UEE COMPUTER SYSTEMS AND ENGINERERING

Name of allocated IRC: Electrotechnology
Name of the SSO: Australian Industry Standards

1. Administrative information
*For a list of the products proposed to be reviewed as part of this project, please see **Attachment A**.*

Name of IRC(s):	Electrotechnology
Name of SSO:	Australian Industry Standards

1.1 Name and code of Training Package(s) examined to determine change is required

UEE Electrotechnology Training Package

2. The Case for Change
*For information on the job roles to be supported through the proposed qualifications updates, enrolments data, completion rates, and the number of RTOs delivering these qualifications please see **Attachment B**.*

2.1 Rationale for change

During transition of the UEE Training Package several issues were identified by stakeholders which fell outside of the scope of the transition project. It was identified that UEE60420 Advanced Diploma of Computer Systems Engineering was no longer fit for purpose because it contains content related to outdated technology no longer used by industry. The review will update this qualification to reflect current technologies, industry and regulatory requirements and work practices.

The qualification was last updated over 10 years ago, and computer systems have evolved significantly since then. Since that last update, a significant number of ICT Training Package units have been updated/developed which should be considered for use as imported units in this qualification.

UEE60420 was a straight transition of content from UEE60411 for compliance with the 2012 Standards for Training Packages. The transition project did not allow for a review of content.

Now more than ever it is important the IRC works closely with stakeholders to ensure qualifications remain contemporary and meet the requirements of employers whilst providing flexibility for workforce participants. The currency of content in the area of computer systems engineering has never been more important.

2.2 Evidence for change

The sector is currently experiencing a double disruption, with the COVID-19 pandemic causing unprecedented changes in every element of work and dramatically accelerating the pace of digital transformation that was already well underway. As a primary driver of productivity and as a prerequisite to meeting constant changes to consumer behaviour, Digital Transformation will be central to the recovery of the Australian economy.

Many qualifications within the UEE Training Package have not been updated for at least ten years, with some content not looked at in any meaningful way since the 1990s. Related to computer systems, some of the Training Package gaps identified include, but are not limited to, the following: the internet of things; sensors and transducers; cybersecurity; networking, network security and software defined networking; Industry 4.0; a range of needs related to programming; data analytics; cloud computing, cloud Architecture and Cloud Operations; wireless security; 5G; and, computer systems administration.

2.3 Consideration of existing products

Existing units of competency will be reviewed to bring them in line with current industry practice.

Units from the ICT Information and Communications Technology Training Package will be considered for use as imports to cover contemporary Information Technology practices. Units from the BSB Business Services Training Package will be considered for use as imports to cover contemporary project management practices. These imports may replace existing UEE Units of competency if the Technical Advisory Committee (TAC) considers it appropriate.

2.4 Approach to streamlining and rationalisation of the training products being reviewed

As mentioned in section 2.3, a focus of the project will be to consider where imported units from other industry training packages can be used to meet skilling needs and/or replace current UEE units where appropriate.

3. Stakeholder consultation

3.1 Stakeholder consultation undertaken in the development of Case for Change

*For a full list of industry-specific stakeholders that actively participated in the stakeholder consultation process undertaken to develop the Case for Change, please see **Attachment C**.*

The need for a review of this qualification was identified during the broad consultation conducted for Release 2.0 of the UEE Electrotechnology Training Package.

Development of the Case for Change involved consultation with stakeholders via the following communication mechanisms:

- Stakeholder webinars
- Face to Face meetings (Virtual)
- AIS Website
- Stakeholder networks
- Teleconferences
- Emails

The work was outlined during a webinar which included representatives from all States/Territories and regional areas of those jurisdictions. Feedback on the proposed work was invited during the webinar.

The work was posted in the Engagement Hub of the AIS website and feedback invited.

Notification of the opportunity to provide feedback through the Electrotechnology webinar, or in writing through the Engagement Hub, was provided to over 1,100 Electrotechnology sector stakeholder subscribers.

3.2 Evidence of Industry Support

*For a list of the issues raised by stakeholders during consultation and the IRC's response to these, please see **Attachment D**.*

No objections to the proposed review of the qualification were raised during the consultation process. There is strong support for the review because the current qualification is not fit for purpose and its content significantly out of date.

The work was outlined during a webinar conducted for the Electrotechnology industry on 26 March 2021 which had 80 participants. A broad question about the approach that will be used for the review was posed in the Q & A section of the webinar indicating stakeholder interest in the work. The proposed work was also detailed in the Engagement Hub of the AIS website for stakeholders to review and provide feedback, and no issues were raised in response.

3.3 Proposed stakeholder consultation strategy for project

*Note: For a full list of industry-specific stakeholders who are planned to be contacted to participate in the stakeholder consultation process undertaken for this project, please see **Attachment E**.*

Key Industry stakeholders will be identified in consultation with industry regulators, associations, and the Electrotechnology IRC.

A general invitation to participate on the project Technical Advisory Committee (TAC) will be sent to all Electrotechnology subscribers. Targeted invitations will also be sent to known technical experts.

AIS, on behalf of the Electrotechnology IRC, will promote the opportunity to contribute through stakeholder webinars, the AIS website, EDM's, AIS newsletter and public notifications. Stakeholders will also be notified of key milestones throughout the life of the project, including requests for feedback on draft materials.

Stakeholder engagement and consultation will occur over the life of the project via a combination of the following methods:

- Direct engagement: Face to face consultations, Site visits, Phone, emails, video/teleconferencing meetings
- Industry forums and conferences
- Webinars
- Online feedback mechanisms
- STA direct engagement

Given the size of Australia and all stakeholders are not centrally located in major cities, a range of consultation strategies will be used so stakeholders in rural, regional and remote areas, and in smaller jurisdictions have multiple avenues to provide feedback.

This includes but is not limited to, online/video consultation, email correspondence and promotional activity via targeted communications including social media. A recently developed Engagement hub on the AIS website provides a one stop portal for information about how all stakeholders can participate and inform Training Package development work.

4. Licencing or regulatory linkages

There are no links to regulation or licencing within the core units of this qualification. Some elective units may provide a pathway to cabling accreditation however they will not be reviewed as part of this project.

5. Project implementation

5.1 Prioritisation category

It is proposed that this be routine review conducted over a twelve-month period to enable considered review of highly technical content.

Release 2.0 of the UEE Training Package was primarily a transition project and did not include the review of content in its scope. The need for this review was identified during the transition of UEE11 content which was identified as substantially out of date.

5.2   Project milestones

Key project milestones include:

- AISC project approval – June 2021
- Technical Advisory Committee (TAC) formed – August 2021
- Draft 1 consultation: January-February 2022
- Stakeholder validation: March-April 2022
- Quality Assurance: April-May 2022
- Final consultation with states and territories: May -June 2022
- CfE submitted for approval: 30 June 2022

5.3   Delivery or implementation issues

None have been identified to date.

6.   Implementing the Skills Minister's Priority reforms for Training Packages (2015 and October 2020)

The project submission will support industry's expectations for training delivery and provide a revised Companion Volume Implementation Guide (CVIG) to support delivery of the new products.

Consideration of imported units will be a focus of this project.

This Case for Change was agreed to by the Electrotechnology IRC

Name of Chair	
Signature of Chair	
Date	

Attachment A: Training Package components to change

Australian Industry Standards

Contact details: David Dixon, Chief Operating Officer

Date submitted: TBA

Note: qualifications where the code is marked with * are not being reviewed, but contain core units that are being reviewed as part of this project, as such will need to be submitted for endorsement due to the update.

Project number	Project Name	Qualification/ Unit / Skillset	Code	Title	Details of last review *(endorsement date, nature of this update transition, review, establishment)*	Change Required
4	Computer Systems and Engineering	Qualification	UEE60420Y	Advanced Diploma of Computer Systems Engineering	05/Oct/2020 - Transition	Update
4	*Computer Systems and Engineering*	*Qualification*	** UEE50120Y*	*Diploma of Computer Systems Engineering*	*05/Oct/2020 - Transition*	*Update*
4	*Computer Systems and Engineering*	*Qualification*	** UEE61820Y*	*Advanced Diploma of Engineering Technology - Computer Systems*	*05/Oct/2020 - Transition*	*Update*
4	Computer Systems and Engineering	Unit	UEECS0001Y	Administer computer networks	05/Oct/2020 - Transition	Update
4	Computer Systems and Engineering	Unit	UEECS0002Y	Analyse and implement biometric measuring techniques and applications	05/Oct/2020 - Transition	Update
4	Computer Systems and Engineering	Unit	UEECS0004Y	Commission industrial computer systems	05/Oct/2020 - Transition	Update

Project number	Project Name	Qualification/ Unit / Skillset	Code	Title	Details of last review *(endorsement date, nature of this update transition, review, establishment)*	Change Required
4	Computer Systems and Engineering	Unit	UEECS0005Y	Design and implement advanced routing for internetworking systems	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0006Y	Design and implement multi-layer switching for internetworking systems	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0007Y	Design and implement network systems for internetworking	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0008Y	Design and implement remote access for internetworking systems	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0009Y	Design and implement security for internetworking systems	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0010Y	Design and implement wireless LANs/WANs for internetworking systems	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0011Y	Design and manage enterprise computer networks	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0012Y	Design embedded controller control systems	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0013Y	Develop and validate biometric equipment/systems installation	05/Oct/2020 - Transition	**Update**

Project number	Project Name	Qualification/ Unit / Skillset	Code	Title	Details of last review *(endorsement date, nature of this update transition, review, establishment)*	Change Required
4	Computer Systems and Engineering	Unit	UEECS0014Y	Develop computer network services	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0015Y	Develop energy sector computer network applications infrastructure	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0016Y	Develop energy sector directory services	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0017Y	Develop industrial control programs for microcomputer equipped devices	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0019Y	Develop, implement and test object-oriented code	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0021Y	Install and administer UNIX/LINUX-based networked computers	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0023Y	Install and configure network systems for internetworking	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0024Y	Integrate multiple computer operating systems on a client server local area network	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0025Y	Modify/redesign industrial computer systems	05/Oct/2020 - Transition	**Update**

Project number	Project Name	Qualification/ Unit / Skillset	Code	Title	Details of last review (endorsement date, nature of this update transition, review, establishment)	Change Required
4	Computer Systems and Engineering	Unit	UEECS0026Y	Plan industrial computer systems projects	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0027Y	Provide programming solution for computer systems engineering problems	05/Oct/2020 - Transition	**Update**
4	Computer Systems and Engineering	Unit	UEECS0031Y	Set up, create and implement content for a web server	05/Oct/2020 - Transition	**Update**

Attachment B: Job role, enrolment information, the number of RTOs currently delivering these qualifications

Please set out the job roles to be supported through the updated qualifications, enrolment data over the past three years in which data is available for each qualification, completion rates for each qualification, and the number of RTOs delivering these qualifications.

Job role	Qualification to be updated to support the job role	Enrolment data (for the past three years)	Completion rates (for the past three years)	Number of RTOs delivering (for the past three years)
263111 Computer Network And Systems Engineer	UEE60420Y Advanced Diploma of Computer Systems Engineering	596	168	5
313100 Ict Support Technicians	UEE50120Y Diploma of Computer Systems Engineering	155	33	1
313100 Ict Support Technicians	UEE61820Y Advanced Diploma of Engineering Technology - Computer Systems	5	0	0
	UEECS0001Y Administer computer networks	213	160	7
	UEECS0002Y Analyse and implement biometric measuring techniques and applications	0	0	16
	UEECS0004Y Commission industrial computer systems	234	224	10
	UEECS0005Y Design and implement advanced routing for internetworking systems	137	114	6
	UEECS0006Y Design and implement multi-layer switching for internetworking systems	14	19	6
	UEECS0007Y Design and implement network systems for internetworking	210	159	7

	UEECS0008Y Design and implement remote access for internetworking systems	29	22	6
	UEECS0009Y Design and implement security for internetworking systems	202	173	6
	UEECS0010Y Design and implement wireless LANs/WANs for internetworking systems	196	153	6
	UEECS0011Y Design and manage enterprise computer networks	177	144	6
	UEECS0012Y Design embedded controller control systems	184	159	12
	UEECS0013Y Develop and validate biometric equipment/systems installation	0	0	14
	UEECS0014Y Develop computer network services	97	87	10
	UEECS0015Y Develop energy sector computer network applications infrastructure	233	131	15
	UEECS0016Y Develop energy sector directory services	190	131	17
	UEECS0017Y Develop industrial control programs for microcomputer equipped devices	187	176	15
	UEECS0019Y Develop, implement and test object-oriented code	155	126	16
	UEECS0021Y Install and administer UNIX/LINUX-based networked computers	182	123	7
	UEECS0023Y Install and configure network systems for internetworking	370	246	10

	UEECS0024Y Integrate multiple computer operating systems on a client server local area network	157	116	7
	UEECS0025Y Modify/redesign industrial computer systems	257	197	10
	UEECS0026Y Plan industrial computer systems projects	138	128	5
	UEECS0027Y Provide programming solution for computer systems engineering problems	178	171	15
	UEECS0031Y Set up, create and implement content for a web server	86	72	16

Attachment C: List of stakeholders that actively participated in the consultation process of the Case for Change

Active participation has included stakeholders from the following organisations across all states and territories within Australia:

- Industry Reference Committee (IRC) Representatives
- Technical Advisory Committees
- Employers (Non-IRC)
- Peak Industry Bodies
- Unions
- Regulators
- RTOs
- Other/Consultants

Attachment D: Issues Raised by Stakeholders during consultation on the development of the Case for Change

Stakeholder Type	Issues Raised	IRC's Response to Issues Raised
Industry Reference Committee (IRC) Representatives	NIL	NA
Peak Industry Bodies	NIL	NA
Employers (Non-IRC)	NIL	NA
Regulators	NIL	NA
Registered Training Organisations (RTOs)	NIL	NA
Training Boards/Other	NIL	NA
State and Territory Training Authorities (STAs)	NIL	NA
Unions	NIL	NA
Please add other categories as appropriate	NIL	NA

Attachment E: List of stakeholders to be contacted as part of the development of the Case for Endorsement

The Case for Endorsement development will involve contacting stakeholders from the following types of organisations across all states and territories within Australia:

- Industry Reference Committee (IRC) Representatives
- Employers (Non-IRC)
- Peak Industry Bodies
- Unions
- Regulators
- RTOs
- Other/Consultants