirements.

**18 January 2018** – CfC approved by AISC.<sup>11</sup>

**16 March 2018** – IRC to transition entire UEE training package by June 2018. A full review of 113 UoC to take place after transition is complete.<sup>12</sup>

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<sup>5</sup> <https://www.aisc.net.au/hub/8-may-2015>

<sup>6</sup> <https://www.aisc.net.au/hub/1-december-2015>

<sup>7</sup> <https://www.aisc.net.au/hub/27-january-2016>

<sup>8</sup> <https://www.aisc.net.au/sites/default/files/communique/20161121>

<sup>9</sup> <https://www.aisc.net.au/hub/11-april-2017>

<sup>10</sup> [http://www.australianindustrystandards.org.au/UEE\\_Electrical\\_Case\\_for\\_Change](http://www.australianindustrystandards.org.au/UEE_Electrical_Case_for_Change)

<sup>11</sup> <https://www.australianindustrystandards.org.au/uee-review-units>

<sup>12</sup> *Ibid*

**14 August 2018** – AISC met with IRC Chair Larry Moore, IRC Deputy Chair Mark Burgess and IRC Member Carl Copeland to discuss the current transition project and updated Project Brief.<sup>13</sup> IRC members reiterated the importance of ensuring the training package meets ERACs requirements for licensing and highlighted areas of risk and challenges faced to date.

**11 February 2019** – Draft UEE materials released for public consultation.<sup>14</sup> Despite Technical Advisory Committee (TAC) members repeatedly requesting AIS to work on the core of the electrician qualification as a priority, only elective units were released.

**8 April 2019** – Further draft UEE materials released for public consultation.<sup>15</sup> Still did not include all core units from the Certificate III Electrotechnology Electrician qualification or two of the other most commonly used qualifications, Certificate II Electrotechnology (Career Start) and Certificate III Electrical Fitting.

**17 July 2019** – Final phase of public consultation begins with all components of the UEE package released.<sup>16</sup>

**22-23 August 2019** – Electrical TAC meets to consider public desktop feedback and to action that feedback as required. Even though they met over two days, it was not possible to get through all of the feedback. Recommendations were made to the IRC, which were later overturned on advice from AIS. No contact was made from AIS to the TAC until 21 February 2020, a full six months after their recommendations were made, despite Deputy Chair of the IRC Mark Burgess urging AIS to keep them informed.

**13 December 2019** – IRC meeting. Many issues were raised with the training package including that the electrician qualification has not been mapped thoroughly to ERACs EPCs for licensing. The IRC voted to proceed with split release of the training package despite outstanding concerns. To the disbelief of many in industry, the IRC voted to put core UoC from the electrician qualification forward in Release 2.0 without the actual qualification template, which was due to go in Release 3.0. Naturally, with grave concern for industry the ETU, CEPU and ERAC representatives voted against this decision. They were outvoted 6-3.

**15-17 January 2020** – EPC mapping workshop held. A select group of industry returned early from scheduled annual leave to contribute further in-kind support to AIS to assist in the mapping of licensing EPCs to the draft training components.

**5 - 17 February 2020** – Various meetings, discussions and emails relating to feedback from State Training Authorities (STAs) on Release 2.0. Of particular note: Vic, ACT, SA, NSW and QLD all put in reports by exception. WA provided conditional support and AIS informed the IRC that Tas and NT did not respond. The IRC voted to continue to proceed with a split release, despite the widespread condemnation of doing so. This decision was not unanimous, and the ETU and CEPU representatives opposed it for similar reasons to those provided by STAs.

**25 February 2020** – Release 2.0 proceeds to AISC.

**31 March 2020** – Unsurprisingly to the ETU, the AISC rejected release 2.0 and directed the IRC to merge Release 2.0 and Release 3.0 into a single release.

**23 April 2020** – The modified and combined Release 2.0 was submitted to STAs for a three-week feedback period. There remain many outstanding issues which will be detailed further below.

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<sup>13</sup> <https://www.aisc.net.au/hub/14-august-2018>

<sup>14</sup> [Ibid](#)

<sup>15</sup> [Ibid](#)

<sup>16</sup> [Ibid](#)

## 4 Outstanding Concerns

### 4.1 General

The ETU has a number of concerns that relate to the general process that has been followed by AIS since the inaugural IRC meeting held in December 2016.

The first 12 months was largely spent trying to ascertain how to fit a square peg, into a round hole. That is, transition UEE training products from the endorsed version to the 2012 standards for training package development.

During this process, both IRC and TAC members kept running into barriers and roadblocks. A significant amount of these were caused by the framework for training package development requirement that SSOs are independent of industry. Examples of this are included below.

#### 4.1.1 Foundation Skills

AIS consistently claimed that foundation skills are outside the scope of the project and outside the scope of transition. This is despite the current endorsed training package including a reference to language, literacy and numeracy skills. Industry evidence has shown a strong correlation between apprenticeship completions and language, literacy and numeracy requirements. Eventually, the IRC tired of arguing about it and conceded that it will be looked at in future skills forecasts. In the meantime, the inability to address this will see completion rates of apprenticeships drop.

#### 4.1.2 Essential Knowledge and Skills

The inability to transition existing Essential Knowledge and Skills (EKAS) from the existing to the new drafts. IRC and TAC members, spent a significant amount of time trying to explain to AIS that the EKAS was in fact the fundamental content of the existing units. They are the skills that apprentices need to know to become competent in their vocation. This EKAS needed to transition into either Performance Evidence (PE) or Knowledge Evidence (KE), which in turn, needed to link to the Elements and Performance Criteria of the unit. AIS kept reiterating that some Elements and Performance Criteria needed to be re-written, in order to be able to make the EKAS fit into the PE and KE. This took up a significant amount of time and resulted in an IRC direction to ensure all EKAS is transitioned across unless the products have undergone a thorough review process by TACs. The ETU is aware of instances where this has not been carried out, however we are not aware of how widespread it is.

#### 4.1.3 Weighting Points

Although the standards are silent on weighting points, AIS clearly does not like the use of them within the packaging rules of qualifications. AIS has made this point clear on several occasions, despite it being the industry preferred model. This has taken a significant amount of work from the IRC to try and explain this industry requirement to AIS. It is tiring, ongoing and monotonous.

#### 4.1.4 Pre-Requisite Units

Pre-requisite units are used considerably throughout the electrotechnology training package. The requirements for doing so, are largely based on the technical and scientific nature of the electrotechnology

industry, and the safety implications to workers and consumers if learning is not adequately achieved. Much to AISs disbelief, it is not about mandating a delivery sequence for qualifications. It is about ensuring that aspects of this highly technical industry are taught in a manner which is appropriate. That may mean an apprentice learns safety fundamentals and begins an introduction into electrotechnology theoretical practices, before moving onto more complex mathematical and scientific technical knowledge. Of course, this underpinning theoretical knowledge is then put into practice and consolidated over time on the job, ensuring a truly vocational outcome. This took up a significant amount of time and resulted in an IRC direction to ensure all pre-requisites transition across unless the products have undergone a thorough review process by TACs. There are examples included in this report where this has not happened, although it needs to be noted again that it is not an exhaustive list.

#### **4.1.5 Industry Engagement**

It is evident to the ETU, that the way the model for training package development has been established, should mean that industry engagement is at the heart of the process. This is supposed to be led by the IRC; however, the IRC members are not funded to lead industry engagement, that I assume, is a contractual obligation of SSOs. Since the IRC first met in December 2016, there has been very little face to face industry engagement undertaken by AIS. I mean sure, there has been face to face IRC and TAC meetings, but outside of that most things are done by using a desktop review approach. Training products are often viewed in isolation, not holistically and then they have been released in dribs and drabs for public feedback via desktop. There has been no consultation with industry to confirm if the products are hitting the mark or to explain the changes in laymen's terms so that they have a better understanding of them. Let's be perfectly honest, if you do not work in the education sector or you do not participate in the training package development process, then there are very few people who understand how to read a unit of competency or qualification and can decipher what they mean. Industry, both employers and workers are far too busy to review thousands of pages of training products. It is imperative that this engagement happens in a face to face environment, where major changes and feedback can be explained using terminology industry understands. Workers are often best placed to tell you what skills they are using or what they need. There is just no process for this to happen.

#### **4.1.6 Issues Register**

It is not evident to the ETU that an Issues register has been maintained by AIS throughout this process. It is good practice to do so, and would have helped to resolve some of the outstanding issues that remain and are documented within this report.

#### **4.1.7 Communication**

It is the opinion of the ETU that communication has been a problem throughout the transition and development process. Meeting documents and minutes are often not included in the timeframes specified within the IRC Operating Framework and/or the Memorandum of Understanding between the SSO and IRC. Additionally, it is not uncommon for answers and clarification of outstanding issues to remain unresolved.

#### **4.1.8 Technical Expertise**

A major flaw in the current framework, is that SSOs are independent of industry. This has undoubtedly caused delays to this training package going forward. It also creates a disconnect between the training package developers and industry. A lack of understanding of industry terminology and history, leads to a lot

of the outstanding issues that remain in the package today. Industry technical expertise is necessary to ensure training products remain current, usable and relevant.

#### 4.1.9 Case for Endorsement

The Case for Endorsement (CfE) for the UEE Electrotechnology Training Package Release 2.0, does not present a true reflection of industries thoughts. If you were to read the CfE, you would get a sense that every person who has been involved with the package, approves of and subsequently endorses it. This is simply not the case, and the following section provides some examples of misleading commentary contained within the CfE.

- Page 34 of the CfE states: ***“No other implementation issues have been identified by the IRC or from public consultation feedback”*** This statement is at best misleading and at worst an intentional lie. Many implementation issues have been raised through public feedback and by IRC members. The most recent example of this was in an email sent from the IRC Deputy Chair to Industry Manager of AIS Jason Lazar pointing out several implementation issues that remain unresolved and requesting an update prior to the CfE proceeding to the State Training Authorities (STAs) for their feedback. An extract from that email says ***“Thanks. I’ve made a considerable effort to respond to the CfE in a timely manner (as has Noel) and would expect to receive an update on this prior to it going to STAs for feedback.”*** Unfortunately, as is often the case, no response was received from Jason Lazar or AIS prior to the CfE proceeding to the STAs.
- Page 37 of the CfE states: ***“The Electrotechnology IRC identified 24 Qualifications and 83 Units of Competency with zero enrolments for the past three years. These training products have been put forward for deletion as part of this revision process. See Appendix D”*** However, when you go to Appendix D, there is 7 Qualifications listed and not 24. Additionally, there are a number of units recommended for deletion that are also included as electives within the qualifications that are going forward for endorsement.
- Appendix C, contains an Independent Quality Report produced by Terry Smith. Contained within the report, under Quality Principle 3, is a paragraph which states: ***“The Case for Endorsement (CfE) highlights the consensus reached by the Technical Advisory Committee (TAC) and relevant stakeholders on content, development and need and this is confirmed by the editorial report. The reviewer notes the extensive and contentious nature of the consultation process and the successful outcome that has been negotiated and developed. The CfE specifically outlines how national consensus and all other quality Principle 3 measures were met and addressed.”*** Such is the misleading nature of the CfE, that the Independent Auditor is under the impression that consensus has been reached, when it hasn’t. The Electrical Technical Advisory Committee was not contacted by AIS for 6 months in the lead up to the CfE going forward. In fact, numerous TAC members lost interest along the way as they tired from arguing industry requirements and expectations to AIS.

#### 4.2 Qualification Description UEE30820 Certificate III in Electrotechnology Electrician

The qualification description of UEE30820 contains no reference to ERAC licensing EPCs. This is of the utmost concern to the ETU and should be to the regulators and all of industry. This is the industry endorsed and industry and regulator approved qualification to become a licenced electrician. There are training products currently endorsed by the AISC that duplicate this qualification and have more information regarding EPCs than the industry endorsed qualification.

For example, the MEM31219 Certificate III in Engineering – Industrial Electrician qualification has more detail than the UEE30820 qualification on electrical licensing requirements. The MEM qualification description states:

*“This qualification provides competencies in the ability to select, set up and install, test, fault-find, repair and maintain electrical systems and equipment in buildings and industrial environments, including oil/gas installations, mine sites, processing plants and the like. **The qualification covers the Essential Performance Capabilities as required by electrical regulators and includes a capstone assessment.***

***Persons engaged in training towards this qualification must provide evidence of workplace experience to assist assessment against the units of competency and for any license application.***

*This qualification is designed to provide an industry recognised skills profile related to working as an Engineering Tradesperson – Industrial Electrician. Skills development should be undertaken through an Australian Apprenticeship arrangement where the mix of on and off-the-job training would be specified in the Training Plan associated with the Contract of Training between the employer and apprentice.*

***This qualification is designed to support an application in each state and territory for a license to practise as an electrician. Other supporting documentation may be required. Local regulations should be checked for details.”***

The UEE30820 qualification currently states:

This qualification provides individuals with the skills and knowledge to select, install, set up, test, fault find, repair and maintain electrical systems and equipment in buildings and premises. The skills and knowledge described in this qualification require a licence or permit to practice in the workplace where work is carried out on electrical installations which are designed to operate at voltages greater than 50 volt (V) alternating current (a.c.) or 120 V direct current (d.c.). Competency development activities in this qualification are subject to regulations directly related to licensing. Where a licence or permit to practice is not held, a relevant contract of training through an Australian Apprenticeship, is required.

***Recommendation 1: The wording of the UEE30820 Qualification Description should be modified to include a reference to ERAC EPCs. At a minimum, this line should be added:***

***“This qualification contains the requirements to meet all 55 Essential Performance Capabilities (EPC) as stipulated by the Electrical Regulatory Authorities Council (ERAC).”***

#### **4.3 Inconsistency of wording between the Qualification Description of UEE30820 Certificate III Electrotechnology Electrician and select Core Electrical Units of Competency within the qualification**

The UEE30820 qualification description states: Competency development activities in this qualification are subject to regulations directly related to licensing. Where a licence or permit to practice is not held, a relevant contract of training ***through an Australian Apprenticeship, is required.***

The ‘electrical’ UoC have the following statement:

Competency development activities in this unit are subject to regulations directly related to licensing. Where a licence or permit to practice is not held, a relevant contract of training, ***such as an Australian Apprenticeship, is required.***

The two statements are different and have different meanings. The qualification says you must have an apprenticeship, the unit recommends an apprenticeship.

This was raised as a concern from public feedback during what was the Release 3.0 consultation period. This feedback has never gone to the TAC for review and decision.

***Recommendation 2: The wording of the UEE30820 Qualification Description and select Core Units of Competency must be consistent so there is no ambiguity within the training products. Suggested wording for both:***

***Competency development activities in this qualification (or unit if it is a UoC) are subject to regulations directly related to licensing. Where a licence or permit to practice is not held, a relevant contract of training through an Australian Apprenticeship, is required.***

#### **4.4 Inadequate Packaging Rules of UEE Qualifications**

The packaging rules appear to be written by training package designers that have a complete lack of understanding of the electrotechnology training package and are disconnected from any genuine industry insight. AIS has often expressed a dissenting opinion on the use of weighting points within the energy training packages and this shows in the way they are written.

All of the UEE qualifications reviewed by the ETU have packaging rules written like a student/apprentice has to achieve 'weighting points', when in fact they have to achieve competency standard units that attribute to attaining a qualification in a specific vocation.

For example, the UEE30820 Certificate III Electrotechnology Electrician qualification has the following statement on packaging rules:

***'A total of 1,110 weighting points comprising:***

***990 core weighting points listed below; plus***

***120 elective weighting points from the Group A elective units listed below.***

***Up to 40 weighting points, may be selected, with appropriate contextualisation, from any relevant nationally endorsed Training Package or accredited course, provided that selected units contribute to the vocational outcome of the qualification. Previously assigned weighting points are listed in the UEE Electrotechnology Training Package Companion Volume Implementation Guide (CVIG), if not listed, weighting points will be 10 points.***

***Where imported units are selected, care must be taken to ensure all prerequisite units specified are complied with.***

Where a prerequisite unit is attached to a unit, it is identified by this symbol ⊥.

Issues:

- 1) You need to achieve UoC, not weighting points
- 2) It is not clear how you would use the '40 weighting points' from other training packages.  
990 core + 120 elective = 1110 total  
Where do you select the 40 points from other training packages from, the core, the electives or do you have add an additional 40 on making it 1150 in total?

**Recommendation 3: The packaging rules in every qualification needs to be reviewed and re-written so they are appropriate to the needs of industry and ambiguity is removed.**

The example below is how you could rewrite the Certificate III Electrotechnology Electrician qualification packaging rules.

*The requirements for this qualification will be met when competency is demonstrated in competency standards units totalling **1110 weighting points** including:*

*All of the Core competency standard units totalling **990 weighting points**, and*

*Elective competency standard units totalling **120 weighting points**.*

*Elective competency standard units totalling a minimum of **80 weighting points** shall be taken from elective group A.*

*Competency standards units totalling up to **40 weighting points** may be selected, with appropriate contextualisation, from any relevant nationally endorsed Training Package or accredited course, provided selected units contribute to the vocational outcome of the qualification. Previously assigned weighting points are listed in the UEE Electrotechnology Training Package Companion Volume Implementation Guide (CVIG), if not listed weighting points will be **10 points** unless directed from the Electrotechnology Industry Reference Committee (IRC).*

Where a prerequisite unit is attached to a unit, it is identified by this symbol ⊥.

Where imported units are selected, care must be taken to ensure all prerequisite units specified are complied with.

#### **4.5 Duplication of training package content**

There are numerous examples throughout the electrotechnology training package where UoC are duplicated. A large amount of the duplication stems from splitting the unit **UEENEEE104 - Solve problems in d.c. circuits** into two new units, while at the same time, transitioning the old unit across as well. The two split units are:

**UEECD0044 - Solve problems in multiple path circuits**

***UEECD0046 - Solve problems in single path circuits***

The existing transitioned unit has been re-coded as:

***UEECD0043 - Solve problems in direct current circuits***

A recommendation from the Electrical TAC was to use the two new split units throughout the electrotechnology training package. This was then overturned by the IRC after AIS provided advice saying that this would be difficult for them to implement in the required time frame to get the package progressed to the AISC. The IRC made a divided decision to use the two split units only in three qualifications:

**UEE22020 Certificate II in Electrotechnology (Career Start)**

**UEE30820 Certificate III in Electrotechnology Electrician**

**UEE33020 Certificate III in Electrical Fitting**

This has now created a situation that is complex, confusing for Registered Training Organisations (RTOs), confusing for learners and confusing for industry.

Although AIS said that it would be difficult to implement the splitting of the two units throughout the electrotechnology training package, they effectively had to do that anyway by creating an 'or' stream within pre-requisite units and qualification packaging rules.

AIS has applied this in different ways throughout the training package, which has exacerbated the confusion.

Some UoC list as pre-requisite units;

***UEECD0043 - Solve problems in direct current circuits***

or

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

Some UoC only list;

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

And some units list one way within the unit, and a different way in the qualification packaging rules.

The following section applies to the ***UEE30820*** Qualification and the application and use of three units contained within that qualification, UEECD0043, UEECD0044 and UEECD0046.

- i. The unit ***UEEEL0003 - Arrange circuits, control and protection for electrical installations*** in the qualification packaging rules and the unit itself has listed as pre-requisite units:

***UEECD0043 - Solve problems in direct current circuits***

or

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

This is duplication of training package content and from a vocational or competency benchmark perspective there is no difference or benefit to industry. From an implementation perspective it will make things more difficult for Registered Training Organisations (RTOs) and will likely disadvantage learners, particularly those transitioning from the current package to the new.

- ii. The unit ***UEEEL0005 - Develop and connect electrical control circuits*** in the qualification packaging rules and the unit itself has listed as pre-requisite units:

***UEECD0043 - Solve problems in direct current circuits***

or

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

This is duplication of training package content and from a vocational or competency benchmark perspective there is no difference or benefit to industry. From an implementation perspective it will make things more difficult for RTOs and will likely disadvantage learners, particularly those transitioning from the current package to the new.

- iii. The unit ***UEEEL0008 - Evaluate and modify low voltage heating equipment and controls*** in the qualification packaging rules and the unit itself has listed as pre-requisite units:

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

It does not list the unit ***UEECD0043 - Solve problems in direct current circuits***. This is a good outcome from an industry, RTO and learner perspective as it does not duplicate training content unnecessarily. However, it is not clear why it does not list it as an 'or' stream like many other units do. It is likely that AIS has determined that it is not a requirement to list the 'or' option, as it is technically a new unit as ***UEENEEG033A - Solve problems in single and three phase low voltage electrical apparatus and circuits*** was split into three. If added, it will then become duplication of training package content. From a vocational or competency benchmark perspective there will be no difference or benefit to industry. From an implementation perspective it will make things more difficult for RTOs and will likely disadvantage learners, particularly those transitioning from the current package to the new. If not added, it will raise many questions from industry, RTOs and learners about why both options exist in some units and not in others.

- iv. The unit ***UEEEL0009 - Evaluate and modify low voltage lighting circuits, equipment and controls*** in the qualification packaging rules and the unit itself has listed as pre-requisite units:

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

It does not list the unit ***UEECD0043 - Solve problems in direct current circuits***. This is a good outcome from an industry, RTO and learner perspective as it does not duplicate training content unnecessarily. However, it is not clear why it does not list it as an 'or' stream like many other units do. It is likely that AIS has determined that it is not a requirement to list the 'or' option, as it is technically a new unit as ***UEENEEG033A - Solve problems in single and three phase low voltage electrical apparatus and circuits*** was split into three. If added, it will then become duplication of training package content. From a vocational or competency benchmark perspective there will be no difference or benefit to industry. From an implementation perspective it will make things more difficult for RTOs and will likely disadvantage learners, particularly those transitioning from the current package to the new. If not added, it will raise many questions from industry, RTOs and learners about why both options exist in some units and not in others.

- v. The unit ***UEEEL0010 - Evaluate and modify low voltage socket outlets circuits*** in the qualification packaging rules and the unit itself has listed as pre-requisite units:

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

It does not list the unit ***UEECD0043 - Solve problems in direct current circuits***. This is a good outcome from an industry, RTO and learner perspective as it does not duplicate training content unnecessarily. However, it is not clear why it does not list it as an 'or' stream like many other units do. It is likely that AIS has determined that it is not a requirement to list the 'or' option, as it is technically a new unit as ***UEENEEG033A - Solve problems in single and three phase low voltage electrical apparatus and circuits*** was split into three. If added, it will then become duplication of training package content. From a vocational or competency benchmark perspective there will be no difference or benefit to industry. From an implementation perspective it will make things more difficult for RTOs and will likely disadvantage learners, particularly those transitioning from the current package to the new. If not added, it will raise many questions from industry, RTOs and learners about why both options exist in some units and not in others.

- vi. The unit ***UEEEL0012 - Install low voltage wiring, appliances, switchgear and associated accessories*** in the qualification packaging rules and the unit itself has listed as pre-requisite units:

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

It does not list the unit ***UEECD0043 - Solve problems in direct current circuits***. This is a good outcome from an industry, RTO and learner perspective as it does not duplicate training content

unnecessarily. However, it is not clear why it does not list it as an 'or' stream like many other units do. It is likely that AIS has determined that it is not a requirement to list the 'or' option, as it is technically a new unit as **UEENEEG103A - Install low voltage wiring and accessories** and **UEENEEG104A - Install appliances, switchgear and associated accessories for low voltage electrical installations** were merged into one unit. If added, it will then become duplication of training package content. From a vocational or competency benchmark perspective there will be no difference or benefit to industry. From an implementation perspective it will make things more difficult for RTOs and will likely disadvantage learners, particularly those transitioning from the current package to the new. If not added, it will raise many questions from industry, RTOs and learners about why both options exist in some units and not in others.

- vii. The unit **UEEEL0014 - Isolate, test and troubleshoot low voltage electrical circuits** in the qualification packaging rules has listed as pre-requisite units:

**UEECD0044 - Solve problems in multiple path circuits**

and

**UEECD0046 - Solve problems in single path circuits**

It does not list the unit **UEECD0043 - Solve problems in direct current circuits**. This is a good outcome from an industry, RTO and learner perspective as it does not duplicate training content unnecessarily. However, it is not clear why it does not list it as an 'or' stream like many other units do. It is likely that AIS has determined that it is not a requirement to list the 'or' option, as it is technically a new unit as **UEENEEG108A - Trouble-shoot and repair faults in low voltage electrical apparatus and circuits** merged into this unit along with aspects of other units. If added, it will then become duplication of training package content. From a vocational or competency benchmark perspective there will be no difference or benefit to industry. From an implementation perspective it will make things more difficult for RTOs and will likely disadvantage learners, particularly those transitioning from the current package to the new. If not added, it will raise many questions from industry, RTOs and learners about why both options exist in some units and not in others.

However, the unit **UEEEL0014 - Isolate, test and troubleshoot low voltage electrical circuits** itself has listed as pre-requisite units:

**UEECD0043 - Solve problems in direct current circuits**

or

**UEECD0044 - Solve problems in multiple path circuits**

and

**UEECD0046 - Solve problems in single path circuits**

This is duplication of training package content and from a vocational or competency benchmark perspective there is no difference or benefit to industry. From an implementation perspective it will make things more difficult for Registered Training Organisations (RTOs) and will likely disadvantage learners, particularly those transitioning from the current package to the new.

It remains unclear to the ETU, why there are two different interpretations of the use of the units UEECD0043, UEECD0044 and UEECD0046 or why AIS has listed two units in the qualification packaging rules and three units in the unit, but it certainly makes the point more valid that it is

confusing, unnecessary duplication and will become a burden on industry, learners and in particular RTOs. This point is exacerbated by the fact the training package developers cannot get it right.

- viii. The unit ***UEEEL0018 - Select wiring systems and select cables for low voltage electrical installations*** in the qualification packaging rules and the unit itself has listed as pre-requisite units:

***UEECD0043 - Solve problems in direct current circuits***

or

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

This is duplication of training package content and from a vocational or competency benchmark perspective there is no difference or benefit to industry. From an implementation perspective it will make things more difficult for Registered Training Organisations (RTOs) and will likely disadvantage learners, particularly those transitioning from the current package to the new.

- ix. The unit ***UEEEL0019 - Solve problems in direct current (d.c.) machines*** in the qualification packaging rules and the unit itself has listed as pre-requisite units:

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

It does not list the unit ***UEECD0043 - Solve problems in direct current circuits***. This is a good outcome from an industry, RTO and learner perspective as it does not duplicate training content unnecessarily. However, it is not clear why it does not list it as an 'or' stream like many other units do. It is likely that AIS has determined that it is not a requirement to list the 'or' option, as it is technically a new unit as ***UEENEEG101A - Solve problems in electromagnetic devices and related circuits*** was split into two. If added, it will then become duplication of training package content. From a vocational or competency benchmark perspective there will be no difference or benefit to industry. From an implementation perspective it will make things more difficult for RTOs and will likely disadvantage learners, particularly those transitioning from the current package to the new. If not added, it will raise many questions from industry, RTOs and learners about why both options exist in some units and not in others.

- x. The unit ***UEEEL0020 - Solve problems in low voltage a.c. circuits*** in the qualification packaging rules and unit itself has listed as pre-requisite units:

***UEECD0043 - Solve problems in direct current circuits***

or

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

This is duplication of training package content and from a vocational or competency benchmark perspective there is no difference or benefit to industry. From an implementation perspective it will make things more difficult for RTOs and will likely disadvantage learners, particularly those transitioning from the current package to the new.

- xi. The unit ***UEEEL0021 - Solve problems in magnetic and electromagnetic devices*** in the qualification packaging rules and the unit itself has listed as pre-requisite units:

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

It does not list the unit ***UEECD0043 - Solve problems in direct current circuits***. This is a good outcome from an industry, RTO and learner perspective as it does not duplicate training content unnecessarily. However, it is not clear why it does not list it as an 'or' stream like many other units do. It is likely that AIS has determined that it is not a requirement to list the 'or' option, as it is technically a new unit as ***UEENEEG101A - Solve problems in electromagnetic devices and related circuits*** was split into two. If added, it will then become duplication of training package content. From a vocational or competency benchmark perspective there will be no difference or benefit to industry. From an implementation perspective it will make things more difficult for RTOs and will likely disadvantage learners, particularly those transitioning from the current package to the new. If not added, it will raise many questions from industry, RTOs and learners about why both options exist in some units and not in others.

- xii. The unit ***UEEEL0023 - Terminate cables, cords and accessories for low voltage circuits*** in the qualification packaging rules and the unit itself has listed as pre-requisite units:

***UEECD0043 - Solve problems in direct current circuits***

or

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

This is duplication of training package content and from a vocational or competency benchmark perspective there is no difference or benefit to industry. From an implementation perspective it will make things more difficult for RTOs and will likely disadvantage learners, particularly those transitioning from the current package to the new.

- xiii. The unit ***UEEEL0024 - Test and connect alternating current (a.c.) rotating machines*** in the qualification packaging rules and the unit itself has listed as pre-requisite units:

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

It does not list the unit ***UEECD0043 - Solve problems in direct current circuits***. This is a good outcome from an industry, RTO and learner perspective as it does not duplicate training content unnecessarily. However, it is not clear why it does not list it as an 'or' stream like many other units do. It is likely that AIS has determined that it is not a requirement to list the 'or' option, as it is technically a new unit as ***UEENEEG006A - Solve problems in single and three phase low voltage machines*** was split into two. If added, it will then become duplication of training package content. From a vocational or competency benchmark perspective there will be no difference or benefit to industry. From an implementation perspective it will make things more difficult for RTOs and will likely disadvantage learners, particularly those transitioning from the current package to the new. If not added, it will raise many questions from industry, RTOs and learners about why both options exist in some units and not in others.

- xiv. The unit ***UEEEL0025 - Test and connect transformers*** in the qualification packaging rules and the unit itself has listed as pre-requisite units:

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

It does not list the unit ***UEECD0043 - Solve problems in direct current circuits***. This is a good outcome from an industry, RTO and learner perspective as it does not duplicate training content unnecessarily. However, it is not clear why it does not list it as an 'or' stream like many other units do. It is likely that AIS has determined that it is not a requirement to list the 'or' option, as it is technically a new unit as ***UEENEEG006A - Solve problems in single and three phase low voltage machines*** was split into two. If added, it will then become duplication of training package content. From a vocational or competency benchmark perspective there will be no difference or benefit to industry. From an implementation perspective it will make things more difficult for RTOs and will likely disadvantage learners, particularly those transitioning from the current package to the new. If not added, it will raise many questions from industry, RTOs and learners about why both options exist in some units and not in others.

- xv. The unit ***UEEEL0039 - Design, install and verify compliance and functionality of general electrical installations*** in the qualification packaging rules and the unit itself has listed as pre-requisite units:

***UEECD0043 - Solve problems in direct current circuits***

or

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

This is duplication of training package content and from a vocational or competency benchmark perspective there is no difference or benefit to industry. From an implementation perspective it will make things more difficult for RTOs and will likely disadvantage learners, particularly those transitioning from the current package to the new.

- xvi. The unit ***UEEEL0047 - Identify, shut down and restart systems with alternate supplies*** in the qualification packaging rules and the unit itself has listed as pre-requisite units:

***UEECD0043 - Solve problems in direct current circuits***

or

***UEECD0044 - Solve problems in multiple path circuits***

and

***UEECD0046 - Solve problems in single path circuits***

This is duplication of training package content and from a vocational or competency benchmark perspective there is no difference or benefit to industry. From an implementation perspective it will make things more difficult for RTOs and will likely disadvantage learners, particularly those transitioning from the current package to the new.

What is more intriguing, is that it defuncts the earlier points that AIS didn't include UEECD0043 in units that are technically new units, as this is a new unit. The ETU is at a loss to understand why AIS has done this. It shows undoubtedly that the use and duplication of these units for no additional benefit is extraordinary.

The decision to use duplicated content is remarkable and not even the SSO who are the training package developers can get it right. How is industry and RTOs meant to follow it?

The use of UEECD0043, UEECD0044 and UEECD0046 in the training package is a mistake. It should be either UEECD0043 or UEECD0044 and UEECD0046 throughout the entire package, not both.

***Recommendation 4: Consistency should be applied throughout the electrotechnology training package. There must not be a situation where content is duplicated for no benefit to industry. Either use the two new split units across the entire training package or use the existing single unit across the training package, there are minor pros and cons to both, however using the application of all three units creates unnecessary headaches for RTOs and apprentices.***

#### **4.6 Ambiguity within the Assessment Conditions of electrical Units of Competency – Unrestricted Electricians Licence statement**

There are a number of units within the electrotechnology training package that have the following statement:

***Assessors must also hold a current Unrestricted Electricians Licence issued in an Australian state or territory to assess the units of competency relating to the Electrical Regulatory Authorities Council (or their successor) Essential Performance Criteria for licencing and that require a licence to practice.***

There are a number of things that are wrong with this statement.

- 1) The Electrical Regulatory Authorities Council does not refer to the EPCs as 'criteria' as referred to in the UEE training products. They are referred to as 'capabilities'. Although a minor point, it will create a situation of confusion with the same wording used for the Performance Criteria of the unit and the Performance Criteria (Capabilities) of licensing requirements. Assumedly, it is a mistake in drafting, however; it highlights the lack of the importance and understanding of industry terminology.
- 2) The statement doesn't actually indicate if this is one of the units that relates to ERACs EPCs. It just says assessors must hold a current unrestricted licence for units relating to EPCs, but doesn't indicate if this is one of those units.
- 3) It is not clear which UoC will should contain the statement. This is for a number of reasons, but largely it is because the TAC recommended one way and the IRC recommended another without consulting the TAC. AIS have then just done what they thought was the best outcome, remembering that they are an 'independent' SSO and not industry experts. A more detailed explanation is below.

Following public feedback from what was scheduled to be Release 3.0 of the electrotechnology training package, concerns were raised about the appropriateness of including the statement in the qualification. The IRC decision was as follows:

***'Remove the assessor requirement text from the qualification description, but ensure it is included in the assessment conditions of all units that are mapped to the 55EPCs.'***

Because there are a number of cross discipline units mapped to the licensing EPCs and that are used throughout the training package in other qualifications, the ETU pointed out to the IRC that they have just made a decision that mandated licensed electricians had to assess units in many other qualifications.

For example, the unit UEECD0007 - Apply work health and safety regulations, codes, and practices in the workplace (the old UEENEEE101 unit) currently sits in 170 qualifications across 11 training packages. All of these would have to be assessed by a licensed electrician, even though they are not all licensed qualifications.

As a result of the feedback, correspondence received from IRC Chair Larry Moore on 5 April 2020, indicated that AIS 'did not clearly capture the resolution.' The ETU notes that the resolution was put clearly in writing to the IRC and was provided to all IRC members in the draft minutes on 23 March 2020, to confirm the accuracy of the decisions. To the ETUs knowledge, not one single IRC member outside of the ETU and CEPU had an issue with the wording of the resolution. In fact, one IRC member indicated on 2 April 2020 that they "support the IRC proposed resolutions in full."

AIS then altered the resolution without an IRC decision being taken to say:

***'Remove the assessor requirement text from the qualification description, ~~but ensure~~ because it is already included in the assessment conditions of all key electrical units that are mapped to the 55 EPCs.'***

ETU National Apprenticeship Officer Mark Burgess then specifically asked to be provided a list of the units that will include the statement, because "I am certain that not one single member of the IRC or Electrical TAC would know – that includes me who has been following it closer than anyone."

He was then provided via email from Jason Lazar on 7 April 2020 with the following list of nine units that will include the statement:

- 1) UEEEL0003 - Arrange circuits, control and protection for electrical installations
- 2) UEEEL0005 - Develop and connect electrical control circuits
- 3) UEEEL0008 - Evaluate and modify low voltage heating equipment and controls
- 4) UEEEL0009 - Evaluate and modify low voltage lighting circuits, equipment and controls
- 5) UEEEL0010 - Evaluate and modify low voltage socket outlets circuits
- 6) UEEEL0012 - Install low voltage wiring, appliances, switchgear and associated accessories
- 7) UEEEL0014 - Isolate, test and troubleshoot low voltage electrical circuits
- 8) UEEEL0018 - Select wiring systems and select cables for low voltage electrical installations
- 9) UEEEL0025 - Test and connect transformers

However, the training products that have been through the independent quality assurance process and that were sent to STAs on 23 April 2020 contain the following 15 units which include the statement:

- 1) UEEEL0003 - Arrange circuits, control and protection for electrical installations
- 2) UEEEL0005 - Develop and connect electrical control circuits
- 3) UEEEL0008 - Evaluate and modify low voltage heating equipment and controls
- 4) UEEEL0009 - Evaluate and modify low voltage lighting circuits, equipment and controls
- 5) UEEEL0010 - Evaluate and modify low voltage socket outlets circuits
- 6) UEEEL0012 - Install low voltage wiring, appliances, switchgear and associated accessories
- 7) UEEEL0014 - Isolate, test and troubleshoot low voltage electrical circuits
- 8) UEEEL0018 - Select wiring systems and select cables for low voltage electrical installations
- 9) UEEEL0019 - Solve problems in direct current (d.c.) machines
- 10) UEEEL0020 - Solve problems in low voltage a.c. circuits
- 11) UEEEL0021 - Solve problems in magnetic and electromagnetic device
- 12) UEEEL0023 - Terminate cables, cords and accessories for low voltage circuits
- 13) UEEEL0024 - Test and connect alternating current (a.c.) rotating machines
- 14) UEEEL0025 - Test and connect transformers
- 15) UEEEL0039 - Design, install and verify compliance and functionality of general electrical installations

It is extremely confusing when the SSO, AIS provided the IRC with one answer saying the statement will be included in 9 UoC, and then provide the STA with draft training package materials showing it is included in 15 UoC.

***Recommendation 5: All units that contain material relating to the Electrical Regulatory Authorities Councils' Essential Performance Capabilities must be reviewed by the Electrical Technical Advisory Committee to ascertain which units should including the 'unrestricted electricians licence statement'. Consideration must be given to the implications of any such decision on the entire UEE training package. The ETU believes there is merit to including the statement in all 'EL' – Electrical coded units contained within the core of the Certificate III Electrotechnology Electrician qualification.***

#### **4.7 Ambiguity within the Assessment Conditions of electrical Units of Competency – Workplace Evidence statement**

There are a number of units within the electrotechnology training package that have the following statement:

***Assessment must occur in suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in suitable simulated workplace operational situations that replicate workplace conditions. In addition, evidence of the application of this unit must be***

***gathered in authentic workplace operational conditions (not simulated) before final determination of competence in this unit can be made.***

***Workplace evidence must include a representative body of workplace activities, completed under licence to practice conditions, within the timeframes typically expected of the discipline, work function and industrial environment. Workplace evidence must:***

- be gathered holistically at regular intervals throughout the period of time for which competency is developed and/or recognised***
- indicate consistent application of the unit of competency as part of daily work routines***
- indicate the workplace activities that have been undertaken***
- indicate the amount of time spent undertaking each activity***
- indicate the range of equipment used for the work, as applicable to the range of conditions***
- indicate the level of supervision under which the work was undertaken***
- be verified by a person who supervised the work and holds the requisite occupational licence for the work.***

In addition, the Companion Volume Implementation Guide (CVIG) produced by AIS contains within it, an “ATTACHMENT J: TECHNICAL ADVISORY COMMITTEE GUIDANCE”.<sup>17</sup>

It provides further advice in relation to the workplace evidence statement above. Concerningly, the advice implies that it has been produced and endorsed by the Electrical Technical Advisory Committee. This is simply not the case; the TAC did not endorse the guidance and furthermore did not receive any communication from AIS for 6 months from August 2019 to February 2020. This is again very misleading.

The ETU believes that there is indeed merit behind including a workplace evidence component to training, especially for apprentices undertaking the licensed electrician qualification, and we are supportive of including such a component. However, the feedback we have received is that while the statement is well intentioned, it is onerous for industry and sets an unachievable and unreasonable benchmark for evidence collection, given that they will need to verify the following evidence is gathered on the job:

- Application of the unit
- Elements of the unit
- Performance Criteria of the unit
- Range of conditions of the unit
- Presumably, the Performance and Knowledge Evidence of the unit

Deputy Chair of the IRC Mark Burgess was long advocating for AIS to consult with the Australian Skills Quality Authority (ASQA) on implementation advice, including their interpretation of the workplace evidence statement, but this has fallen on deaf ears. It is even more pertinent given the recommendations of the ‘Rapid Review of the Australian Skills Quality Authority’s Regulatory Practices and Processes’ that was recently handed down.<sup>18</sup>

Recommendation 11 of the review states: ***‘Strengthen strategic engagement with SSON, IRCs and SSOs to establish a feedback loop regarding broader VET reform, training packages, their intent and their implementation by providers.’***

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<sup>17</sup> [https://www.australianindustrystandards.org.au/20200423\\_UEE-Electrotechology-Case-For-Endorsement](https://www.australianindustrystandards.org.au/20200423_UEE-Electrotechology-Case-For-Endorsement)

<sup>18</sup> [https://docs.employment.gov.au/system/files/doc/other/asqa\\_rapid\\_review\\_report\\_final.pdf](https://docs.employment.gov.au/system/files/doc/other/asqa_rapid_review_report_final.pdf)

AIS did eventually seek advice of ASQA on their regulatory approach to ‘restricted licensing units’ and ‘mandating of pathways’ however, to the ETUs knowledge, they have still not sought advice on implementation guidance relating to the workplace evidence statement.

***Recommendation 6: AIS should seek clarification and feedback from the Electrical Technical Advisory Committee regarding the workplace evidence statement and subsequent implementation advice contained within the CVIG. This includes the confirming the appropriateness of which units should contain the statement and if the statement and implementation advice is appropriate in its current form.***

***Recommendation 7: AIS should seek clarification and feedback from ASQA regarding the intent of including the workplace evidence statement and implementation advice contained within the CVIG once it has been reviewed by the Electrical Technical Advisory Committee. Advice should include if ASQA sees any concerns with the advice and how they will regulate it consistently across workplaces, RTOs and jurisdictions.***

#### **4.8 Problems associated with the Unit UEEEL0014 - Isolate, test and troubleshoot low voltage electrical circuits.**

It is evident that the splitting, joining and merging of some units has added downstream problems. These problem occurs, when looking at units in isolation and not holistically. An example of this is UEEEL0014. Although the new UoC is largely based on the old UEENEEG108 – Trouble-shoot and repair faults in low voltage electrical apparatus and circuits, it includes additional requirements. While the additions are largely suitable for the electrician qualification, it has made the unit inappropriate for use in the electrical fitting qualification, due to the inclusion of content that is outside the scope of an electrical fitters job description, for example, carrying out mandatory testing on consumer mains. This is licensed electrical work that only an electrician can do.

The pre-requisite units have also been altered as a result of the changes in an attempt to make it suitable for the fitting qualification. This ‘band-aid’ approach has not worked.

- i. The unit ***UEEEL0014 - Isolate, test and troubleshoot low voltage electrical circuits*** in the qualification packaging rules does not list the unit ***UEEEL0047 - Identify, shut down and restart systems with alternate supplies*** as a pre-requisite unit.

However, the unit ***UEEEL0014 - Isolate, test and troubleshoot low voltage electrical circuits*** itself has listed the pre-requisite unit ***UEEEL0047 - Identify, shut down and restart systems with alternate supplies***.

It remains unclear why AIS have listed UEEEL0047 as a pre-requisite to UEEEL0014 within the UoC, but not within the qualification packaging rules.

- ii. The unit ***UEEEL0014 - Isolate, test and troubleshoot low voltage electrical circuits*** in the qualification packaging rules and the unit itself does not list the units ***UEEEL0008 - Evaluate and modify low voltage heating equipment and controls***, ***UEEEL0009 - Evaluate and modify low voltage lighting circuits, equipment and controls*** and ***UEEEL0010 - Evaluate and modify low voltage socket outlets circuits*** as pre-requisite units.

The predecessor unit on which UEEL0014 is fundamentally based is **UEENEEG108A - Trouble-shoot and repair faults in low voltage electrical apparatus and circuits** and it does list **UEENEEG033A - Solve problems in single and three phase electrical apparatus and circuits** as a pre-requisite unit.

As you may be aware UEENEEG033 was split into UEEL0008, UEEL0009 and UEEL0010. It seems appropriate from an industry perspective, that apprentices would understand the concepts in these three units, prior to learning how to test and troubleshoot them. Put it this way, an apprentice cannot test and troubleshoot an electrical circuit or equipment, if they have not installed it and do not understand how the circuit and equipment is meant to operate in the first place.

I think this may have been done in an attempt to make the unit suitable for the electrical fitting qualification, which is admirable, however it unfortunately makes the unit unsuitable for both qualifications.

- iii. The unit **UEEL0014 - Isolate, test and troubleshoot low voltage electrical circuits** in the qualification packaging rules and the unit itself lists the unit **UEEL0005 Develop and connect electrical control circuits** as a pre-requisite unit.

This appears to have been added as an additional pre-requisite to what **UEENEEG108A - Trouble-shoot and repair faults in low voltage electrical apparatus and circuits** had in it as **UEENEEG109A – Develop and connect electrical control circuits** was not included.

It may be appropriate; however, it remains unclear why it has been done.

- iv. The unit **UEEL0014 - Isolate, test and troubleshoot low voltage electrical circuits** in the qualification packaging rules lists the unit **UEEL0018 - Select wiring systems and select cables for low voltage electrical installations** as a pre-requisite unit.

This appears to have been added as an additional pre-requisite to what **UEENEEG108A - Trouble-shoot and repair faults in low voltage electrical apparatus and circuits** had in it, as **UEENEEG107A - Select wiring systems and cables for low voltage general electrical installations** was not listed as a pre-requisite.

However, the unit **UEEL0014 - Isolate, test and troubleshoot low voltage electrical circuits** itself does not list the unit **UEEL0018 - Select wiring systems and select cables for low voltage electrical installations** as a pre-requisite unit.

Because the new UEEL0014 unit has expanded, it seems appropriate that the unit UEEL0018 would be included as a pre-requisite – for the electrician qualification only, not the electrical fitting qualification. Electrical apprentices should have a fundamental understanding of cable sizes and applications prior to being able to test and fault find them.

It is unclear why AIS have left UEEL0018 as a pre-requisite to UEEL0014 in the qualification template, but not in the unit itself.

**Recommendation 8: Refer all outstanding inconsistencies and issues relating to the unit UEEEL0014 – Isolate, test and troubleshoot low voltage electrical circuits to the Electrical Technical Advisory Committee for review including:**

- **The appropriateness of the unit in the Electrical Fitting qualification, given it contains content outside the scope of an electrical fitters occupation.**
- **The appropriateness of including UEEEL0047 as a pre-requisite unit, given it is included in the unit and not in the qualification packaging rules**
- **The appropriateness of including UEEEL0008, UEEEL0009 and UEEEL0010 as pre-requisite units for UEEEL0014, given the preceding unit included that content**
- **The appropriateness of including UEEEL0005 as a pre-requisite unit for UEEEL0014, given the preceding unit did not include that content**
- **The appropriateness of including UEEEL0018 as a pre-requisite unit to UEEEL0014, given the preceding unit did not include that content**
- **The appropriateness of including UEEEL0018 as a pre-requisite unit to UEEEL0014, given it is included in the qualification packaging rules and not in the unit**

#### **4.9 Problems associated with the Unit UEEEL0020 - Solve problems in low voltage a.c. circuits.**

The unit **UEEEL0020 - Solve problems in low voltage a.c. circuits** in the qualification packaging rules and unit itself has listed as pre-requisite unit:

**UEEEL0021 - Solve problems in magnetic and electromagnetic devices**

However, it does not list the other half of the split unit as a pre-requisite being **UEEEL0019 - Solve problems in direct current (d.c.) machines**

The old UEENEEG102 unit (now UEEEL0020) used to list UEENEEG101 as a pre-requisite unit (which has also been split into UEEEL0019 and UEEEL0021).

This may be appropriate, however given the IRC direction to retain all pre-requisite units and EKAS unless confirmed as appropriate not to do so, it needs to be confirmed as being an appropriate decision.

**Recommendation 9: Refer the unit UEEEL0020 - Solve problems in low voltage a.c. circuits to the Electrical Technical Advisory Committee to confirm appropriateness of pre-requisite units.**

#### **4.10 Problems associated with the Unit UETTDRRF06 - Perform rescue from a live LV panel.**

The unit **UETTDRRF06 - Perform rescue from a live LV panel** is not an appropriate unit for the electrotechnology training package.

The application of the unit states: ***'It specifies the mandatory requirements of rescue from a live LV panel and how they apply in the context of transmission, distribution or rail work functions.'***

The majority of apprentice electricians undertaking the UEE30820 qualification will not working within the context of the transmission, distribution and rail sectors.

Industry agrees that there is merit to expanding on ***‘demonstrating safe methods of removing an electric shock victim from a live electrical situation’***, which is written in the performance evidence of the core unit UEED0007. However, to take an Electricity Supply Industry (ESI) unit, which was created explicitly as a refresher unit for the supply industry is not the appropriate course of action. This has also been raised as a concern by stakeholders of the supply industry, as well as in public feedback.

Furthermore, EPC46 states:

***‘Describe the method of rescuing a person in contact with live electrical conductors or equipment’***

The unit ***UETDRRF06*** does not talk about electrical conductors or equipment, only equipment in the context of an LV panel in the ESI.

An appropriate course of action would be to develop a unit to be used in the context of electrotechnology and which covers electrical conductors, equipment and apparatus. This is well within the scope of the current Project Brief relating to the UEE package which states:

- ***Develop a new unit(s) of competency to address the new Essential Performance Capabilities (EPC)***
- ***ERAC would like to maintain its original expectations and this has been identified in the scope of the project. i.e. Essential Performance Capabilities (EPCs) are the requirements that an apprentice electrician must satisfy before being issued with an electrical licence in Australia. These essential capabilities were reviewed in 2014. There are 55 EPCs, and 32 of these have been deemed as being critical for safety.***

***It is the expectation of ERAC that all the EPCs will be addressed in the Certificate III qualification for electricians.***

- ***The IRC has agreed as part of this revised brief that the only new units to be developed are those to address the EPCs and those that are being split. Any other recommendations from the TACs will be considered as part of the Skills Forecast.***

The IRC in response to the public feedback received provided the following resolution:

***“Strengthen recommended response to emphasise ERAC requirements and that development of a new UEE unit will be included in the 2020 IRC Skills Forecast.”***

The ETU has further unanswered concerns relating to the decision taken by the IRC.

1. Why would the AISC approve the development of a new unit in the 2020 skills forecast, when the current project brief includes creating new units to address EPC requirements?
2. What is the financial impact on RTOs, if the core of the electrician’s qualification is changed again within a short timeframe?

A new unit has already been drafted by representatives of industry as a further part of ‘in-kind contribution’ and they would be happy to provide it for the TAC and IRC to review.

Additionally, in the packaging rules of the qualification, underneath the unit title, the words ‘common unit group’ do not need to be there (FYI, it does not need to be in the UET package either).

**Recommendation 10: Refer the unit UETDRRF06 - Perform rescue from a live LV panel as well as the more appropriate draft unit that has been developed by industry specifically for the electrotechnology industry to the Electrical Technical Advisory Committee for resolution. If necessary, consultation should take place with representatives of the Electricity Supply Industry to assist in the process.**

#### **4.11 Problems associated with the UEEEL0039 - Design, install and verify compliance and functionality of general electrical installations.**

The unit **UEEEL0039 - Design, install and verify compliance and functionality of general electrical installations** in the qualification packaging rules and unit itself has listed as pre-requisite unit:

**UETDRRF06 - Perform rescue from a live LV panel**

However, the UEEEL0039 unit does not list in the qualification packaging rules, nor the unit itself, the pre-requisite unit **HLTAID001 - Provide cardiopulmonary resuscitation**.

This is outside the UET training package rules which lists the HLTAID001 unit as a pre-requisite for the UETDRRF06 unit.

In addition, EPC 47 describes the emergency first aid procedures for an electric shock victim including Cardiopulmonary Resuscitation (CPR) and is a critical EPC. As it is a critical EPC, CPR needs to be demonstrated in a pre-requisite unit to the UEEEL0039 Capstone unit.

**Recommendation 11: The unit HLTAID001 - Provide cardiopulmonary resuscitation, must be included as a pre-requisite unit to the unit UEEEL0039 - Design, install and verify compliance and functionality of general electrical installations, to satisfy Essential Performance Capability licensing requirements.**

#### **4.12 Problems associated with Elective Units in the UEE30820 Qualification**

The following units are listed as pre-requisite units for electives in the UEE30820 qualification packaging rules.

- 1. UEENEEG006A - Solve problems in single and three phase low voltage machines**
- 2. UEENEEG033A - Solve problems in single and three phase low voltage electrical apparatus and circuits**
- 3. UEENEEG103A - Install low voltage wiring and accessories**
- 4. UEENEEG108A - Trouble-shoot and repair faults in low voltage electrical apparatus and circuits**

This may not seem like it is an immediate problem, however contained in Appendix D of the Case for Endorsement is a list of training products not going forward in Release 2.0 of the electrotechnology training package. This list includes the four units above, noting that there are other units put forward for deletion that are used in other qualifications and training packages.

It appears that the elective units that contain the above four pre-requisite units come from the UET training package. A common theme relating to the problems associated with the electrotechnology training package, is that AIS have always viewed things in isolation and without industry knowledge. Some of this is not their fault,

rather a side effect of a training package development framework that requires SSOs to be independent of industry.

Historically, there has been four energy related training packages that share an interaction between each other. However, breaking things down unit by unit, without considering the effects on other qualifications and training packages has created further problems. This is just one example.

***Recommendation 12: In the short-term, all units that have been put up as not going forward in the Case for Endorsement need to be transitioned across until the impact of not doing so has been determined in all UEE qualifications and in broader UEP, UET and UEG training packages.***

#### **4.13 Problems relating to UEE30620 Certificate III in Electrical Machine Repair**

- i. The UEE30620 qualification packaging rules state that the unit ***UEECD0043 Solve problems in direct current circuits*** must be achieved within the core of the qualification.

The packaging rules also state that the following units must be undertaken as part of the core:

***UEEEL0019 - Solve problems in direct current (d.c.) machines***

***UEEEL0021 - Solve problems in magnetic and electromagnetic devices***

***UEEEL0024 - Test and connect alternating current (a.c.) rotating machines***

***UEEEL0025 - Test and connect transformers***

Pre-requisites to these four units are:

***UEECD0044 - Solve problems in multiple path circuits***

***UEECD0046 - Solve problems in single path circuits***

Which as explained earlier, duplicate UEECD0043. It appears now, that apprentices will have to unnecessarily learn the same content twice or will have to undertake a Recognition of Prior Learning (RPL) process in conjunction with the RTO they are enrolled in to ensure they meet the requirements of the pre-requisite units.

This duplicated content will consistently throughout the electrotechnology training package become a continued burden on industry, apprentices and RTOs. This will have an ongoing flow-on effect to other energy related training packages.

- ii. The core unit within the UEE30620 qualification, ***UEEEL0033 - Conduct electrical tests on LV electrical machines***, has had its pre-requisites altered in the process of transitioning the training package.

The predecessor unit was known as ***UEENEEG157A – Conduct electrical tests on LV electrical machines***, and had an ‘and/or’ stream associated with the pre-requisites.

The 'and/or' stream has been taken away in the new UEEEL033 unit, resulting in mandating of five new pre-requisites:

***UEEEL0003 – Arrange circuits, control and protection for electrical installations***

***UEEEL0014 – Isolate, test and troubleshoot low voltage electrical circuits***

***UEEEL0008 – Evaluate and modify low voltage heating equipment and controls***

***UEEEL0009 – Evaluate and modify low voltage lighting circuits, equipment and controls***

***UEEEL0010 – Evaluate and modify low voltage socket outlets circuits***

Noting again, that the UEEEL0014 unit is unsuitable for any qualification, excluding UEE30820 Certificate III in Electrotechnology Electrician.

***Recommendation 13: The and/or stream needs to be put back into the unit UEEEL0033 - Conduct electrical tests on LV electrical machines.***

***Recommendation 14: The unit UEEEL0014 - Isolate, test and troubleshoot low voltage electrical circuits needs to be removed from every qualification, excluding UEE30820. In the interim, the old unit UEENEEG108 - Trouble-shoot and repair faults in low voltage electrical apparatus and circuits, should be transitioned and considered for use in qualifications where UEEEL0014 has been removed.***

#### **4.14 Problems relating to UEE31220 Certificate III in Instrumentation and Control**

- i. Two core units within the UEE31220 qualification, ***UEEIC0029 - Set up and adjust PID control loops*** and ***UEEIC0030 - Set up and adjust advanced PID process control loops***, have both had their pre-requisite streams altered in the process of transitioning the training package.

The predecessor units were known as ***UEENEEI106A - Set up and adjust PID control loops*** and ***UEENEEI110A - Set up and adjust advanced PID process control loops***. Both of these units had two pre-requisite pathways, electrical and instrumentation. This allowed for greater flexibility within the training package. Both pathways appear to have been removed from the new draft units. The existing pathway units were:

##### ***Electrical***

***UEENEEG101A - Solve problems in electromagnetic devices and related circuits (Current draft codes UEEEL0019 and UEEEL0021)***

***UEENEEG102A - Solve problems in low voltage a.c. circuits (Current draft code UEEEL0020)***

##### ***Instrumentation***

***UEENEEE119A – Solve problems in multiple path extra low voltage (ELV) a.c. circuits (Current draft code UEECD0045)***

It remains unclear to the ETU if these pre-requisite streams have been left off by the Industrial Control TAC or if it is a mistake in transition.

***Recommendation 15: The Industrial Control Technical Advisory Committee should review the pre-requisite streams in the units UEEIC0029 - Set up and adjust PID control loops and UEEIC0030 - Set up and adjust advanced PID process control loops, to ensure the suitability of the pre-requisites.***

#### **4.15 Problems relating to amalgamation of Restricted Licensing Units**

The ETU is aware of feedback from stakeholders relating to the amalgamation of certain restricted licensing UoC.

The ETU is concerned that the implications of amalgamating some of the restricted licensing units will have adverse effect on some electrical regulators ability to determine which class of restricted licence to issue.

The unit ***UEERL0004 Disconnect - reconnect electrical equipment connected to low voltage (LV) installation wiring*** is the result of amalgamating several units, which used to include specific equipment to be disconnected and reconnected.

Two such units that have been amalgamated are into UEERL0004 are:

***UEENEEP014A - Disconnect - reconnect water heaters connected to low voltage installation wiring***  
***UEENEEP015A - Disconnect - reconnect motors connected to low voltage installation wiring***

Both of these units are aimed at tradespeople that already have trade certificates or a certificate III level trade qualification. The UoC UEENEEP015A is aimed at plumbers and gasfitters, to enable them to work on hot water systems and UEENEEP014A is aimed at refrigeration mechanics, appliance repairers and fitters so they can safely disconnect and reconnect motors to work on.

Although the knowledge and skills in each existing unit is similar, assessment must be conducted on equipment relating to the candidates primary work function or allied trade base. The new amalgamated unit does not specifically mandate which equipment a candidate must use for assessment. It is highly likely that some dodgy RTOs will buy limited equipment for the unit. E.g. An RTO uses only a hot water system to assess an electrical fitter on disconnecting a 3 phase, 75 kilowatt motor drawing in excess of 200 amperes. It is totally inappropriate but there is nothing stopping a dishonest RTO that is interested in only making money from doing this.

Also, something that remains unanswered is that if a candidate receives the new unit ***UEERL0004 Disconnect - reconnect electrical equipment connected to low voltage (LV) installation wiring*** and is issued a restricted licence to work on water heaters, what happens if they then undertake another trade for example as a refrigeration mechanic, how does an RTO then re-issue the unit for disconnecting motors? The answer is of course that they cannot re-issue it because the candidate already has it.

Additionally, there is a statement in the unit ***UEERL0004 Disconnect - reconnect electrical equipment connected to low voltage (LV) installation wiring*** as follows:

***“Competency development activities in this unit are subject to regulations directly related to licencing. Where a licence or permit to practice is not held, a relevant contract of training, such as an Australian Apprenticeship, is required.”***

That statement contradicts the statement in the Skill Set ***UEESS00133 Restricted - Disconnection/Reconnection of Fixed Wired Low Voltage Electrical Equipment*** that this unit is tied too, which says:

***“The units of competency in this Skill Set are for persons who already hold a relevant Certificate III or equivalent and the work is incidental or a primary and regular function of work related to a principle work function.”***

If a candidate already holds a Certificate III, it is unlikely that they will have a contract of training. If a candidate is trying to undertake this unit to apply for a restricted licence, then it is unlikely they will have a licence to practice. This leaves the unit unusable to a number of candidates.

***Recommendation 15: More thought needs to be put into the amalgamation of restricted licensing units to ensure that a candidates primary work function is included on the statement of attainment issued by RTOs. The licensing statement may need to be altered to ensure that workers who already have a trade background are able to undertake the restricted licensing unit.***

#### 4.16 Pre-requisites not transitioned as per IRC direction

The ETU is aware of several instances where pre-requisite UoC have not been transitioned across to Release 2.0 of the Electrotechnology Training Package. Below is an example list of the units where this is the case. It is by no means exhaustive.

The unit ***UEEAS0002 - Conduct quality and functional tests on assembled electronic apparatus*** is missing the following pre-requisite units:

- ***UEEAS0001 - Assemble electronic components***
  - ***UEEAS0004 - Select electronic components for assembly***
  - ***UEEAS0003 - Modify electronic sub-assemblies***
  - ***UEECD0019 - Fabricate, assemble and dismantle utilities industry components***
- And
- ***UEECD0042 - Solve problems in ELV single path circuits***
- Or
- ***UEECD0043 - Solve problems in direct current circuits***

The unit ***UEEAS0003 - Modify electronic sub-assemblies*** is missing the following pre-requisite units:

- ***UEEAS0004 - Select electronic components for assembly***
  - ***UEECD0019 - Fabricate, assemble and dismantle utilities industry components***
- And
- ***UEECD0042 - Solve problems in ELV single path circuits***
- Or
- ***UEECD0043 - Solve problems in direct current circuits***

The unit **UEECD0001 - Analyse materials for suitability in electrical equipment** is missing the following pre-requisite unit:

- **UEECD0007 - Apply work health and safety regulations, codes and practices in the workplace**

The unit **UEECD0002 - Analyse static and dynamic parameters of electrical equipment** is missing the following pre-requisite unit:

- **UEECD0007 - Apply work health and safety regulations, codes and practices in the workplace**

The unit **UEECD0003 - Apply industry and community standards to engineering activities** is missing the following pre-requisite unit:

- **UEECD0007 - Apply work health and safety regulations, codes and practices in the workplace**

The unit **UEECD0004 - Apply material science to solving electrotechnology engineering problems** is missing the following pre-requisite unit:

- **UEECD0007 - Apply work health and safety regulations, codes and practices in the workplace**

The unit **UEECD0005 - Apply physics to solving electrotechnology engineering problems** is missing the following pre-requisite unit:

- **UEECD0007 - Apply work health and safety regulations, codes and practices in the workplace**

The unit **UEECD0008 - Carry out preparatory energy sector work activities** is missing the following pre-requisite units:

- **UEECD0019 - Fabricate, assemble and dismantle utilities industry components**
- **UEECD0020 - Fix and secure electrotechnology equipment**

The unit **UEECD0015 - Develop engineering solutions to photonic system problems** is missing the following pre-requisite units:

- **UEECD0036 - Provide engineering solutions for problems in complex multiple path circuit**
- **UEECD0039 - Provide solutions to basic engineering computational problems**

And

- **UEECD0041 - Solve electrotechnical engineering problems**

Or

- **UEECD0007 - Apply work health and safety regulations, codes and practices in the workplace**
- **UEECD0043 - Solve problems in direct current circuits**
- **UEEEL0019 - Solve problems in direct current (d.c.) machines**
- **UEEEL0021 - Solve problems in magnetic and electromagnetic devices**

Or

- **UEEEEC0074 - Troubleshoot resonance circuits in an electronic apparatus**
- **UEEED0007 - Apply work health and safety regulations, codes and practices in the workplace**
- Or
- **UEEEEC0065 - Solve problems in basic electronic circuits**
- **UEEED0007 - Apply work health and safety regulations, codes and practices in the workplace**

The unit **UEEED0025 - Lay wiring/cabling and terminate accessories for extra-low voltage (ELV) circuits** is missing the following pre-requisite unit:

- **UEEED0019 - Fabricate, assemble and dismantle utilities industry components**

The unit **UEECS0032 - Support computer hardware and software for engineering applications** is missing the following pre-requisite units:

- **UEEED0007 - Apply work health and safety regulations, codes and practices in the workplace**
- **UEECS0003 - Assemble, set up and test computing devices**

The unit **UEECS0033 - Use engineering applications software on personal computers** is missing the following pre-requisite unit:

- **UEEED0007 - Apply work health and safety regulations, codes and practices in the workplace**

The unit **UEEIC0048 - Verify compliance and functionality of instrumentation and control installations** is missing the following pre-requisite units:

And

- **UEEEL0019 - Solve problems in direct current (d.c.) machines**
- **UEEEL0020 - Solve problems in low voltage a.c. circuits**
- **UEEEL0021 - Solve problems in magnetic and electromagnetic devices**

Or

- **UEEED0045 Solve problems in multiple pathway extra-low voltage (ELV) a.c. circuits**

**Recommendation 16: ETU analysis of UEE training package components has uncovered a significant number of units that has not transitioned all pre-requisite units across. This is concerning and goes against a long standing direction from the IRC that they will all transition, except in limited circumstances when they have undergone a significant review by the respective Technical Advisory Committees. AIS need to review and confirm that this direction has been carried out. If necessary, direction should be called upon by the relevant TACs.**

## 5 Conclusion

The ETU has invested a considerable amount of time, expertise and resources into ensuring the UEE Electrotechnology Training Package meets the needs of electrical workers and industry. Despite this, unfortunately Release 2.0 of the training package falls significantly short of our expectations and short of the expectations of the industry stakeholders that we have consulted throughout this review.

This report highlights numerous areas of deficiencies contained within Release 2.0 of the UEE Electrotechnology Training Package. Every effort has been made to ensure the report is as accurate as possible at the time of writing. This in itself, is a time consuming and challenging process, having researched many emails, meeting minutes, media releases and papers. The challenging nature of the process has been exacerbated by the need to cross-reference large amounts of units of competency, that have had different coding applied to them.

It has been noted in this report, that by no means is it an exhaustive list of the issues associated with Release 2.0 of the UEE Electrotechnology Training Package.

This report also provides a number of recommendations as an acceptable pathway forward to ensuring the needs of electrical workers are met.

The ETU acknowledges and thanks the various industry stakeholders who have contributed to this report.

The ETU calls upon State Training Authorities and the Australian Industry and Skills Committee to oppose the approval of Release 2.0 of the Electrotechnology Training Package until such time as the recommendations contained within this report are carried out.

## 6 Recommendations

***Recommendation 1: The wording of the UEE30820 Qualification Description should be modified to include a reference to ERAC EPCs. At a minimum, this line should be added:***

***“This qualification contains the requirements to meet all 55 Essential Performance Capabilities (EPC) as stipulated by the Electrical Regulatory Authorities Council (ERAC).”***

***Recommendation 2: The wording of the UEE30820 Qualification Description and select Core Units of Competency must be consistent so there is no ambiguity within the training products. Suggested wording for both:***

***Competency development activities in this qualification (or unit if it is a UoC) are subject to regulations directly related to licensing. Where a licence or permit to practice is not held, a relevant contract of training through an Australian Apprenticeship, is required.***

***Recommendation 3: The packaging rules in every qualification needs to be reviewed and re-written so they are appropriate to the needs of industry and ambiguity is removed.***

The example below is how you could rewrite the Certificate III Electrotechnology Electrician qualification packaging rules.

*The requirements for this qualification will be met when competency is demonstrated in competency standards units totalling **1110 weighting points** including:*

*All of the Core competency standard units totalling **990 weighting points**, and*

*Elective competency standard units totalling **120 weighting points**.*

*Elective competency standard units totalling a minimum of **80 weighting points** shall be taken from elective group A.*

*Competency standards units totalling up to **40 weighting points** may be selected, with appropriate contextualisation, from any relevant nationally endorsed Training Package or accredited course, provided selected units contribute to the vocational outcome of the qualification. Previously assigned weighting points are listed in the UEE Electrotechnology Training Package Companion Volume Implementation Guide (CVIG), if not listed weighting points will be **10 points** unless directed from the Electrotechnology Industry Reference Committee (IRC).*

*Where a prerequisite unit is attached to a unit, it is identified by this symbol ⊥.*

*Where imported units are selected, care must be taken to ensure all prerequisite units specified are complied with.*

***Recommendation 4: Consistency should be applied throughout the electrotechnology training package. There must not be a situation where content is duplicated for no benefit to industry. Either use the two new split units across the entire training package or use the existing single unit across the training package, there are minor pros and cons to both, however using the application of all three units creates unnecessary headaches for RTOs and apprentices.***

***Recommendation 5: All units that contain material relating to the Electrical Regulatory Authorities Councils' Essential Performance Capabilities must be reviewed by the Electrical Technical Advisory Committee to ascertain which units should including the 'unrestricted electricians licence statement'. Consideration must be given to the implications of any such decision on the entire UEE training package. The ETU believes there is merit to including the statement in all 'EL' – Electrical coded units contained within the core of the Certificate III Electrotechnology Electrician qualification.***

***Recommendation 6: AIS should seek clarification and feedback from the Electrical Technical Advisory Committee regarding the workplace evidence statement and subsequent implementation advice contained within the CVIG. This includes the confirming the appropriateness of which units should contain the statement and if the statement and implementation advice is appropriate in its current form.***

**Recommendation 7:** AIS should seek clarification and feedback from ASQA regarding the intent of including the workplace evidence statement and implementation advice contained within the CVIG once it has been reviewed by the Electrical Technical Advisory Committee. Advice should include if ASQA sees any concerns with the advice and how they will regulate it consistently across workplaces, RTOs and jurisdictions.

**Recommendation 8:** Refer all outstanding inconsistencies and issues relating to the unit UEEEL0014 – Isolate, test and troubleshoot low voltage electrical circuits to the Electrical Technical Advisory Committee for review including:

- The appropriateness of the unit in the Electrical Fitting qualification, given it contains content outside the scope of an electrical fitters occupation.
- The appropriateness of including UEEEL0047 as a pre-requisite unit, given it is included in the unit and not in the qualification packaging rules
- The appropriateness of including UEEEL0008, UEEEL0009 and UEEEL0010 as pre-requisite units for UEEEL0014, given the preceding unit included that content
- The appropriateness of including UEEEL0005 as a pre-requisite unit for UEEEL0014, given the preceding unit did not include that content
- The appropriateness of including UEEEL0018 as a pre-requisite unit to UEEEL0014, given the preceding unit did not include that content
- The appropriateness of including UEEEL0018 as a pre-requisite unit to UEEEL0014, given it is included in the qualification packaging rules and not in the unit

**Recommendation 9:** Refer the unit UEEEL0020 - Solve problems in low voltage a.c. circuits to the Electrical Technical Advisory Committee to confirm appropriateness of pre-requisite units.

**Recommendation 10:** Refer the unit UETDRRF06 - Perform rescue from a live LV panel as well as the more appropriate draft unit that has been developed by industry specifically for the electrotechnology industry to the Electrical Technical Advisory Committee for resolution. If necessary, consultation should take place with representatives of the Electricity Supply Industry to assist in the process.

**Recommendation 11:** The unit HLT AID001 - Provide cardiopulmonary resuscitation, must be included as a pre-requisite unit to the unit UEEEL0039 - Design, install and verify compliance and functionality of general electrical installations, to satisfy Essential Performance Capability licensing requirements.

**Recommendation 12:** In the short-term, all units that have been put up as not going forward in the Case for Endorsement need to be transitioned across until the impact of not doing so has been determined in all UEE qualifications and in broader UEP, UET and UEG training packages.

**Recommendation 13:** The and/or stream needs to be put back into the unit UEEEL0033 - Conduct electrical tests on LV electrical machines.

***Recommendation 14: The unit UEEEL0014 - Isolate, test and troubleshoot low voltage electrical circuits needs to be removed from every qualification, excluding UEE30820. In the interim, the old unit UEENEEG108 - Trouble-shoot and repair faults in low voltage electrical apparatus and circuits, should be transitioned and considered for use in qualifications where UEEEL0014 has been removed.***

***Recommendation 15: More thought needs to be put into the amalgamation of restricted licensing units to ensure that a candidates primary work function is included on the statement of attainment issued by RTOs. The licensing statement may need to be altered to ensure that workers who already have a trade background are able to undertake the restricted licensing unit.***

***Recommendation 16: ETU analysis of UEE training package components has uncovered a significant number of units that has not transitioned all pre-requisite units across. This is concerning and goes against a long standing direction from the IRC that they will all transition, except in limited circumstances when they have undergone a significant review by the respective Technical Advisory Committees. AIS need to review and confirm that this direction has been carried out. If necessary, direction should be called upon by the relevant TACs.***

## 7 List of Acronyms

ACTU – Australian Council of Trade Unions

AIS – Australian Industry Standards, a Commonwealth contracted SSO

AISC – Australian Industry and Skills Committee

CEPU – Communications, Electrical, Electronic, Energy, Information, Postal, Plumbing and Allied Services Union of Australia

CfC – Case for Change

CfE – Case for Endorsement

EKAS – Essential Knowledge and Skills

EPC – Essential Performance Capabilities, as defined by ERAC

ERAC – Electrical Regulatory Authorities Council

ESI – Electricity Supply Industry

ETU – Electrical Trades Union of Australia, the Electrical, Energy and Services Division of the CEPU

IoT – Internet of Things

IRC – Industry Reference Committee, Electrotechnology unless otherwise stated

ITAB – Industry Training Advisory Board

KE – Knowledge Evidence, contained within a unit of competency

NCVER – National Centre for Vocational Education Research

PE – Performance Evidence, contained within a unit of competency

SSO – Service Skill Organisation contracted by the Commonwealth Government to develop training packages

STA – State Training Authority, official Department of State and Territory Governments

TAC – Technical Advisory Committee, Electrical unless otherwise stated

UEE – Means the Electrotechnology Training Package

UoC – Unit of Competency

VET – Vocational Education and Training