22589VIC

Certificate III in Emerging Technologies

This course has been accredited under Part 4.4 of the Education and Training Reform Act 2006.

Accreditation period: 1 March 2022 to 28 February 2027

Version History:		Date
Version 1.1	Department of Education and Training (DET) details and contact information updated with Department of Jobs, Skills Industries and Regions (DJSIR) details in Section A.	September 2023
Version 1	Initial accreditation	2022

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Section A: Applicant and course classification information

1. Person in respect of whom the course is being accredited	Copyright of this material is reserved to the Crown in the right of the State of Victoria on behalf of the Department of Jobs, Skills, Industries and Regions (DJSIR) Victoria. © State of Victoria (DJSIR) 2022
2. Address	Executive Director Higher Education and Workforce Skills and Employment Department of Jobs, Skills, Industries and Regions (DJSIR) GPO Box 4509 MELBOURNE VIC 3001 **Organisational contact** Manager, Training and Learning Products Unit Higher Education and Workforce Skills and Employment Telephone: 131 823 Email: course.enquiry@djsir.vic.gov.au **Day-to-day contact:** Curriculum Maintenance Manager (CMM) CMM Business Industries Chisholm Institute 121 Stud Road Dandenong Vic 3175 Telephone: (03) 9238 8501 Email: cmmbi@chisholm.edu.au
3. Type of submission	This submission is for accreditation.
4. Copyright acknowledgement	The following units of competency: BSBCRT413 Collaborate in creative processes BSBESB301 Investigate business opportunities BSBESB302 Develop and present business proposals BSBESB304 Determine resource requirements for new business ventures BSBTEC405 Review and maintain organisation's digital presence BSBXCS303 Securely manage personally identifiable information and workplace information BSBWHS211 Contribute to the health and safety of self and others are from the BSB Business Services Training Package administered by the Commonwealth of Australia. © Commonwealth of Australia

	The following units of competency: ICTGAM301 Apply simple modelling techniques ICTGAM302 Design and apply simple textures to digital art ICTSAS305 Provide ICT advice to clients ICTTEN202 Use hand and power tools ICTWEB304 Build simple web pages ICTWEB305 Produce digital images for the web ICTWEB434 Transfer content to websites ICTWOR306 Resolve technical enquiries using multiple information systems ICTWOR308 Provide customer service to telecommunications customers are from the ICT Information and Communications Technology Training Package administered by the Commonwealth of Australia. © Commonwealth of Australia The following unit of competency: ICPPTD302 Set up and produce 3D prints is from the ICP Printing and Graphic Arts Training Package administered by the Commonwealth of Australia. © Commonwealth of Australia The following units of competency: CHCDIV001 Work with diverse people CHCDIV002 Promote Aboriginal and/or Torres Strait Islander cultural safety are from the CHC Community Services Training Package administered by the Commonwealth of Australia. © Commonwealth of Australia The following units of competency: CPCCOM1012 Work effectively and sustainably in the construction industry CPCCWHS1001 Prepare to work safely in the construction industry are from the CPC Construction, Plumbing and Services Training Package administered by the Commonwealth of Australia. © Commonwealth of Australia

	The following units of competency: CUADES201 Follow a design process CUADES202 Evaluate the nature of design in a specific industry context CUADIG304 Create visual design components CUADIG311 Prepare video assets are from the CUA Creative Arts and Culture Training Package administered by the Commonwealth of Australia. © Commonwealth of Australia The following units of competency: HLTADM001 Administer and coordinate Telehealth services HLTADM002 Manage Telehealth technology are from the HLT Health Training Package administered by the Commonwealth of Australia. © Commonwealth of Australia The following units of competency: SIRXCEG006 Provide online customer service SIRXMKT002 Use social media to engage customers SIRXOSM001 Identify and review social media and online platforms for organisational use SIRXOSM002 Maintain ethical and professional standards when using social media and online platforms SIRXOSM003 Use social media and online tools SIRXOSM004 Analyse performance of social media and online business tools are from the SIR Retail Services Training Package administered by the Commonwealth of Australia. © Commonwealth of Australia The following units of competency: AVIY0052 Control remote pilot aircraft systems on the ground AVIY0023 Launch, control and recover a remotely piloted aircraft AVIE0003 Operate aeronautical radio are from the AVI Aviation Training Package administered by the Commonwealth of Australia.

	© Commonwealth of Australia The following units of competency: VU22338 Configure and program a basic robotic system VU22340 Use 3D printing to create products VU22829 Install, set up and test an embedded control system are from 22527VIC - Certificate II in Integrated Technologies (Pre-vocational). Copyright of this material is reserved to the Crown in the right of the State of Victoria. © State of Victoria (Department of Education and Training) 2020. This work is licenced under a Creative Commons Attribution-No Derivatives 4.0 International licence (more information is available on the *Creative Commons website*). The following units of competency: VU23151 Develop a career plan for technology and digital futures VU23152 Present information to support decision making using common business applications VU23153 Explore evolving technology and impact on jobs are from 22588VIC - Certificate III in Enabling Technologies. Copyright of this material is reserved to the Crown in the right of the State of Victoria. © State of Victoria (Department of Education and Training) 2022. This work is licenced under a Creative Commons Attribution-No Derivatives 4.0 International licence (more information is available on the *Creative Commons website*).
5. Licensing and franchise	Copyright of this material is reserved to the Crown in the right of the State of Victoria. © State of Victoria (DJSIR) 2022 This work is licensed under a Creative Commons Attribution-No Derivatives 4.0 International licence (see *Creative Commons* for more information). You are free to use, copy and distribute to anyone in its original form if you attribute the State of Victoria (DJSIR) as the author and you licence any derivative work you make available under the same licence. Request for other use should be addressed to: Executive Director

	Higher Education and Workforce Skills and Employment Department of Jobs, Skills, Industries and Regions (DJSIR) Email: *course.enquiry@djsir.vic.gov.au*
6. Course accrediting body	Victorian Registration and Qualifications Authority
7. AVETMISS information	***ANZSCO code – 6 digit*** *Australian and New Zealand Standard Classification of Occupations* 399999 Technicians and Trades Workers ***ASCED Code – 4 digit*** *Field of Education* 1299 Other Mixed Field Programmes ***National course code*** 22589VIC
8. Period of accreditation	1 March 2022 to 28 February 2027

Section B: Course information

1 Nomenclature	
1.1 Name of the qualification	*Standard 4.1 AQTF 2021 Standards for Accredited Courses* Certificate III in Emerging Technologies
1.2 Nominal duration of the course	*Standard 5.8 AQTF 2021 Standards for Accredited Courses* 336-505 hours
2 Vocational or educational outcomes of the course	
2.1 Outcome(s) of the course	*Standard 5.1 AQTF 2021 Standards for Accredited Courses* This course enables learners to explore industry career options, prepare for further education and training, or gain employment. Learners will develop transferrable enterprise and technical skills applicable across a range of industry, business and community contexts. They will: • select, adapt and apply a range of human enterprise skills across a range of work contexts • demonstrate technical skills to undertake routine and some non-routine tasks across a range of work contexts • participate in collaborative teams to produce solutions using current and evolving technology applications • explore the application of enterprise technologies in varied contexts to inform career and further educational choices. This course prepares learners for entry level job roles across a range of industry sectors. Depending on the streams selected, students may undertake a range of support roles in: • Design of interactive digital media components • Help desk support providing technical advice to clients • Web development and digital content design • Video and digital image and interactive media • Telehealth technology • Social media and online tools • Maintenance and troubleshooting solutions for three-dimensional (3D) printing

	• Remote pilot aircraft systems (RPAS)
2.2 Course description	*Standard 5.1 AQTF 2021 Standards for Accredited Courses* This course provides learners with the opportunity for career exploration in emerging technologies and builds the knowledge and skills applicable to: • explore industry career options • prepare for further vocational education and training and/or higher education • gain employment and further training through a traineeship or apprenticeship • gain employment in entry level jobs where the use of evolving technology is a core function. A range of specialty streams provide students with technical skills and knowledge in the use of emerging and evolving technologies in industry. These specialty streams include: • game design • digital content design • specialist help desk • web development • data analytics • digital business skills • digital entrepreneurship • design thinking and product design • future trades • Telehealth administration • social media • 3D printing • drones • wearable objects and apps • robotics and evolving technologies.
3 Development of the course	
3.1 Industry, education, legislative, enterprise or community needs	*Standards 4.1, 5.1, 5.2, 5.3 and 5.4 AQTF 2021 Standards for Accredited Courses* Industry need In 2020, HeadStart Enterprise Essential Technology (HEET) curriculum research project for Head Start was commissioned by the Department of Education and Training. The research was internally published in June 2020 under the title of Farrell, P & Stumpf, B 2020, Head Start Enterprises Emerging Technologies White Paper, Department of Education.

	The research paper sought to explore the possibility of the design and development of an innovative suite of curriculum products that responded to the surge of high technology enterprises and businesses in the Victorian economy. High technology was defined as involving the creation, production or use of advanced or sophisticated devices, machinery and materials. These enterprises and businesses require employees who have relevant and current training in order to develop and/or implement competitive strategies. The research project was divided into two distinct stages. Stage One included the desktop analysis of contemporary research globally and identified emerging trends in curriculum design and development, policy and legislative frameworks and research analysis of existing programs to identify opportunities and challenges. Stage Two engaged stakeholders in a collaborative co-design of curriculum models to reflect opportunities identified in Stage One. The course model was designed to offer students the ability to specialise and build skill sets and/or capability sets that will allow them to be employable with tangible early job skills that are diverse and allow further exploration. Findings One of the key challenges for all stakeholders involved in the Victorian Senior Secondary Education Sector is the provision of an agile and innovative suite of curriculum that prepares students to take their place in the globalised world. Skills are needed in advanced digital technology; communications and social networking; and, how to access authenticated information from a variety of knowledge e-sources. The provision of vocational education and training (VET) at the senior secondary level has also created an alternative employment pathway from the traditional academic trajectory into university. Industry and businesses have clearly indicated that entry level workers from secondary school should have transferrable enterprise, digital and technical capabilities. According to industry, except for students who complete Victorian pre-apprenticeships, those graduating from secondary schools do not have the required entry level skills. Furthermore, 78 per cent of students do not continue in the study area they were initially enrolled in. The assumption that there is a linear pathway is predominately erroneous. Industry representation reports concern that Australian Training Packages do not currently have sufficient agility to respond to skill development requirements within the tight time constraints required by Victorian priority industries.

	Clarke, 2014, noted that the re-shaping of the Australian senior secondary landscape in recent years and the emergence of a new space for vocational knowledge within Australian senior secondary certificates of education have been underpinned by a national focus on raising retention rates and achieving Year 12 or equivalent attainment rates in the context of a diversifying senior secondary cohort, and on delivering effective training to meet the skills needs of the growing economy. Absent from this policy agenda is a focus on the efficacy of the expanding vocational education and training (VET) in Schools. At the core of this discussion are the impacts of ongoing tensions between the instrumentalist labour market role of VET delivered in Schools programs and the expectation that an equitable senior secondary landscape should respond to the education and training needs of all students. Despite rapid growth, those learners who are less academic or socioeconomically disadvantaged remain the dominant participants in VET delivered in Schools programs. Vocational education and training delivered to secondary school students needs to move beyond an analysis of its retention capacities to a more in-depth examination of the connection between school-based vocational programs and occupations. This would assist in the conceptualisation of VETDSS as a career pathway rather than a retention strategy for learners with a non-academically inclined preference to future study and employment. Educational need The Victorian Government's support of vocational education and its associated pathways is one of the central strategies to increase student retention in Year 10 and 11 and improve Year 12 or equivalent completion rates. A central tenet is to provide every student with knowledge, capabilities, and attributes to thrive in life, while ensuring the Victorian economy has workers with skills that industry needs and that employers expect. In short, there is an explicit intent to directly link career education to the learning goals of students from Year 9 to 12 and beyond. VET course completion rates for secondary school students are historically low. In 2018, fewer than half of Victoria's VET students (44.6 per cent) completed their qualification. The design of the proposed course is underpinned by the following principles: • Optimise students' ability to build transferable enterprise and technical skills that can be used in a range of occupations.

	• Ensure that students gain understanding of a breadth of industries and job roles, including jobs of the future. Given the dual purpose of employment and further education in the senior secondary school environment, a balance between competing priorities of industry and academia is a further challenge. The current curriculum responses and those of VET training package qualifications stream students into an either-or choice at a stage of life where future options are not fully understood, opportunities to explore personal aptitudes, interests and passions are limited, and success is premised on an Australian Tertiary Admission Rank (ATAR) or completion of a VET qualification. Currently the duality of student outcomes is evident within a range of approaches and partnerships including Victorian Certificate of Education (VCE), Victorian Certificate of Applied Learning (VCAL), Vocational Education and Training delivered to Secondary Students (VETDSS), School based Apprenticeships and Traineeships (SBAT), TECH Schools, Head Start, and Career Education. While the senior secondary school curriculum has been designed specifically for the learner cohort to pathway into further education, this is not the case for VET qualifications. VET qualifications have been designed for skill development within specific occupational categories without reference to the learner cohort. While it is recognised that the mandated development of training and assessment strategies based on learner cohort is required, alteration of the end purpose employment within an industry sector is not. The suitability of enrolment in a VET qualification by a secondary school student is concerning – given the low completion rates as reported by NCVER. Inherent systemic issues within the Victorian education environment allow students to enrol in a VET qualification knowing that they will never complete the full qualification. This poses a question about the suitability and impact of this approach for the learner cohort. Increasingly there is an awareness of the need to provide balanced and considered student centred pathways which are non-linear. The central challenge is therefore the development and provision of greater opportunities for students of all abilities to explore potential career pathways using an authentic workplace context as an embedded and fundamental part of secondary school curriculum. Findings of The Essential Technologies Curriculum Research Project: Head Start Enterprises, Department of Education (Farrell, P & Stumpf, B 2020, Head Start Enterprises Emerging Technologies White Paper, Department of Education, June) clearly indicated that the field of ICT, IT and Digital Literacy has a broader purview

	to follow. Current course offerings are not attracting appropriate recruitments numbers despite a growing skill and job shortage in this area. All students will need digital capability not just digital literacy. In addition, The Report for CITT Scoping Study (Eason 2019) determined that knowledge of broader emerging technologies and enrolling students into narrow qualifications too early will not resolve current skill shortages and will result in students with limited knowledge of the breadth and scope of the sector The 22589VIC Certificate III in Emerging Technologies has been designed within the boundaries of student cohort characteristics and industry demands for workers with entry level emerging technology competencies, while ensuring that pathways to work and further study have multiple options. Research and consultation The Essential Technologies Curriculum Research Project: Head Start Enterprises was instrumental in the formation of the qualification. This Research Project included the desktop analysis of contemporary research globally and identified emerging trends in curriculum design and development, policy and legislative frameworks and research analysis of existing programs to identify opportunities and challenges. The research team consulted with key stakeholders, sharing the research and working collaboratively to co-design models to reflect the opportunities identified. The educational model was designed to offer learners the ability to specialise and build skill sets and/or capability sets that will allow them to be employable with tangible early job skills that are diverse and allow further exploration. The stakeholders included: • Technical school directors • Department of Education staff • Education Leaders including principals • Industry leaders • Teachers and students • Curriculum Maintenance Managers • HeadStart staff This qualification is a result of this stakeholder engagement, consultation, support and commitment to the course model. Target group The immediate target group is senior secondary school students. Anticipated course demand

	The 22589VIC Certificate III in Emerging Technologies is expected to attract strong demand from senior secondary students who are looking to gain valuable workplace knowledge and practical skills that will allow them to transition successfully into apprenticeships, traineeships, further education and training or directly into employment. The qualification has been designed with reference to DET's program implementation of improving vocational and applied learning pathways in Senior Secondary School, via delivery of vocational specialisation pathways certificates. The strengthening of the role of VET and the increased flexibility within Senior Secondary years is predicted to create course demand. Additional uptake will be driven by the Victorian Government support of priority industry and sectors that will drive Victoria's economic growth and jobs and the Connecting Regional Communities Program. Two TAFEs, one metro and one regional will be involved in the initial delivery of the qualification in 2022, an indication of the demand as identified within the sector. The qualification has been developed for the identified needs of secondary school students however it is recognised that it could have broader appeal beyond the target market to enable upskilling to meet current and future technological needs in the workplace. Other potential cohorts include: • those disengaged from formal training • disability sector • long term unemployed • recent redundancies • post-secondary students seeking clarity on their potential next steps This qualification also reflects the need to deliver on the successful implementation of the reforms proposed in the Future Skills for Victoria, driving collaboration and innovation in post-secondary education and training review (Macklin, 2020) including: • on-the-ground support available to local learners & businesses • adoption of a place-based approach to building school–industry partnerships • stronger coordination role in these partnerships to provide students with more industry and employer exposure. Course consultation and validation processes A Project Steering Committee (PSC) was formed to oversee the development of the proposed accredited qualification consisting of:

	Dominic Schipano (Chair), National Executive Officer, Communications and Information Technology Training Ltd (CITT) Pauline Farrell, Managing Director, Skills for the Future Omar Hammoud, Managed Services Delivery Manager, Ericsson Bobb Swanton, State Manager, Field Operations – Vic/Tas and Oceania, Nokia Rick Frank, Account Manager, Cisco Systems Stuart Gurney, Apprenticeship Master, ANCA Group Craig Taylor, Director and Business Development Manager, Mobile Automation Joe D'amico, Manager, Business & IT, Chisholm Institute Daryl Sutton, Manager VET Unit, Victorian Curriculum & Assessment Authority (VCAA) In attendance: Alan Daniel, Curriculum Maintenance Manager, Business Industries, Chisholm Institute Colleen Mandaliti, Project Manager / Writer Bernadette Stumpf, Curriculum Writer Gabriele Giofre, Curriculum Advisor The outcomes of several national training package qualifications were carefully reviewed during research and consultation with respect to their potential application to the course context. Feedback from the consultation indicated that packaging rules and existing units did not adequately cover the breadth and depth of skills and knowledge to enable career exploration and development of skills for working with a range of emerging technologies. This resulted in new unit development to meet these additional needs. This course: • does not duplicate, by title or coverage, the outcomes of an endorsed training package qualification or skill set • is not a subset of a single training package qualification that could be recognised through one or more statements of attainment or a skill set • does not include units of competency additional to those in a training package qualification that could be recognised through statements of attainment in addition to the qualification

	• does not comprise units that duplicate units of competency of a training package qualification.
3.2 Review for re-accreditation	*Standards 5.1, 5.2, 5.3 and 5.4 AQTF 2021 Standards for Accredited Courses* *Not applicable*
4 Course outcomes	
4.1 Qualification level	*Standards 5.5 AQTF 2021 Standards for Accredited Courses* The 22589VIC CIII in Emerging Technologies is consistent with AQF Level 3 requirements of the Australian Qualifications Framework as follows: Knowledge Graduates will have factual, technical, procedural and theoretical knowledge in technical activities spanning a range of technologies. Skills Graduates will have: • cognitive, technical and communication skills to interpret and act on available emerging technologies information • cognitive and communication skills to apply within relevant emerging technology contexts • capacity to communicate known solutions to a variety of predictable problems and to deal with unforeseen contingencies using known solutions • technical and communication skills to provide technical information to a variety of specialist and non-specialist audiences • technical skills to undertake routine and some non-routine tasks in a range of skilled emerging technologies operations. Application of knowledge and skills Graduates will be able to demonstrate the application of knowledge and skills in the use of emerging technologies: • with discretion and judgement in the selection of equipment, services or contingency measures • to adapt and transfer skills and knowledge within known routines, methods, procedures and time constraints • in contexts that include taking responsibility for own outputs in work and learning including participation in teams and taking limited responsibility for the output of others within established parameters. Volume of learning

	The volume of learning for this qualification is typically one to two years. This is made up of the structured learning component of the course combined with the self-directed learning activities such as information gathering, workplace-based learning, completing assessment tasks within the context of an inquiry-based learning theory.
4.2 Foundation skills	*Standard 5.6 AQTF 2021 Standards for Accredited Courses* The Foundation Skills Qualification Summary (Appendix A) provides a summary of the foundation skills to be achieved in the course. Foundation skills relevant to the course are further detailed in each unit of competency.
4.3 Recognition given to the course	*Standard 5.7 AQTF 2021 Standards for Accredited Courses* Not applicable
4.4 Licensing/regulatory requirements	*Standard 5.7 AQTF 2021 Standards for Accredited Courses* Not applicable

5 Course rules

Standards 5.8 and 5.9 AQTF 2021 Standards for Accredited courses

5.1 Course structure

To achieve the qualification 22589VIC Certificate III in Emerging Technologies the learner must successfully complete a total of 14 units comprising:

- 6 core units
- 8 elective units

The eight elective units must be selected as follows:

- A minimum of two full streams to be selected as follows:
  - Two Emerging Streams

  OR

  - One Emerging Stream and One Specialty Stream

- Where the two streams selected contain less than the eight elective units required, the following applies:
  - Select up to two elective units that have been designed for career exploration. These have been drawn from the streams and can be selected from any of the following:
    - VU23138 Identify appropriate data sources and storage needs
    - VU23141 Investigate trades of the future
    - VU23142 Investigate applications for smart cities technology

- VU23143 Investigate block chain technology uses and application
- VU23144 Determine uses for artificial intelligence with robotic process automation tools
- VU23145 Investigate wearable objects and app innovations
- VU23149 Investigate robotic systems
- VU23164 Explore and prepare for 3D printing in industry

OR

- Select the first one or two units from one Enabling Stream or one Specialty Stream in the order listed in the stream

Where the full course is not completed, a VET Statement of Attainment will be issued for each unit successfully completed.

Unit of competency code	Field of Education code (six-digit)	Unit of competency title	Pre-requisite	Nominal hours
Core units				
VU23136	129999	Develop enterprise skills for solving workplace challenges	Nil	30
VU23137	129999	Apply enterprise skills in a team to develop solutions to workplace problems	Nil	20
VU23151	120501	Develop a career plan for technology and digital futures	Nil	20
VU23152	080905	Present information to support decision making using common business applications	Nil	30
VU23153	120505	Explore evolving technology and impact on jobs	Nil	20
BSBWHS211	061301	Contribute to the health and safety of self and others	Nil	20
EMERGING STREAMS				
Emerging Stream One – Game Design				
CUADIG304	100701	Create visual design components	Nil	30
ICTWEB305	020115	Produce digital images for the web	Nil	40
CUADIG311	100701	Prepare video assets	Nil	30
Emerging Stream Two – Digital Content Design				
CUADIG304	100701	Create visual design components	Nil	30
ICTGAM301	020103	Apply simple modelling techniques	Nil	30
ICTGAM302	020115	Design and apply simple textures to digital art	Nil	50
Emerging Stream Three – Specialist Help Desk				
ICTSAS305	029999	Provide ICT advice to clients	Nil	40
ICTWOR306	020113	Resolve technical enquiries using multiple information systems	Nil	40

ICTWOR308	080501	Provide customer service to telecommunications customers	Nil	40
Emerging Stream Four – Web Development				
ICTWEB434	029999	Transfer content to websites	Nil	20
ICTWEB304	029999	Build simple web pages	Nil	40
BSBTEC405	029999	Review and maintain organisation's digital presence	Nil	50
Emerging Stream Five – Data Analytics				
VU23138	020111	Identify appropriate data sources and storage needs	Nil	30
VU23139	020111	Test and evaluate big data samples	Nil	50
VU23140	020111	Present data for digital dashboards	Nil	40
Emerging Stream Six – Digital Business Skills				
ICTWEB304	029999	Build simple web pages	Nil	40
SIRXCEG006	080501	Provide online customer service	Nil	20
SIRXMKT002	080905	Use social media to engage customers	Nil	35
BSBXCS303	029901	Securely manage personally identifiable information and workplace information	Nil	30
Emerging Stream Seven – Digital Entrepreneurship				
BSBESB301	080301	Investigate business opportunities	Nil	25
BSBESB302	080301	Develop and present business proposals	Nil	30
BSBESB304	080301	Determine resource requirements for new business ventures	Nil	30
SIRXMKT002	080905	Use social media to engage customers	Nil	35
Emerging Stream Eight – Design Thinking & Product Design				
CUADES201	100501	Follow a design process	Nil	30
BSBCRT413	120301	Collaborate in creative processes	Nil	40

CUADES202	100501	Evaluate the nature of design in a specific industry context	Nil	50
Emerging Stream Nine – Future Trades				
VU23141	129999	Investigate trades of the future	Nil	30
CPCCWHS1001	061301	Prepare to work safely in the construction industry	Nil	6
ICTTEN202	030717	Use hand and power tools	Nil	40
CPCCOM1012	120505	Work effectively and sustainably in the construction industry	Nil	20
Emerging Stream Ten – Telehealth Administration				
CHCDIV001	120505	Work with diverse people	Nil	40
CHCDIV002	090311	Promote Aboriginal and/or Torres Strait Islander cultural safety	Nil	25
HLTADM001	061307	Administer and coordinate Telehealth services	Nil	60
HLTADM002	061307	Manage Telehealth technology	Nil	60
Emerging Stream Eleven – Social Media				
SIRXOSM001	080505	Identify and review social media and online platforms for organisational use	Nil	25
SIRXOSM002	080505	Maintain ethical and professional standards when using social media and online platforms	Nil	50
SIRXOSM003	080505	Use social media and online tools	Nil	35
SIRXOSM004	080505	Analyse performance of social media and online business tools	Nil	50
SPECIALTY STREAMS				
Specialty Stream One – 3D Printing				
VU23164	030103	Explore and prepare for 3D printing in industry	Nil	20
VU22340	030103	Use 3D printing to create products	Nil	40
ICPPTD302	030103	Set up and produce 3D prints	Nil	80

Specialty Stream Two – Drones				
AVIY0052	031505	Control remote pilot aircraft systems on the ground	Nil	25
AVIY0023	031505	Launch, control and recover a remotely piloted aircraft	Nil	30
AVIE0003	031309	Operate aeronautical radio	Nil	25
Specialty Stream Three – Wearable Technologies, Objects and Apps				
VU23145	029999	Investigate wearable objects and app innovations	Nil	20
VU23146	029999	Plan and design a wearable object or app component	Nil	30
VU23147	029999	Develop code for the design of wearable objects and apps	Nil	40
VU23148	029999	Test and evaluate a wearable object or app	Nil	40
Specialty Stream Four – Robotics				
VU23149	030799	Investigate robotic systems	Nil	20
VU23150	030703	Design a basic robotic solution for a specific problem	Nil	30
VU22338	030703	Configure and program a basic robotic system	Nil	60
VU22829	031305	Install, set up and test an embedded control system	Nil	30
Specialty Stream Five – Evolution of Technologies				
VU23142	030999	Investigate applications for smart cities technology	Nil	30
VU23143	020199	Investigate block chain technology uses and application	Nil	30
VU23144	020119	Determine uses for artificial intelligence with robotic process automation tools	Nil	30
			Total nominal hours	336-505

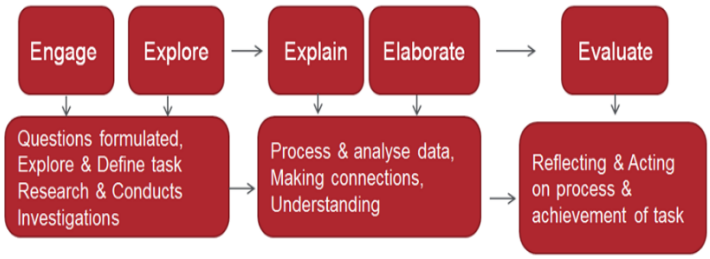
5.2 Entry requirements	*Standard 5.11 AQTF 2021 Standards for Accredited Courses*

	There are no entry requirements for the 22589VIC Certificate III in Emerging Technologies. The following is a general guide to entry in relation to the language, literacy and numeracy skills of learners aligned to the Australian Core Skills Framework (ACSF), details of which can be accessed from *here*. Learners are best equipped to achieve the course outcomes in the 22589VIC Certificate III in Emerging Technologies if they have minimum language, literacy and numeracy that are equivalent to Level 2 of the ASCF. Learners with language, literacy and numeracy skills at lower levels than those suggested will require additional support to successfully undertake the qualifications.

6 Assessment	
6.1 Assessment strategy	*Standard 5.12 AQTF 2021 Standards for Accredited Courses* All assessment, including Recognition of Prior Learning (RPL), must be compliant with the requirements of: • Standard 1 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guidelines 4.1 and 4.2 of the VRQA Guidelines for VET Providers, or • the Standards for Registered Training Organisations 2015 (SRTOs), or • the relevant standards and Guidelines for RTOs at the time of assessment. Assessment strategies must therefore ensure that: • all assessments are valid, reliable, flexible and fair • learners are informed of the context and purpose of the assessment and the assessment process • feedback is provided to learners about the outcomes of the assessment process and guidance given for future options • time allowance to complete a task is reasonable and specified to reflect the context in which the task takes place. Assessment strategies should be designed to:

	• cover a range of skills and knowledge required to demonstrate achievement of the units of competency • collect evidence on a number of occasions to suit a variety of contexts and situations • be appropriate to the knowledge, skills, methods of delivery, and needs and characteristics of learners • assist assessors to interpret evidence consistently • recognise existing skills • be equitable to all learners. It is recommended that the assessment strategy for the 22589VIC Certificate III in Emerging Technologies is hands-on, practical and involves emerging and evolving technologies. It should invoke an inquiry-based approach that: • requires students to seek information, analyse sources, pose questions and discover answers • operates within a framework supported by a driving question or problematic scenario • incorporates project-based learning, problem-based learning, the use of case studies and workplace-based learning Types of assessment instruments/methods to be considered when developing the training and assessment strategy (TAS) include: • Work performance: includes structured observation/demonstration and questioning using written checklists to collect evidence • Product: includes project planning, project process, project final product and questioning (produced using design thinking processes) • Projects: includes workplace project investigation and report or presentation and questioning using written checklists to collect evidence on case studies and workplace scenarios) • Portfolio: collection of evidence such as observation of performance, project product, investigation, presentation and questioning using checklists to collect evidence Holistic assessment that reflects realistic job tasks is encouraged. Units of competency may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations.

	Assessments of units of competency from nationally endorsed training packages and/or accredited courses must be in accordance with the assessment requirements incorporated in the endorsed component of the relevant training package or outlined in the assessment strategy in the accredited course.
6.2 Assessor competencies	*Standard 5.14 AQTF 2021 Standards for Accredited Courses* Assessment must be undertaken by a person or persons in accordance with: • Standard 1.4 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guidelines 3 of the VRQA Guidelines for VET Providers, or • the Standards for Registered Training Organisations 2015 (SRTOs), or • the relevant standards and Guidelines for RTOs at the time of assessment. Units of competency imported from training packages or accredited courses must reflect the requirements for assessors specified in that training package or accredited course.
7 Delivery	
7.1 Delivery modes	*Standard 5.12 and 5.14 AQTF 2021 Standards for Accredited Courses* This qualification aims to develop skills for entry level jobs or further education and training using an applied learning approach. Units of competency maybe delivered on the job, off the job or a combination of both. Where delivery occurs off the job, conditions should reflect realistic workplace situations. Delivery mode types may include: • Time tabled face-to-face group and/or individual sessions (on campus or off-campus) • Work placements (time spent in workplace consolidating skills/knowledge) • Online (asynchronous and/or synchronous) • Independent self-paced learning (time spent by student involve in specified activities without direct teacher/trainer supervision while undertaking those activities)

	• Workplace (delivered in the workplace using a variety of modes) • A combination of the above delivery modes (blended delivery mode) Some areas of content may be common to more than one unit and therefore integration may be appropriate. Delivery strategies should actively involve the learner and learning should be experiential, relevant and age appropriate. The following information outlines an educational approach that may be assist in the delivery of the course. This approach reflects the learning architecture and educational model designed for the qualification and has its genesis in Inquiry Based Learning Theory (IBLT) and Human Centred Design Thinking (HCDT) which is currently emphasised in innovative businesses, industries, and community organisations. The model seeks to link fundamental pedagogy with the future of how work will be undertaken. The diagram below provides a process view of the Educational Model.  IBLT processes: • structure approaches to developmental learning • operate within a framework supported by a driving question or problematic scenario • require students to seek information, analyse sources, pose questions and discover answers • incorporate project-based learning, problem-based learning, the use of case studies and workplace-based learning. HCDT processes encourage a phased approach to tackle problems.
7.2 Resources	*Standard 5.14 AQTF 2021 Standards for Accredited Courses*

	Critical to the delivery and assessment of this course is the need to maintain currency of specialised facilities, equipment and materials over the duration of the accreditation period. The rapidly evolving nature of the technologies identified as required for delivery may mean that newer substitute technologies that meet unit of competency requirements may be deemed more suitable by providers. Specialised facilities and equipment which is currently used within the emerging technologies field and therefore required for the delivery and assessment of this course is outlined below. This is not a definitive list but provides an indication of the scope and type of resource needs. It includes both proprietary and open source. Integration of courses with industry, community and local governments indicates that equipment and software can be supplied by a third party. Typical specialised software not already listed in units of competency that is suitable for delivery within the streams includes: • Games and Digital Content – Office 365, Azure Dev Tools, Adobe Spark, Snappa, Unity Development, TiltBrush or similar • Social Media and Digital Skills – Adobe Spark, Snappa or similar • 3D printing and Industry 4.0 – CAD/CAM software such as Autodesk, SmartDraw, Fusion 360 or similar • Wearables – Python, Blockly or similar • Robotics and evolving technologies – Thymio, Arduino, Fritzing, mBlock, Blockly or similar Typical equipment and materials including those already listed in units of competency that is suitable for delivery includes: • Drones • Various 3D printers • CNC, laser cutters • Robot kits General facilities, equipment and other resources required to deliver the qualification include: • training facilities and equipment including desktop, notebook or digital devices • appropriate industry standard software technologies • relevant texts and references • occupational health and safety facilities and equipment

	• occupational health and safety policy and work procedures/instructions • access to relevant legislation, standards and codes of practice • access to relevant equipment, tools, machines, materials and consumables • access to plans, drawings and instructions • manufacturer specifications/manuals • workplace environment or simulated workplace environment appropriate to the assessment tasks. The use of video conferencing and collaborative digital spaces and makerspace environments provides an emerging learning adjunct. Training must be undertaken by a person or persons in accordance with: • Standard 1.4 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guideline 3 of the VRQA Guidelines for VET Providers, or • the Standards for Registered Training Organisations 2015 (SRTOs), or • the relevant standards and Guidelines for RTOs at the time of assessment. Units of competency imported from training packages or accredited courses must reflect the requirements for resources/trainers specified in that training package or accredited course.
8 Pathways and articulation	
	Standard 5.10 AQTF 2021 Standards for Accredited Courses There are no formal articulation arrangements for this qualification. Learners who complete units of competency from endorsed training packages or accredited courses will be eligible for credit into other qualifications that contain those units. This course includes the Nationally recognised skill sets: • ICTSS00054 Visual Communications Specialist Skill Set

	• ICTSS00050 Rich Interactive Content Specialist Skill Set
	• ICTSS00092 Technical Help Desk Support Skill Set
	• ICTSS00034 Basic Web Development Specialist Skill Set
	• ICTSS00108 Digital Skills for Small Business Skill Set
	• HLTSS00043 Telehealth Administration Skill Set
	• SIRSS00019 Implement Social media and online customer engagement Skill Set
	
	This course aspires to provide learners with:
	
	• A solid foundation to apply for entry-level jobs requiring diverse technology-based skill sets
	• Pathway opportunities for post-secondary choices including:
	  • workforce
	  • further vocational education and training potentially leading to higher education
	
	Refer to the *AQF 2nd Edition, 2013 Pathways Policy*

9 Ongoing monitoring and evaluation	
	Standard 5.15 AQTF 2021 Standards for Accredited Courses Ongoing monitoring and evaluation of the qualification is the responsibility of the Curriculum Maintenance Manager for Business Industries. A formal review will take place once during the period of accreditation and will be informed by feedback from users of the curriculum and will consider at a minimum: • any changes required to meet emerging or developing needs • changes to any units of competency from nationally endorsed training packages or accredited curricula. The Victorian Registration and Qualifications Authority (VRQA) will be notified of any significant changes to the course/s resulting from course monitoring and evaluation processes.

Section C–Units of competency

The following units of competency can be accessed from the National Register of VET (See the National Register of VET).

Endorsed training package units:

BSB Business Services Training Package

BSBCRT413 Collaborate in creative processes

BSBESB301 Investigate business opportunities

BSBESB302 Develop and present business proposals

BSBESB304 Determine resource requirements for new business ventures

BSBTEC405 Review and maintain organisation's digital presence

BSBXCS303 Securely manage personally identifiable information and workplace information

BSBWHS211 Contribute to the health and safety of self and others

ICT Information and Communications Technology Training Package

ICTGAM301 Apply simple modelling techniques

ICTGAM302 Design and apply simple textures to digital art

ICTSAS305 Provide ICT advice to clients

ICTTEN202 Use hand and power tools

ICTWEB304 Build simple web pages

ICTWEB305 Produce digital images for the web

ICTWEB434 Transfer content to websites

ICTWOR306 Resolve technical enquiries using multiple information systems

ICTWOR308 Provide customer service to telecommunications customers

ICP Printing and Graphic Arts Training Package

ICPPTD302 Set up and produce 3D prints

CHC Community Services Training Package

CHCDIV001 Work with diverse people

CHCDIV002 Promote Aboriginal and/or Torres Strait Islander cultural safety

CPC Construction, Plumbing and Services Training Package

CPCCOM1012 Work effectively and sustainably in the construction industry

CPCCWHS1001 Prepare to work safely in the construction industry

CUA Creative Arts and Culture Training Package

CUADES201 Follow a design process

CUADES202 Evaluate the nature of design in a specific industry context

CUADIG304 Create visual design components

CUADIG311 Prepare video assets

HLT Health Training Package

HLTADM001 Administer and coordinate Telehealth services

HLTADM002 Manage Telehealth technology

SIR Retail Services Training Package

SIRXCEG006 Provide online customer service

SIRXMKT002 Use social media to engage customers

SIRXOSM001 Identify and review social media and online platforms for organisational use

SIRXOSM002 Maintain ethical and professional standards when using social media and online platforms

SIRXOSM003 Use social media and online tools

SIRXOSM004 Analyse performance of social media and online business tools

AVI Aviation Training Package

AVIY0052 Control remote pilot aircraft systems on the ground

AVIY0023 Launch, control and recover a remotely piloted aircraft

AVIE0003 Operate aeronautical radio

Accredited course units

22527VIC - Certificate II in Integrated Technologies (Pre-vocational)

VU22338 Configure and program a basic robotic system

VU22340 Use 3D printing to create products

VU22829 Install, set up and test an embedded control system

22588VIC – Certificate III in Enabling Technologies

VU23151 Develop a career plan for technology and digital futures

VU23152 Present information to support decision making using common business applications

VU23153 Explore evolving technology and impact on jobs

Units of competency developed for the course/s

The following units of competency are contained in Section C for those units originating in this course.

VU23136 Develop enterprise skills for solving workplace challenges

VU23137 Apply enterprise skills in a team to develop solutions to workplace problems

VU23138 Identify appropriate data sources and storage needs

VU23139 Test and evaluate big data samples

VU23140 Present data for digital dashboards

VU23141 Investigate trades of the future

VU23142 Investigate applications for smart cities technology

VU23143 Investigate block chain technology uses and application

VU23144 Determine uses for artificial intelligence with robotic process automation tools

VU23145 Investigate wearable objects and app innovations

VU23146 Plan and design a wearable object or app component

VU23147 Develop code for the design of wearable objects and apps

VU23148 Test and evaluate a wearable object or app

VU23149 Investigate robotic systems

VU23150 Design a basic robotic solution for a specific problem

VU23164 Explore and prepare for 3D printing in industry

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UNIT CODE		**VU23136**	
UNIT TITLE		**Develop enterprise skills for solving workplace challenges**	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to develop enterprise skills in problem solving, critical thinking and creativity to deal with challenging workplace situations. It develops the ability to respond creatively using critical thinking strategies to assist the resolution of issues. The unit applies to individuals, often working under supervision or guidance, to prepare for challenges when working in a range of workplace contexts. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.*	
1	Identify and define a challenge and opportunity for improvement	*1.1*	Identify a challenging situation or issue that requires addressing in the workplace
		1.2	Ask questions to assist understanding of the problem
		1.3	Describe the issue and need for improvement
		1.4	Identify options that may lead to an improvement in the situation
		1.5	Outline the opportunity for improvement
2	Apply critical thinking strategies to understand a challenging workplace issue	*2.1*	Prepare questions to identify the challenges of the issue and opportunity
		2.2	Consult with others using questions to gather information on the issue
		2.3	Collate and reflect on responses gathered
		2.4	Test and challenge own assumptions against the identified issue and opportunity
		2.5	Describe the scope of the workplace issue requiring resolution
3	Use problem solving skills to seek solutions	*3.1*	Confirm the scope of the workplace issue with others
		3.2	Seek information on potential solutions

	to a challenging workplace issue	*3.3*	Identify and discuss the potential solutions
		3.4	Document discussions and seek further clarification if needed
		3.5	Evaluate the potential solutions
		3.6	Present potential solutions for consideration
4	Apply creative thinking to solving a challenging workplace issue	*4.1*	Review responses to potential solutions to identify possible constraints
		4.2	Identify and assess objections to the alternative solutions
		4.3	Explore different ideas and options based on internal and external consultation
		4.4	Identify and document connections between the problem and the solutions
		4.5	Select and test proposed solution by seeking input of others
		4.6	Present proposed solution with rationale for selection
5	Seek feedback and reflect on own performance	*5.1*	Seek feedback from supervisor on proposed solution
		5.2	Evaluate and reflect on feedback received
		5.3	Make updates to the proposed solution where relevant

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria of this unit of competency are listed below

Skill	**Description**
Reading skills to:	source and read information relevant to the workplace
Writing skills to:	prepare solutions in a format suitable for distribution
Oral communication skills to:	effectively and respectfully communicate with relevant workplace stakeholders
Technology skills to:	prepare information for distribution

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for VU23136 Develop enterprise skills for solving workplace challenges

PERFORMANCE EVIDENCE	The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:
	• Develop solutions for two different challenging workplace situations/issues using critical thinking strategies, problem solving and creative thinking approaches. The challenging workplace situations identified must include any two of the following:
	  • Customer service related
	  • Workplace conflict related
	  • Product or service offering, or related to an organisational process
	  In developing solutions, the candidate must:
	  • use a range of critical thinking techniques to understand and describe the problem
	  • ask questions and seek further information to further develop understanding of the problem
	  • consider alternative solutions to the problem in consultation with others
	  • use creative thinking techniques to challenge own thinking
	  • explore and test alternatives
	  • explain rationale for the proposed solution
	• Present a solution for one challenging workplace situation/issue using clear, concise communication methods
	• Reflect on feedback received and make recommendations for improvements in the proposed solution and own critical thinking, problem solving and creative thinking processes used.

KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of:
	• sources of reliable information relevant to workplace issues
	• respectful communication skills including:
	  • effective questioning techniques
	  • active listening
	  • mirroring
	  • paraphrasing for understanding
	  • verbal and non-verbal communication

	• advantages of different perspectives to a problem • criteria to assess potential solutions to workplace issue • benefits of challenging assumptions • critical thinking concepts and techniques • key features and processes of critical thinking processes • basic problem solving techniques • typical blockers to problem solving and creative thinking • boundaries to be considered when generating and exploring ideas • methods to develop individual critical and creative thinking skills • reflection and self-evaluation techniques.
ASSESSMENT CONDITIONS	Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in industry. This includes access to policies and procedures and simulated challenges and situations to which critical thinking, problem solving and creative thinking approaches may be applied. Assessor requirements Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. No specialist vocational competency requirements for assessors apply to this unit.

UNIT CODE		**VU23137**	
UNIT TITLE		**Apply enterprise skills in a team to develop solutions to workplace problems**	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to develop enterprise skills to work in teams effectively, present information clearly and propose solutions to workplace problems utilising basic financial understanding and presentation skills. The unit applies to individuals, often working under supervision or guidance, who may be required to work in teams.	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.*	
1	Contribute to team development	*1.1*	Recognise roles and responsibilities of team members
		1.2	Respect differences in values and beliefs between team members
		1.3	Contribute to identifying team goals and objectives
		1.4	Identify potential for issues, problems and conflicts in team
		1.5	Seek assistance from supervisor to address problems and conflicts that arise
		1.6	Suggest possible ways of dealing with identified workplace issues
2	Work and communicate in teams	*2.1*	Participate in informal meetings and information sharing with work team
		2.2	Identify different communication styles within work team
		2.3	Select and apply an effective communication style to convey information to the team
		2.4	Complete work activities and support the work of others in accordance with organisational policies and procedures
		2.5	Seek feedback and assistance from others when required
		2.6	Provide feedback to others
3		*3.1*	Identify and select a workplace problem

	Use a teamwork approach to present a solution	*3.2*	Outline organisational and legislative frameworks to consider
		3.3	Develop questions and consult key stakeholders to gather information
		3.4	Identify possible solutions for workplace problem
		3.5	Evaluate solutions and select a solution in consultation with team members
		3.6	Prepare a simple financial budget showing the cost of implementing the proposed solution
		3.7	Present the selected solution to relevant stakeholders

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria of this unit of competency are listed below

Skill	**Description**
Reading skills to:	source and read information relevant to the workplace
Writing skills to:	prepare information in a variety of formats
Oral communication skills to:	effectively and respectfully communicate with a range of stakeholders
Numeracy skills to:	prepare basic financial budget using a suitable software package
Problem-solving skills to:	determine potential solutions to workplace problems
Initiative and enterprise skills to:	consider issues
Teamwork skills to:	support team set up discuss and negotiate responses to a workplace problem
Planning and organising skills to:	undertake allocated tasks within an agreed timeframe
Technology skills to:	use relevant software programs to produce a basic financial budget and prepare a presentation

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for VU23137 Apply enterprise skills in a team to develop solutions to workplace problems
PERFORMANCE EVIDENCE	The learner must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to: • Work in a team utilising effective communication and collaborative processes to explore a range of solutions to a workplace problem and present a selected solution to decision-makers. In developing solutions, the learner must: • identify roles and responsibilities of self and others in team • assist the formation of the team through setting of goals and objectives • support the effective working of the team • seek resolution of team conflicts • define problems and identify potential solutions • communicate and share information in a variety of formats to suit different styles • seek and receive feedback • develop questions to gather further information of the workplace problem • document findings and consult with team to allow for an appropriate solution to be selected • select and present one solution to the problem with supporting documentation detailing the cost of the solution
KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of: • organisational documentation, policies and procedures relevant to working in a team • communication processes and protocols • composition of workplace teams including roles and responsibilities of members • stages of team development • techniques for participating in a team • respectful communication and interpersonal skills including: • effective questioning techniques • active listening • mirroring

	• paraphrasing for understanding • verbal and non-verbal communication • techniques for giving and receiving constructive feedback • team conflict resolution processes • basic business budget needs • presentation and financial software tools
ASSESSMENT CONDITIONS	Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in industry. This includes access to policies and procedures and simulated challenges and situations. Assessor requirements Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. No specialist vocational competency requirements for assessors apply to this unit.

UNIT CODE	**VU23138**
UNIT TITLE	Identify appropriate data sources and storage needs
APPLICATION	This unit describes the performance outcomes, skills and knowledge required to explore data analytics to understand the trends and opportunities for industry and to capture and store data obtained from a variety of sources. It also includes methods and techniques to obtain data sets, analyse and store the captured data. It applies to people seeking to build skill and capability in basic data analytics for career specialisation or application in a range of industry sectors. Those who complete this unit, will be able to identify, collect and store data under supervision. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.*	
1	Investigate industries and occupations that utilise data analytics	*1.1*	Identify the contribution the field of data analytics can make to an organisation
		1.2	Explore potential careers that use data analytics as a critical component of their role
		1.3	Identify trends within data analytics
		1.4	Reflect on the potential jobs and careers of the future
2	Assess the requirements of a data capture	*2.1*	Assess how data is currently used within organisations
		2.2	Determine the type of data that can benefit the organisation
		2.3	Identify source, volume and variety of data to be captured
		2.4	Identify and select method of data collection and recording procedures according to organisational policies and procedures
		2.5	Confirm data storage and archive requirements

3	Collect data to meet business need	*3.1*	Outline a plan for data capture and storage based on an agreed business need including planned timelines
		3.2	Identify sources of data relevant to business need
		3.3	Use identified data collection methods according to the plan requirements
		3.4	Assess the quality and consistency of the data
		3.5	Apply data cleansing methods
		3.6	Implement back-up of data
4	Store and report on data capture	*4.1*	Organise obtained data sets in a retrievable format
		4.2	Confirm that data is accurate, timely up-to-date, and comprehensive and record any issues according to organisational policies and procedures
		4.3	Ensure data is securely archived
		4.4	Store the data capture outcomes according to legislative and organisational requirements, and industry practices
		4.5	Check that the data capture plan requirements have been met
		4.6	Prepare a report outlining the data capture outcomes

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria of this unit of competency are listed below

Skill	**Description**
Reading skills to:	Interpret technical and organisational documentation
Numeracy skills to:	Interpret numerical data to identify trends
Problem-solving skills to:	Identify data validity issues
Technology skills to:	Access data and use appropriate digital technologies and systems suitable for data collation and storage Use digital applications to present information in an appropriate format select and use appropriate digital platforms to communicate with others

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for VU23138 Industry appropriate data sources and storage needs
PERFORMANCE EVIDENCE	The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to: • Present an overview of data analytics and its current application and future potential for industry • Develop and implement a detailed plan for the data capture and storage to meet an agreed business need In developing the plan, the candidate will: • Identify and utilise a source of data relevant to business need • Utilise data checks and validation methods and apply data back-up procedures • Clarify that the data is valid and record any issues • Comply with organisational data archiving procedures, legislative requirements, and industry practices • Confirm proposed format for outcomes of data capture and storage • Report on the outcomes of the data capture in a clear and concise format using appropriate technical language to meet organisational requirements
KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of: • Legislative and organisational requirements relating to data capture, storage and reporting • Features of data analytics including uses within industry sectors and organisational decision-making • Data analytics careers, job roles and trends • Types of data and data capture needs • Common data sources • Methods of data collection and recording procedures • Data quality and consistency • Data storage locations and security requirements • Features and functions of technology used to collect, store and report on data

ASSESSMENT CONDITIONS	Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in industry. This includes access to policies and procedures, data sources and data sets and appropriate reporting template. Assessor requirements Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. No specialist vocational competency requirements for assessors apply to this unit.

UNIT CODE		**VU23139**	
UNIT TITLE		Test and evaluate big data samples	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to test and evaluate captured big data samples prior to use for reporting. It involves assembling or sourcing raw data, processing and testing the data. This unit applies to people considering a career in data analytics and those who need to evaluate and report on big data trends under supervision to support management decision-making. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.*	
1	Explore big data as an emerging opportunity for organisations	*1.1*	Identify the difference between the purpose of data analytics and big data analysis
		1.2	Explore how big data testing is utilised in different industry sectors
		1.3	Identify the types of data being collected and how it can be accessed
		1.4	Demonstrate understanding of big data formats and big data validation
2	Determine purpose and scope of big data analysis	*2.1*	Determine real problem statement for big data analysis
		2.2	Identify relevant potential sources of big data to be analysed
		2.3	Confirm parameters to be applied in analysis with workplace supervisor to meet organisational policies and procedures
3	Test assembled or obtained big data sample	*3.1*	Establish a sampling approach for data testing and identify a representative sample for big data testing
		3.2	Assemble or obtain sample of raw big data according to legislative requirements and organisational policies and procedures
		3.3	Validate big data sample from various sources to ensure that big data is correct

		3.4	Align datasets and implement data aggregation and segregation rules on a small set of sample data and datasets
		3.5	Consult with supervisor to clarify and resolve identified anomalies through test scenarios
		3.6	Conduct performance testing for data throughput, data processing and sub-component performance
4	Test the output of captured big data sample and optimise results	*4.1*	Ensure data sources align with test scenarios
		4.2	Perform data cleansing on big data sample following testing
		4.3	Validate the output of testing, confirming absence of big data corruption in the sample
		4.4	Generate and store results of validation activity ensuring compliance with legislative and organisational requirements
5	Recognise and report on initial trends and relationships	*5.1*	Analyse data and identify insights into trends
		5.2	Prepare report aligning findings to real problem statement
		5.3	Ensure results are stored according to legislative and organisational requirements

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria of this unit of competency are listed below

Skill	**Description**
Reading skills to:	Identify and interpret information from sources to complete work
Writing skills to:	Use clear, specific and industry-related terminology to represent outcomes of big data analysis
Numeracy skills to:	Use mathematical and statistical concepts required to analyse big data Complete calculations and records numerical data Interpret numerical data
Problem-solving skills to:	Identify possible problems and data challenges and seek advice when unclear
Technology skills to:	Use appropriate technology platforms to analyse big data Basic programming to conduct big data analysis

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for VU23139 Test and evaluate big data samples

PERFORMANCE EVIDENCE	The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:
	• Produce a report documenting findings from testing conducted on a big data sample aligning to real problem statement. The data sample must meet the parameters and scale of big data and demonstrate the scope of the testing through the development of at least two scenarios.
	• In producing the report, the candidate will:
	  • Conduct testing of raw big data according to legislative requirements and organisational policies and procedures
	  • Optimise results
	  • Confirm validity in consultation with supervisor
	  • Securely store results of validation activity
	  • Perform all tasks within the legislative and organisational requirements

KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of: • The difference between data analytics and big data analysis • Purpose and benefits of big data analysis • Legislative requirements relevant to big data including data protection, privacy laws and regulations • Organisational policies and procedures relating to big data identification, testing, storage and reporting • Types of data • Big data formats and big data validation • Sources of big data and process for accessing data • Procedures for aligning datasets • Data aggregation and segregation rules • Data validation techniques • Features and limitations of common models and tools used for analysing big data

ASSESSMENT CONDITIONS	Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in industry. This includes access to: • information and telecommunications equipment required to test and evaluate big data sources • big data sample sets • industry standards, organisational procedures, and legislative requirements relevant to big data • appropriate reporting template. Assessor requirements Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. No specialist vocational competency requirements for assessors apply to this unit.

UNIT CODE		**VU23140**	
UNIT TITLE		**Present data for digital dashboards**	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to present the results of the evaluation of data sets, including big data. It applies to those who are considering a career in big data analysis and presentation techniques or seeking to build skills that can be used in a range of job roles where data analytics is a critical skill. No licensing, legislative or certification requirements apply to this unit at the time of publication.	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.*	
1	Prepare to present big data insights	*1.1*	Confirm business requirements for presenting data, including big data insights
		1.2	Determine context and target audience for presentation
		1.3	Identify an interactive presentation tool for use to display data
		1.4	Collate identified data relevant for the presentation
2	Develop presentation of data insights	*2.1*	Define real world problem statement and trends appropriate for presentation
		2.2	Generate big data models based on real world problem statement outcomes for big data presentation
3	Design a digital data dashboard	*3.1*	Assess suitability and select a business intelligence tool for use
		3.2	Create naming conventions according to file management and version control procedures
		3.3	Use the business intelligence tool to design an interactive graphic user interface
		3.4	Produce interactive dashboard that visually identifies data insights
4	Develop and build a digital dashboard	*4.1*	Evaluate potential user interaction with the dashboard and establish technical requirements

		4.2	Identify technical requirements and constraints of the dashboard development
		4.3	Develop the dashboard for stakeholder interaction with business intelligence tool
5	Finalise presentation of big data insights	*5.1*	Present identified data to required stakeholders in a format that meets business needs
		5.2	Seek feedback from required stakeholders on presented data according to organisational policies and procedures
		5.3	Ensure limitations and parameters of the data presentation are clearly defined
		5.4	Integrate feedback into final data presentation

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria of this unit of competency are listed below

Skill	**Description**
Reading skills to:	Interpret text to establish real work problem statement and technical requirements
Writing skills to:	Present data in a clear and logical manner that reflects the audience requirements
Oral communication skills to:	Ask open, closed and probing questions and use active listening techniques during consultations with stakeholders
Numeracy skills to:	Interpret numerical data
Technology skills to:	Use a range of digital applications to design, organise and present information

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for VU23140 Present data for digital dashboards
PERFORMANCE EVIDENCE	The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to: • Present the insights to one work or business problem obtained from selected and tested data source using an interactive digital dashboard. In doing so, the candidate will: • Determine data for display based on real work problem statement • Select the appropriate visualisation software • Create a concept design and develop the dashboard • Present the insights using at least two different visualisation or graphical representations
KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of: • Organisational policies and procedures relating to data use and presentation • Big data sources to meet business needs • Big data modelling generation techniques • Presentation purposes and methods • Functions and features of common industry-standard business intelligence tools • Suitability of business intelligence tools for different purposes • Design and visual techniques for data display • Delivery platforms and compatibility requirements • Technical requirements and constraints of the dashboard development • User interaction requirements • Communication techniques for effective gathering of feedback
ASSESSMENT CONDITIONS	Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in industry. This includes access to business intelligence tools such as Tableau, Power BI or an alternative suitable tool and data sets for display.

	Assessor requirements Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. No specialist vocational competency requirements for assessors apply to this unit.

UNIT CODE		**VU23141**	
UNIT TITLE		**Investigate trades of the future**	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to investigate the impact of future technologies on the current and future trades workforce. It includes identification of the various types of trades, their role in both the community and industry more broadly. Students will investigate the current state of trades and how emerging technologies will change where they work, how they work, the materials they work with, and the nature of work they will complete. This unit will also explore the increasing transferability of skills across traditional and non-traditional trades sectors and how students can increase their career resilience. It applies to individuals wishing to understand the choices they have in the trade sector and how those roles will evolve. It is recommended that this unit of competency is assessed with a holistic approach with other units within the capability set. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.	
1	Examine the impact of evolving technology on the trade sector	*1.1*	Consult with industry stakeholders to gain insight into the trade workforce's current and anticipated future environment
		1.2	Explore the emergence and use of technologies within the trades sector
		1.3	Describe jobs that could be created or disappear as a result of new technology for the trade sector, and how this may result in employment disruption
		1.4	Explore the evolution of trade job roles due to emerging technologies
		1.5	Assess where skill shortages could develop over the short- and long-term within the trade workforce
2	Determine the impacts of technology on the work environment	*2.1*	Consider changes in the work culture within the trades sector due to the growing use of technology
		2.2	Explore how technology influences the development of alternative ways of working

		2.3	Identify the impacts of technology on the wellbeing of workers in the trade sector
		2.4	Determine strategies to reduce the adverse effects of technology-driven change in the trades environment
3	Identify the need for career resilience for future trades workers	*3.1*	Identify potential career options and compare the skills, capabilities and responsibilities they have in common
		3.2	Explore skills that need to be developed to emerge as a tradesperson of the future
		3.3	Outline strategies to build career resilience for movement within the trades sector

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria of this unit of competency are listed below.

Skill	**Description**
Reading skills to:	Source and evaluate information on trades and technologies
Oral communication skills to:	Effectively and respectfully communicate with relevant stakeholders
Learning skills to:	Identify how future trends might impact on current or future employment
Technology skills to:	Access reliable sources of information

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for VU23141Investigate trades of the future

PERFORMANCE EVIDENCE	The learner must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:
	• Investigate, collate and summarise information and data to produce a single report comparing and contrasting at least three different trade areas of interest. To do this the candidate must:
	  • consult with people who work in industry to gain further insight into the future of trades
	  • identify at least two emerging technologies that will or are being used within each trade and explain how they might be used
	  • identify influences of technology on at least one current and one future job within each trade
	  • explain how each trade could evolve in the next five and ten years
	  • explain how each trade might be disrupted and identify at least one job within each trade might become obsolete
	  • identify at least three emerging technology skills that will need to be developed that are common between the trades
	  • identify and explain the potential impacts of technology on models of work within each trade including:
	  ○ the work environment
	  ○ the workforce
	• Identify a trade job of interest that will be disrupted by technology. Outline the skills needed for the replacement job role and identify:
	  • tasks undertaken in the role
	  • specialist emerging technology skills required for the role
	  • transferable emerging technology skills required for the role
	  • other trade job roles that require these same skills
	  • further career pathways that may be available to a future trade worker with these skills.

KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of: • A range of different industry sectors and traditional and non-traditional trade occupations which may include:

	• plumbing • manufacturing • building • cabinet making • bricklaying • hospitality • mechanics • electrotechnology • engineering • hairdressing • surveying • A range of emerging technologies and their potential impact on trade occupations such as: • artificial intelligence (AI) • drones • electric vehicles (EV) • internet of things (IOT) • 3D printing • robotics • virtual reality, augmented reality and mixed reality (VR/AR/MR) • Sources of information about emerging technologies and their use in industry sectors • Effective communication techniques • Disruption of current jobs and skills within trade sectors due to the impact of technology • Impact of technology on work culture and ways of working • Career resilience strategies and techniques
ASSESSMENT CONDITIONS	Learners must be provided with the opportunity to investigate trade areas of their own interest and should have access to: • internet • computer or digital device • examples of reliable and current websites and reports • career plan template • people who work in industry Assessor requirements

	No specialist vocational competency requirements for assessors apply to this unit. Assessors must satisfy the requirements for assessors in training legislation, frameworks and/or standards.

UNIT CODE		**VU23164**	
UNIT TITLE		*Explore and prepare for 3D printing in the community and workplace*	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to explore current developments in advanced manufacture / additive manufacture (3D printing) as well as industry evolutions and cutting-edge developments and develops the ability to identify, source and store information on 3D printing. This unit also supports those seeking to explore 3D printing as a career or build a broad and transferable skill set. It develops understanding of the trends and opportunities for this industry. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.	
1	Investigate the use of 3D printing in industry	*1.1*	Identify the contribution that the field of 3D printing can make to an organisation
		1.2	Investigate potential careers that use 3D printers as a critical component of their role
		1.3	Identify trends within 3D printing as both a skill and career
		1.4	Outline the threats and opportunities this emerging technology presents to society and business
		1.5	Identify sustainability considerations for the 3D printing industry
		1.6	Consider legislative and organisational requirements relating to 3D printing
2	Determine uses for 3D printing	*2.1*	Outline the scope for an identified business or community 3D printing need in the form of a real world problem statement
		2.2	Describe the design features and functionality of the identified 3D printing use
		2.3	Identify different 3D printer capabilities and the unique features of varying build materials available to meet the need
		2.4	Confirm the build material and printer suitable to meet the need with supervisor
3	Source existing 3D models for	*3.1*	Explore the process of taking a 3D printing concept through to the design process

	use and present as solution to meet need	*3.2*	Determine the programs that can be used to alter, customise or design 3D models
		3.3	Investigate networks and websites to identify existing 3D models for use or customisation to meet need
		3.4	Store selected files in appropriate file format and in accordance with organisational policies and procedures
		3.5	Collate information and describe the potential uses of existing 3D models
		3.6	Present proposed 3D printing solution and confirm suitability to meet the identified business or community need

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria of this unit of competency are listed below

Skill	**Description**
Reading skills to:	Analyse graphic files and specifications to determine requirements
Writing skills to:	Present complex information using clear language to suit audience and purpose
Numeracy skills to:	Recognise mathematical representations appropriate to graphics software to meet customisation needs
Problem-solving skills to:	Match file requirements to 3D printing need
Technology skills to:	Access relevant and reliable sources of information

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for VU23164 Explore and prepare for 3D printing in the community and workplace

PERFORMANCE EVIDENCE	The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:
	• Review and describe 3D printing industry trends, identifying potential jobs and careers of the future that could arise
	• Identify a business or community use for 3D printing and source existing pattern files that can used or customised for 3D printing in accordance with workplace procedures to meet required outcomes. This includes demonstrating the ability to:
	  • Determine product parameters including design and material requirements
	  • Source existing models that can be re-used or customised
	  • Document findings and save all relevant files in required format

KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of:
	• Career opportunities for the 3D sector across multiple industries sectors such as building, health, product design, food production, and disability sector.
	• Future trends which may include:
	  • 3D evolving into 4D printing
	  • additive manufacturing
	  • advanced manufacturing
	  • rapid manufacturing
	• Potential of future evolutions to transform Industry 4.0
	• Process and structure to identify scope in a real-world problem statement
	• 3D printing design features and functionality
	• Common sources for model files and file formats

	• Customisation options for 3D printing models
	• Legislative and organisational requirements relating to 3D printing sector including:
	  • Work health and safety (WHS) requirements and workplace procedures relevant to 3D printing technologies
	  • Basic concepts of intellectual property and copyright laws and requirements in relation to use of existing 3D printing models

ASSESSMENT CONDITIONS	Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in industry. This includes access to: • a range of shareable model files • a computer with industry-standard 3D software packages, such as TinkerCad • a 3D printer or 3D printer specifications • organisational policies and procedures relating to use and storage of data and files • an appropriate reporting template. Assessor requirements Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. No specialist vocational competency requirements for assessors apply to this unit.

UNIT CODE		***VU23142***	
UNIT TITLE		***Investigate applications for smart cities technology***	
APPLICATION		This unit describes the performance outcomes, skills and knowledge to define and explore smart cities as the Internet of Things exponentially accelerates this field. This unit will explore the history of smart cities, the benchmark for smart cities, and the ethical dilemmas and opportunities provided. This unit will also cover cutting-edge developments in smart city fields such as city dashboards, smart health, smart energy and water, and smart mobility, and the potential of these to accelerate the evolution of the Internet of Things (IoT). This unit applies to those seeking to explore smart city technologies as a career or build a broad and transferable skill set. It develops understanding of the trends, threats and opportunities for this industry and develops the ability to identify, source and store information on smart city technologies. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.	
1	Identify how smart cities can optimise urban living globally	*1.1*	Define the characteristics of a smart city
		1.2	Explore the history and evolution of smart cities
		1.3	Identify global benchmark smart cities and how the adoption of smart city technologies has optimised resident living in those cities
		1.4	Investigate the threats and ethical dilemmas within smart city design and use of technology
		1.5	Identify legislative and organisational requirements relating to smart city design and use of technology
2	Investigate the use of smart city technologies in industry	*2.1*	Identify the contribution that smart city technologies can make to an industry or organisation
		2.2	Investigate potential careers that use smart city technologies as a critical component of their role

		2.3	Identify career and skill trends within smart city technologies
		2.4	Outline the threats and opportunities these emerging technologies present to industry or organisations
		2.5	Identify sustainability considerations for smart city technologies in industry or organisations
3	Determine uses for smart city technologies using design thinking	*3.1*	Use a design thinking approach to identify uses for smart city technologies to meet business or community needs
		3.2	Collaborate to identify business or community issue, prepare a real-world problem statement, and explore potential solutions to the problem with key stakeholder group
		3.3	Consider potential solutions to the problem from a range of different user group perspectives
		3.4	Explore the use of smart city technologies that could provide solutions to the identified problem
		3.5	Investigate the use of rapid prototyping to design and develop new ideas
		3.6	Evaluate and refine ideas working with stakeholders to select an idea for prototyping
4	Design a basic prototype solution to a real-world problem	*4.1*	Design a basic prototype of the smart city solution idea using technology to illustrate and demonstrate the concept
		4.2	Outline the potential uses of the prototype designed using smart city technologies
		4.3	Describe how the prototype solution designed meets the business or community need

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria of this unit of competency are listed below.

Skill	**Description**
Reading skills to:	Analyse research available on smart cities and basic design thinking processes
Writing skills to:	Present complex information using clear language to suit audience and purpose
Oral communication skills to:	Effectively and respectfully communicate with relevant stakeholders
Planning and organising skills to:	Plan and implement tasks and workload to meet timelines

Problem-solving skills to:	Match real problem statement requirements to outcome
Technology skills to:	Use suitable applications to present information on smart city technologies and their applications
UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for VU23142 Investigate applications for smart cities technology

PERFORMANCE EVIDENCE	The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:
	• Investigate smart city planning, the adaptation of technology, and industry trends that reflect on the potential jobs and careers of the future that could arise from smart cities technologies
	• Design a prototype solution to a real-world problem relating to smart city design by working collaboratively with others using basic design thinking processes to:
	  • Investigate the use of smart city technologies in industry
	  • Identify a community and/or business use for smart city technologies
	  • Design a prototype for a simple idea that reflect the principles of smart city design and uses smart city technologies
	  • Present the proposed smart city technologies prototype and explain why it meets the identified business or community need

KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of:
	• Career opportunities for the smart city technologies across multiple industries sectors such as:
	  • traffic management
	  • green energy
	  • architecture
	  • urban design
	  • technology design
	  • community solution design
	  • artificial intelligence
	  • IoT
	  • smart city technology digital innovations
	• Future trends which may include:

	• dividing smart city components into green, smart, development and value • autonomous vehicle impacts • facial recognition and AI impacts • impacts on community, health and well being • Threats, opportunities, and ethical issues arising from smart city technologies • Basic design thinking principles and processes • Process and structure to identify scope in a real-world problem statement • Technology requirements for simple rapid prototyping such as presentation and ideation apps • Sources of information sharing on smart cities technologies • Legislative and organisational requirements relating to smart city technologies including: • Work health and safety (WHS) requirements and workplace procedures relevant to smart city technologies • Basic concepts of intellectual property and copyright laws and requirements as they relate to the use of existing smart city technology design
ASSESSMENT CONDITIONS	Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in industry. This includes access to: • basic design thinking processes and templates for idea generation and planning • a range of case studies for best examples of smart cities globally • a computer with industry-standard capability to access basic prototyping software apps such as PowerPoint, Prezi or equivalent • an appropriate reporting template • relevant legislation and organisational policies and procedures Assessor requirements Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. No specialist vocational competency requirements for assessors apply to this unit.

UNIT CODE		**VU23143**	
UNIT TITLE		**Investigate blockchain technology uses and application**	
APPLICATION		This unit describes the performance outcomes, skills and knowledge to define and explore blockchain technology as well as industry evolutions and cutting-edge developments in fields such cryptocurrency, supply chain management, document management and the potential of these to accelerate the evolution of the Internet of Things (IoT). This unit applies to those seeking to explore blockchain technology as a career or build a broad and transferable skill set. It develops understanding of the trends, threats and opportunities for this industry and the ability to identify, source and store information on blockchain technology. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.	
1	Investigate the use of blockchain technology in industry	*1.1*	Identify the contribution that the field of blockchain can make to an industry or organisation
		1.2	Investigate careers that use blockchain technology as a critical component of their role
		1.3	Outline the threats and opportunities that this emerging technology presents to society and industry, and identify any barriers to its use
		1.4	Examine legislative, organisational requirements and sustainability considerations relating to blockchain technology
2	Determine uses for blockchain technology	*2.1*	Identify uses for blockchain technology in a business or community context including fungible and non-fungible currency and how it is used across various sectors
		2.2	Explain the uses of blockchain code including smart contracts
		2.3	Identify a range of different blockchain technology platforms that can be used
		2.4	Outline the scope for a simple business use of blockchain technology in the form of a real problem statement
3	Explore blockchain	*3.1*	Explore the process of taking a simple blockchain technology concept through the design process

	technology design and development processes	*3.2*	Identify networks and website communities that share existing blockchain technology
		3.3	Collate information and describe the potential uses of available existing blockchain technology
		3.4	Determine the technological skills and requirements needed to deliver the real problem statement outcomes
		3.5	Present proposed blockchain technology solution and confirm suitability to meet the real problem statement outcomes
4	Produce a basic blockchain technology asset to meet a simple identified need	*4.1*	Determine a suitable testing platform that can be used to design and develop a basic application of blockchain technology
		4.2	Produce a basic blockchain asset in a testing environment
		4.3	Evaluate the basic blockchain asset and ensure it meets the identified need

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria of this unit of competency are listed below.

Skill	**Description**
Reading skills to:	Analyse platform files and specifications to determine requirements Assess smart contract requirements
Writing skills to:	Present complex information using clear language to suit audience and purpose
Numeracy skills to:	Recognise mathematical representations appropriate to software applications
Problem solving skills to:	Match real problem statement requirements to final outcome
Technology skills to: •	Access and use suitable blockchain technology platforms

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for VU23143 Investigate blockchain technology uses and applications

PERFORMANCE EVIDENCE	The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:
	• Describe blockchain technology industry trends, reflecting on the potential jobs and careers of the future that could arise.
	• Investigate business uses for blockchain technology and propose a solution to an identified business need
	• Produce a simple blockchain solution using an appropriate testing platform that could include either:
	  • creating a smart contract
	  • creating a non-fungible asset and use it to represent a real-world object.

KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of: • Basic blockchain technology terminology • Blockchain technology uses, challenges, barriers and opportunities • Career opportunities for the blockchain technology sector across multiple industries sectors such as fintech, cryptocurrency, supply chain management, financial trading, blockchain digital innovations • Potential of future blockchain evolutions to transform a range of industries such as fintech and the Internet of Things • The difference between fungible and non-fungible currency • Functions and features of smart contracts • Network interactions including wallets and self-custody • Process and structure to identify scope in a real-world problem statement • Basic design processes • Blockchain platforms such as Open C, R3Corda, Ripple, Ethereum, Hyperledger Fabric or an equivalent blockchain platform • Uses for blockchain technology testing platforms • Sources of existing blockchain technology assets

	• Legislative and organisational requirements relating to blockchain technology sector including:
	  • Work health and safety (WHS) requirements and workplace procedures relevant to blockchain technology sector
	  • Basic concepts of intellectual property and copyright laws and requirements in relation to shared blockchain technology
	  • Currency alignment using cryptocurrency as a baseline

ASSESSMENT CONDITIONS	Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in industry. This includes access to: • Suitable case studies • Example smart contract and/or blockchain testnet token • Access to a range of blockchain platforms • Computer with industry-standard capability to access blockchain technology platforms and blockchain communities • Relevant legislation and organisational policies and procedures Assessor requirements No specialist vocational competency requirements for assessors apply to this unit. Assessors must satisfy the requirements for assessors in training legislation, frameworks and/or standards.

UNIT CODE		*VU23144*	
UNIT TITLE		Determine uses for artificial intelligence with robotic process automation tools	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to define and explore artificial intelligence (AI) with robotic process automatic (RPA) tools. This unit will explore the history and development of AI and RPA tools and the legislative and organisation requirements relating to their use. It develops understanding of the trends, threats, and opportunities for this industry. It applies to those building skill and capability sets as either pathways into career specialisation or to build capability that can be applied in other careers. Those who complete this unit of competence, under supervision, will be able to identify future opportunities, and plan and design uses for artificial intelligence with robotic process automatic tools. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.*	
1	Identify how artificial intelligence (AI) and robotic process automation (RPA) tools can contribute to global society	*1.1*	Define artificial intelligence (AI) and robotic process automation (RPA) tools
		1.2	Describe how AI and RPA tools work together
		1.3	Explore the history of AI and RPA development and the lessons learned
		1.4	Examine legislative and organisational requirements relating to use of AI and RPA technologies
2	Investigate industries and occupations that use AI and RPA tools	*2.1*	Identify the contribution AI and RPA technologies can make to a community or an enterprise
		2.2	Explore potential careers that use AI or RPA technologies as a critical component of their role
		2.3	Identify career and skill trends within AI or RPA technologies
		2.4	Explain the threats and opportunities of these emerging technologies
3	Determine a business or community	*3.1*	Identify a potential business or community need for AI with RPA tools development

	opportunity for using AI with RPA tools	*3.2*	Develop a real problem statement for the identified business or community need
		3.3	Describe the design features and functionality of the opportunity identified
		3.4	Evaluate and refine ideas working with others
4	Identify a solution for your identified business or community need using AI with RPA tools	*4.1*	Explore the process of taking a simple technology concept using AI with RPA through the design process
		4.2	Explore the AI and RPA technologies that could provide solutions to the identified problem
		4.3	Document potential solutions and check it meets the real problem statement requirements

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria of this unit of competency are listed below.

Skill	**Description**
Reading skills to:	Interpret a range of resources available, including applicable legislation and standards, on the development and use of AI and RPA tools
Writing skills to:	Present information using clear language and industry related terminology in a manner suitable to the audience and purpose
Oral communication skills to:	Seek feedback on ideas and confirm understanding using questioning and active listening techniques
Problem-solving skills to:	Match real problem statement requirements to potential solutions
Teamwork skills to:	Work with others to evaluate and refine solutions to real world problems
Planning and organising skills to:	Plan and complete tasks on time
Technology skills to:	Access relevant sources of information Prepare information in a suitable format using appropriate digital applications

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for VU23144 Determine uses for artificial intelligence with robotic process automation tools.

PERFORMANCE EVIDENCE	The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:
	• Describe AI and RPA tool development, the history of the industry, how these technologies work together, and industry trends and reflect on the potential jobs and careers of the future that could arise
	• Identify a community and/or business use for AI with RPA tools technology. This includes demonstrating the ability to:
	  • Identify a real-world problem that could be solved using AI with RPA tools
	  • Write a real-world problem statement
	  • Describe the design features of the opportunity identified
	  • Communicate with supervisor and others to validate real world solution identified
	  • Evaluate potential AI and RPA tool technologies for the opportunity
	  • Document findings and save all relevant files in required format

KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of:
	• Career opportunities using AI and RPA technologies across multiple industries sectors
	• Future trends for AI and RPA technologies which may include use in sectors such as:
	  • Community, health and well being
	  • Transport and logistics
	  • Financial services
	  • Retail or small business
	  • Manufacturing
	  • Construction
	  • Utilities
	• Process and structure to identify scope in a real-world problem statement

	• Basic features and functions of Slack, Git Hub and Chatbot technologies such as RASA (Open Source), Microsoft Tay, IBM Watson or similar from AWS or Google
	• Basic features and functions of RPA tools such as Automai, Another Monday, Automation Anywhere, Blueprism, Kofax, Pegasystems or UiPath
	• Relationship between AI and RPA
	• Basic applications of different types of RPA tools and their role in task automation
	• Legislative and organisational requirements relating to AI and RPA technologies including:
	  • Work health and safety (WHS) requirements and workplace procedures
	  • Basic concepts of intellectual property and copyright laws and requirements related to the use of existing AI and RPA solutions
	  • Privacy and security of data

ASSESSMENT CONDITIONS	Assessment in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in experienced in the field of work. This includes access to: • internet and computer with relevant digital apps • Slack, Git Hub, Ui Platform, Blue Prism Community, Artificial Intelligence Open Network (AI-ON) or other equivalent communities • Legislation and organisational policies and procedures relating to use and storage of data and files Assessor requirements Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. No specialist vocational competency requirements for assessors apply to this unit.

UNIT CODE		**VU23145**	
UNIT TITLE		**Investigate wearable objects and app innovations**	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to explore current developments in the growing field of wearable technologies focussing on the more tangible components of this industry – wearable objects and apps design and development. This unit supports those seeking to explore wearable technologies, wearable objects and app development specifically as a career or build a broad and transferable skill set. It enables students to understand the trends and opportunities for this industry. It applies to learners building skill and capability sets as either pathways into career specialisation or build capability that can be applied in other careers. Those who complete this unit of competence, will be able to identify future opportunities for wearable objects and apps. It is recommended that this unit of competency is assessed with a holistic approach with other units within the capability set. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.	
1	Investigate industries and occupations that utilise wearable technologies	*1.1*	Identify the contribution the field of wearable technologies can make to a community or an enterprise
		1.2	Explore potential careers that use wearable technologies as a critical component of their role
		1.3	Identify career and skill trends within wearable technologies
		1.4	Explain the threats and opportunities of this emerging technology
		1.5	Reflect on potential jobs and careers of the future arising from wearable technologies
2	Explore communities or shared practise to understand the opportunities	*2.1*	Identify open-source libraries where code is shared as part of a broader community
		2.2	Explore upskilling opportunities for learning about app development to support basic code, app development and concept design
		2.3	Access coding examples and explore the app development community

3	Determine an opportunity that uses wearable objects and/or app design and development	*3.1*	Identify a business or community need for wearable objects or app development
		3.2	Develop a real problem statement for the identified business or community need
		3.3	Describe the design features and functionality of the opportunity identified
		3.4	Evaluate and refine your ideas working with others
4	Source an existing wearable object or app that meets your business or community opportunity outline	*4.1*	Explore the process of taking a concept through to the design process as documented by the broader network
		4.2	Outline the projects in the app community that closely align to the concept to meet the community or business need
		4.3	Determine the programs that can be used to alter, customise or design wearable objects or apps
		4.4	Document findings and check against real problem statement requirements

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria of this unit of competency are listed below.

Skill	**Description**
Reading skills to:	Interpret detailed textual and visual information including applicable legislation and standards
Writing skills to:	Document information and outcomes from the idea development process using clear, specific language and industry-related terminology
Oral communication skills to:	Seek feedback and confirm understanding using questioning and active listening techniques
Initiative and enterprise skills to:	Direct own exploration of techniques and processes to identify potential solutions
Technology skills to:	Access reliable sources of information

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for VU23145 Investigate wearable objects and app innovations

PERFORMANCE EVIDENCE	The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:
	• Investigate and report on wearable technology industry trends and career opportunities and reflect on the potential jobs and careers of the future
	• Identify a real-world problem that can be solved using wearable objects and/or app design and development. In doing so, the learner must:
	  • Prepare a real-world problem statement documenting the business or community need
	  • Determine a potential solution using platforms that share coding, completed and accessible apps and wearable objects that can customised and augmented
	  • Communicate with supervisor and others to validate solution identified
	  • Identify sources of existing wearable objects and apps that can be re-used or customised
	  • Outline product parameters including design and coding requirements

KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of: • Career opportunities and skills required for the wearable technologies sector, specifically wearable objects and apps across multiple industries sectors • Future wearable trends and how these technologies inter-connect with the Internet of Things (IoT) such as accessories embedded in clothing or implanted or tattooed on the body • Steps and structure of identifying a real problem statement • Knowledge of online communities such as GitHub, Raspberry Pi, Apple playgrounds and similar • Customisation processes for coding strands, editable apps and editable wearable objects

	• Work health and safety (WHS) requirements and workplace procedures relevant to wearable technologies industry • Basic concepts of intellectual property and copyright laws and requirements in relation to existing wearable objects and app coding • Legislative and organisational requirements relating to wearable objects and app development sector
ASSESSMENT CONDITIONS	Assessment in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in experienced in the field of work. This includes access to: • a range of shareable files and apps • internet access and a computer with industry-standard access to Apple playgrounds and apple development networks or similar • access to Git Hub, Apple playground, Raspberry Pie and other similar platforms • relevant legislation and organisational policies and procedures • an appropriate reporting template. Assessor requirements Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. No specialist vocational competency requirements for assessors apply to this unit.

UNIT CODE		**VU23146**	
UNIT TITLE		**Plan and design a wearable object or app component**	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to plan and design a wearable object or app. This unit introduces the type of agile development processes used in the industry and will provide an opportunity to apply the basics of good app design. It provides the opportunity to benchmark best practice in app design and learn the basics of user experience (UX) and user interface (UI) design. It applies to those building skill and capability sets to either pathways into career specialisation or build capability that can be applied in other careers. Those who complete this unit will be able to plan, design and benchmark 'best practice' for wearable objects and apps under supervision. It is recommended that this unit of competency is assessed with a holistic approach with other units within the capability set. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.	
1	Interpret a design brief and identify basic agile development processes	*1.1*	Create or review a real-world problem statement and amend if required
		1.2	Review design brief in consultation with required personnel
		1.3	Define the basic principle of agile project development cycles
		1.4	Describe the roles in an agile project development team
		1.5	Discuss the strengths and weaknesses in the agile development cycles
2	Explore the foundations of basic design principles	*2.1*	Explore current theories and techniques on look and feel design and development for apps
		2.2	Describe wearable objects and apps that meet your design preferences and create positive user experiences
		2.3	Investigate best practice in wearable objects and app design including human centred design principles
		2.4	Compare and contrast the basic principles of user interface (UI) design

		2.5	Compare and contrast the basic principles of user experience (UX) design
3	Design a basic app or wearable object reflecting a human centred design approach	*3.1*	Develop a basic user persona exploring your understanding of the needs of your end users
		3.2	Design a basic wireframe that reflect your knowledge of UX and UI design
		3.3	Develop two user stories to demonstrate your understanding of the intended end user
		3.4	Test your basic design with end users and evaluate results
		3.5	Document findings from design and testing and check against the real-world problem statement
		3.6	Select final design approach based on outcomes of testing and input from others
4	Develop own design brief	*4.1*	Collate the colour palette personas and wireframe and develop into a basic design brief
		4.2	Review and confirm the design brief with your supervisor
		4.3	Finalise the design brief and confirm the design meets the real-world problem statement requirements

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria of this unit of competency are listed below.

Skill	**Description**
Reading skills to:	Analyse graphic files and specifications to determine requirements
Writing skills to:	Document information and outcomes from the design process using clear, specific language and industry-related terminology
Oral communication skills to:	Seek feedback and confirm understanding using questioning and active listening techniques
Problem solving skills to:	Identify and design an appropriate response to a real-world problem and modify as required
Technology skills to: •	Access relevant sources of information Use digital applications to present information to meet audience needs

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for VU23146 Plan and design a wearable object or app component

PERFORMANCE EVIDENCE	The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:
	• Describe good design practises incorporating industry benchmarks and best practise for agile development processes and design requirements for wearable objects and apps
	• Design a basic app or wearable object and present results in a design brief. In doing so, the candidate must:
	  • communicate with supervisor to validate a real-world problem statement
	  • design user personas and a wireframe to demonstrate understanding of the design process
	  • comply with workplace procedures to meet required outcomes

KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of: • Agile design processes including team construction, structures and how teams work together • Basic design principles, best practise and design theories, such as human centred design • Purpose and features of user personas wireframes and user stories • Basic principles of UX and UI design • Features and purpose of design briefs • Structure of a real-world problem statement • Work health and safety (WHS) requirements and workplace procedures relevant to wearable objects and app development • Basic concepts of intellectual property and copyright laws and requirements in relation to existing wearable objects and app coding • Legislative and organisational requirements relating to wearable objects and app development sector

ASSESSMENT CONDITIONS	Assessment in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in experienced in the field of work. This includes access to: • a range of shareable files • a range of shareable templates, for example, design brief, real world problem statements, wireframes • source templates and exemplars for students to review • a range of samples for industry best practice designs • a computer with industry-standard access to app development software • relevant legislation and organisational policies and procedures • an appropriate reporting template. Assessor requirements Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. No specialist vocational competency requirements for assessors apply to this unit.

UNIT CODE		**VU23147**	
UNIT TITLE		**Develop code for the design of wearable objects and apps**	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to undertake the review of a real-life problem statement, analyse existing components, and access open-source code libraries to source pre-existing components of codes that can be re-used. It includes an introduction to networks that can provide support for coding and provides a basic understanding of introductory programming tasks using an object-oriented (OO) programming language. This unit also includes the basic skills required to de-bug and test. This unit applies to those building skill and capability sets to either pathways into career specialisation or build capability that can be applied in other careers. Those who complete this unit will be able to identify codes, understand where to source reusable pre-existing code and understand the basic of OO programming in relation to wearable objects and mobile app development. It is recommended that this unit of competency is assessed with a holistic approach with other units within the capability set. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.	
1	Review application design and analyse potential pre-existing components	*1.1*	Review and clarify user requirements reflecting a real-world problem approach
		1.2	Review and determine application design and development specifications to satisfy user requirements
		1.3	Identify open-source libraries where code is shared as part of a broader community to explore existing code to meet needs
		1.4	Analyse coding styles and patterns, coding feedback and reflect on lessons learned from review of open-source code
		1.5	Identify any potential re-useable components from open-source libraries according to planned functionality
		1.6	Compare functionality of re-usable components according to real world problem functionality requirements
2		*2.1*	Code using object-oriented (OO) programming language to develop and test solutions

	Apply basic language syntax and layout	*2.2*	Develop code that captures and/or encapsulates data
		2.3	Evaluate issues and problems as they arise to provide effective solutions
3	Implement the wearable object or app development	*3.1*	Develop application according to application design and code conventions
		3.2	Check quality of work with supervisor to ensure compliance with workplace procedures and relevant industry standards
4	De-bug and handover the wearable object or app	*4.1*	Use debugger to trace code execution and examine variable contents
		4.2	Rectify code issues to ensure task performance specifications are met
		4.3	Develop maintainable code according to organisational guidelines and provided coding standard when documenting activities
		4.4	Document the process undertaken for creating code for future reference
		4.5	Review application against user requirements to ensure user requirements are satisfied
		4.6	Present application to user and conduct user acceptance testing

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria of this unit of competency are listed below.

Skill	**Description**
Reading skills to:	Access and interpret technical and organisational documentation to determine and confirm job requirements to meet real world problem statement
Writing skills to:	Develop documentation selection, evaluation and decision processes according to organisational requirements using appropriate structure, layout and technical object orientated languages
Oral communication skills to:	Seek user feedback and confirm understanding using questioning and active listening techniques
Numeracy	Select and apply a range of mathematics and problem solving techniques when designing solution
Problem-solving	Decide on a course of action using analytical processe
Technology •	Interpret key principles and concepts that apply to coding and de-bugging requirements

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for VU23147 Develop code for the design of wearable objects and apps
PERFORMANCE EVIDENCE	The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to: • Review a real-world problem statement, analyse existing options from libraries and networks, and design and develop a solution that reflects the end user's stated requirements. In doing so, the candidate must: • Access existing open-source libraries • Review and select one of up to ten prebuilt apps or wearable objects that can be customised, adapted or completed • Use correct language syntax for one sequence, one selection and two iteration constructs • Use a modular approach to implement the logic for one object operation • Implement a class that uses arrays of primitive data types twice • Read from and write to one text file • Implement one class for object construction • Implement one class that uses user-defined object aggregation • Use one debugging tool • Apply code and documentation conventions that specify at least two aspects, according to organisational requirements • Conduct user acceptance testing
KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of: • Impact on app development of: • Customisable notifications • Changeable screen sizes • Functionality and interoperability

	• Cloud and data security • Real time communications • Structure of a real-world problem statement • Methods to evaluate source wearable objects and app prototypes for benchmarking • Effective communication techniques • Basic object-oriented programming techniques including basic language syntax and layout • Debugging tools and processes • User acceptance testing methods • Work health and safety (WHS) requirements and workplace procedures relevant to wearable objects and app development • Basic concepts of intellectual property and copyright laws and requirements in relation to existing wearable objects and app coding • Legislative and organisational requirements relating to wearable objects and app development
ASSESSMENT CONDITIONS	Assessment in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in experienced in the field of work. This includes access to: • An existing real-world problem statement • A range of open-source code, if required • Access to a range of communities and networks • A selection of at least ten 'at standard' completed but customisable or partially built apps to customise, adapt or complete • De-bugging process and template • Relevant legislation and organisational policies and procedures • Access to a range of pre-made components for the students to assess and potentially integrate Assessor requirements Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. No specialist vocational competency requirements for assessors apply to this unit.

UNIT CODE		**VU23148**	
UNIT TITLE		**Test and evaluate a wearable object or app**	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to test and evaluate a wearable object or app prior to use. It involves assembling test requirements and processes or sourcing raw data and processing to test an existing or new developed app or object. This unit applies to people considering a career in wearable technologies or a general career in testing and those who need to evaluate and report on test and evaluation results under supervision to support management decision-making. It is recommended that this unit of competency is assessed with a holistic approach with other units within the capability set. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.	
1	Explore the role of testing wearable technology and apps as an emerging opportunity for organisations	*1.1*	Explore how the testing and evaluation sector is expanding across industries that utilise wearable object or app technology
		1.2	Explain how wearable object or app technology testing and evaluation is used in different industry sectors and organisations
		1.3	Investigate potential careers that use wearable object or app technology testing and evaluation as a critical component of their role
		1.4	Identify career and skill trends within wearable object or app technology testing
2	Design a test plan including test performance criteria	*2.1*	Establish an approach for wearable object or app technology testing
		2.2	Review performance specifications and determine benchmark criteria for a test plan
		2.3	Validate and document each performance function
		2.4	Select measurement methodology
		2.5	Record and document performance tools using applicable methodology

		2.6	Prepare performance benchmarks and seek agreement on criteria with client or supervisor
		2.7	Consult with supervisor to clarify and resolve identified anomalies through co-designing test scenarios
3	Test the app or object and optimise results	*3.1*	Perform test following performance criteria
		3.2	Validate the output of testing, confirming absence of corruption
		3.3	Generate and store results of validation activity ensuring compliance with legislative and organisational requirements
4	Evaluate the test results and report on initial findings and recommendations	*4.1*	Evaluate test results and identify insights into trends
		4.2	Prepare report aligning findings to test plan criteria including any recommendations
		4.3	Ensure results are stored according to legislative and organisational requirements

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria of this unit of competency are listed below.

Skill	**Description**
Reading skills to:	Use clear, specific and industry-related terminology to represent outcomes of testing and evaluation
Writing skills to:	Use mathematical and statistical concepts required to test and evaluate
Numeracy skills to:	Complete calculations and records numerical data Interpret numerical data
Problem solving skills to:	Identify possible problems and recommendations and seek advice when unclear
Technology skills to: •	Use appropriate technology platforms to test and evaluate

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for VU23148 Test and evaluate a wearable object or app
PERFORMANCE EVIDENCE	The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to: • Describe the testing and evaluation sector across the wearable technologies industry reflecting on potential careers and the skills required for these roles • Produce a report documenting findings and recommendations where applicable from testing and evaluation conducted on a wearable object or app. The candidate should demonstrate the scope of the testing through developing both a test and an evaluation of the testing scenarios In doing so, the candidate must: • Design a test with clear performance criteria for a wearable object or app • Conduct testing of the wearable object or app against test plan • Optimise results from testing • Confirm validity in consultation with supervisor • Securely store results of validation activity • Perform all tasks within the legislative and organisational requirements
KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of: • The breadth and importance of this sector globally • Career opportunities available and skills required for this growing sector • Purpose and benefits of testing and evaluating technology • Legislative requirements relevant to testing and evaluating technology specifically wearable objects and apps including data protection, privacy laws and regulations • Organisational policies and procedures relating to testing and evaluating technology specifically wearable objects and apps • Features and limitations of common networks, communities that share ideas, code and existing apps • Features of test plans and performance criteria • Validation and evaluation protocols and processes

ASSESSMENT CONDITIONS	Assessment in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in experienced in the field of work. Access is required to: • information and telecommunications equipment required to test and evaluate wearable objects and apps • sample test plans including performance criteria • sample test plan templates and reporting templates • sample apps or wearable objects to test • relevant industry standards, organisational procedures, and legislative requirements • an appropriate reporting template. Assessor requirements Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. No specialist vocational competency requirements for assessors apply to this unit.

UNIT CODE		**VU23149**	
UNIT TITLE		**Investigate robotic systems**	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to investigate robotic systems. It includes the exploration of various types and applications of robotic systems and consideration of their benefits, challenges and impact on industry and individuals. The unit applies to individuals seeking a basic understanding of the role of robotic systems and their applications for industry, business and individuals. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.*	
1	Examine the fundamentals of robotics systems	*1.1*	Explore the history of robotics to identify recent and future trends
		1.2	Define the key concepts of robotic systems
		1.3	Describe robotic systems used in industry according to characteristics
		1.4	Outline recent and future global and local trends in robotics
		1.5	Explore the role of robotics and automation in Industry 4.0
2	Explore autonomous robotic systems	*2.1*	Identify and examine the crucial components of autonomous robotic systems
		2.2	Summarise the various applications of autonomous robotic systems
		2.3	Assess the risks and safety issues of autonomous robotic systems
3	Explore human-robotic augmentation	*3.1*	Identify the key concepts and purposes of human-robotic augmentation
		3.2	Examine applications of human-robotic augmentation
		3.3	Assess the risks and safety issues of human-robotic augmentation
		3.4	Identify the advantages and disadvantages of robotics systems

		3.5	Consider ethical issues related to robotics from a social and industrial perspective
4	Identify business and community uses for robotic systems	*4.1*	Explore the potential use of robotics in a business or community setting
		4.2	Outline an idea for a use of robotics identifying the benefits to the business or community

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria of this unit of competency are listed below

Skill	**Description**
Reading skills to:	Interpret information gained from a variety of sources
Learning skills to:	Reflect on how information applies to self
Technology skills to:	Access reliable sources of information

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for VU23149 Investigate robotic systems

PERFORMANCE EVIDENCE	The learner must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:
	• Complete a thorough investigation into robotic systems and present findings including:
	  • Fundamentals of robotics systems including the applications of both autonomous and human-robotic augmentation systems
	  • Positive and negative impacts of robotics
	  • A business or community need and a potential robotic system solution
	  • A personal reflection on philosophical and ethical issues arising from the use of robotics in industry and society
	In doing so, the candidate must:
	  • Plan and undertake relevant investigations
	  • Collate, summarise and analyse information and data
	  • Present the findings of their investigation using an appropriate format

KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of:
	• History of robotics
	• Global opportunities and risks, including the risks for not developing in the area of robotics
	• Trends of robotic systems in industry, business, personal and domestic contexts
	• Fundamentals of robotic systems including key concepts and industry applications
	• Key characteristics of autonomous robotic systems including perception, decisions, and actuation
	• Applications of autonomous robotic systems in settings such as:
	  • Vehicles
	  • Manufacturing
	  • Warehouses

	• Search and rescue • Security patrol & surveillance • Features of human-robotic augmentation systems and applications in areas such as: • Medical • Virtual reality • Assistive • Risks and benefits of robotic systems including creation of alternative jobs • Philosophical and ethical issues in relation to robotics
ASSESSMENT CONDITIONS	Assessment conditions must provide access to: • Internet • computer or digital device • sources of current information on robotics • an appropriate reporting or presentation template Assessor requirements Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. No specialist vocational competency requirements for assessors apply to this unit.

UNIT CODE		**VU23150**	
UNIT TITLE		Design a basic robotic solution for a specific problem	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to design a basic robotic solution for a specific problem. It requires the ability to investigate and define a problem, generate potential solutions, analyse and select a preferred solution, design and develop the preferred solution and undertake evaluation of the solution. The unit applies to individuals seeking a broad understanding of the design process as it relates to providing a robotic solution for a specific problem. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.	
1	Investigate the design brief	*1.1*	Review the design brief and document the parameters
		1.2	Identify and document the specific requirements of the robotic solution
		1.3	Seek approval to proceed with robotic solution design from relevant stakeholders
2	Design the robotics solution to meet the agreed design brief	*2.1*	Generate possible design solutions to meet the parameters and criteria
		2.2	Evaluate the alternative designs against the identified criteria
		2.3	Summarise the preferred solution and produce working drawings of the solution
		2.4	Investigate and access web resources and existing robotics designs and kits to identify a potential solution
		2.5	Identify requirements to produce a prototype of the robotic solution
3	Design the robotic solution prototype	*3.1*	Confirm safety requirements with supervisor and gather resources required to construct prototype
		3.2	Create the prototype from assembled materials complying with health and safety requirements
		3.3	Review prototype against design brief and use problem solving techniques to identify modifications required to improve design

		3.4	Implement agreed modifications and document as necessary
4	Evaluate robotic solution prototype design	*4.1*	Present prototype to stakeholders and seek feedback on design of prototype
		4.2	Evaluate the design feedback and document adjustments
		4.3	Review the prototype planning process to identify areas for improvement

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria of this unit of competency are listed below

Skill	**Description**
Reading skills to:	Interpret information gained from a variety of sources
Writing skills to:	Prepare documentation in a format suitable for audience and report method
Learning skills to:	Reflect on how evaluation of products and processes can inform future actions and outcomes
Problem-solving skills to:	Ensure sources of information and data are reliable Undertake evaluation against a set of criteria
Self-management skills to:	Produce work within required timelines
Technology skills to:	Access and download reliable sources of information

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for VU23150 Design a basic robotic solution for a specific problem
PERFORMANCE EVIDENCE	The learner must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to: • Create and present a prototype to meet the requirements of a robotic solution design brief including an outline of the design requirements, and evaluation of feedback and modifications required. In doing so, the learner must document the design process including the following: • Description of the design project • Requirements and constraints • At least three possible design solutions • Rationale for selected solution • Planning and process of construction • Testing and evaluation of the design • Evaluation of the planning process
KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of: • Design requirements of a robotic system such as: • functionality • accessibility • usability • aesthetics • appropriate construction methods • social and environmental impact • Elements of production planning including: • Working drawings • Work schedule • Timeline • Materials and equipment

	• Safe work method statement • Design and planning processes including methods for recording the stages • Robotic prototype creation processes and safety requirements • Purposes and safe use of appropriate mechanical or electrical tools for prototyping • Materials and resources used for constructing a robot
ASSESSMENT CONDITIONS	Assessment conditions must provide access to: • internet • desktop or notebook computer • design brief • examples of downloadable web resources • logbook or digital record • materials and equipment to construct a robot • design process report template Assessor requirements Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. No specialist vocational competency requirements for assessors apply to this unit.