VCE VET Integrated Technologies

Program Booklet

Incorporating

22289VIC Certificate II in Integrated Technologies

January 2021

This program was first implemented in November 2015

Modification history

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| --- | --- | --- | --- |
| Version | Status | Release Date | Comments |
| 3.0 | Current | January 2021 | Updated hyperlinks to external stakeholder websites. |
| 2.0 | Superseded | January 2019 | Moved to Program Booklet |
| 1.0 | Superseded | November 2015 | Original Program |

Authorised and published by the Victorian Curriculum and Assessment Authority  
Level 7, 2 Lonsdale Street  
Melbourne VIC 3000

ISBN: 978-1-925867-72-5

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Contents

[Introduction 2](#_Toc31894878)

[Program development 2](#_Toc31894879)

[Program information 2](#_Toc31894880)

[Industry overview 2](#_Toc31894882)

[Accredited course 2](#_Toc31894883)

[Qualifications / packaging rules 2](#_Toc31894884)

[VCE VET Program details 3](#_Toc31894885)

[Aims 3](#_Toc31894886)

[Program structure 3](#_Toc31894887)

[Scored assessment 3](#_Toc31894888)

[VCE VET Credit 3](#_Toc31894889)

[Nominal hour duration 4](#_Toc31894890)

[Duplication 4](#_Toc31894891)

[Sequence 4](#_Toc31894892)

[VCE VET Integrated Technologies program structure 5](#_Toc31894893)

[22289VIC Certificate II in Integrated Technologies 5](#_Toc31894894)

[Study Score 8](#_Toc31894895)

[ATAR Contribution 8](#_Toc31894896)

[Structured workplace learning 9](#_Toc31894897)

[SWL Recognition 9](#_Toc31894898)

[Work health and safety 10](#_Toc31894899)

[Additional information 10](#_Toc31894900)

[VCE Season of Excellence 11](#_Toc31894901)

Introduction

VCE VET programs are vocational training programs approved by the Victorian Curriculum and Assessment Authority (VCAA). VCE VET programs lead to nationally recognised qualifications, thereby offering students the opportunity to gain both the VCE and a nationally portable vocational education and training (VET) certificate. VCE VET programs:

* are fully recognised within the Units 1 to 4 structure of the Victorian Certificate of Education (VCE) and therefore may contribute towards satisfactory completion of the VCE. VCE VET units have equal status with other VCE studies
* may contribute to the satisfactory completion of the Victorian Certificate of Applied Learning (VCAL)
* function within the National Training Framework.

Program development

This iteration of the VCE VET Integrated Technologies program was implemented in 2015. It must be used in conjunction with the Victorian accredited curriculum, 22289VIC Certificate II in Integrated. This program replaces the VCE VET Integrated Technologies program published in January 2019 and all subsequent program summaries.

The VCE VET Integrated Technologies program provides students with the knowledge and skills to enhance their employment prospects in the integrated technology sector, which encompasses electrotechnology, telecommunications, information technology and security systems.

Program information

This program booklet must be read in conjunction with the *VCE VET Program Guide* and the Victorian accredited curriculum, 22289VIC Certificate II in Integrated Technologies.

Industry overview

Accredited course

This is a pre-vocational course that will provide learners with the skills and knowledge required by the integrated technology sector (which encompasses electrotechnology, telecommunications, information technology and security systems) to:

* continue vocational training
* gain work and further training through an apprenticeship, traineeship or cadetship
* find employment in fields such as electronics, entertainment, wireless systems, technical support for computer and electronic equipment, energy generation, sustainability, computer controlled applications, electronic equipment or computer network support.

Qualifications / packaging rules

22289VIC Certificate II in Integrated Technologies

Students must achieve the following requirements to gain 22289VIC Certificate II in Integrated Technologies, including:

* six core units of competency
* elective units of competency equivalent to a minimum of 170 nominal hours from at least two streams as outlined in the qualification.

For further information on selecting electives and trade streams, visit: <[www.education.vic.gov.au/Documents/training/providers/rto/curr22289vicintegratedtechnologies.pdf](https://www.education.vic.gov.au/Documents/training/providers/rto/curr22289vicintegratedtechnologies.pdf)>.

VCE VET Program details

Aims

The VCE VET Integrated Technologies program aims to:

* provide participants with the knowledge, skills, and competency that will enhance their training and employment prospects in the integrated technology sector, which encompasses electrotechnology, telecommunications, information technology and security systems
* enable participants to gain a recognised credential and to make an informed choice of vocation or career path.

Program structure

The VCE VET Integrated Technologies program comprises one certificate II with VCE VET credit at Units 1 to 4 level. Certificates II are typically completed over two years.

The identified units of competency in the VCE VET Integrated Technologies program have been selected for recognition purposes and may vary from the qualification packaging rules.

Scored assessment

Scored assessment is available for the VCE VET Integrated Technologies program. To gain a study score a student must: be competent in the prescribed training; complete all scored VCE VET assessments; complete an end of year examination.

VCE VET Credit

Students undertaking the VCE VET Integrated Technologies program are eligible for up to four VCE VET units on their VCE or VCAL statement of results:

* two VCE VET Units at Units 1 and 2 level
* a VCE VET Units 3 and 4 sequence.

VCE VET credit will accrue in the following order: Units 1, 2, 3 and 4. These units of credit may be accumulated over more than one year.

Nominal hour duration

Nominal hours represent the supervised structured learning and assessment activities required to sufficiently address the content of each unit of competency.

Nominal hours are used to determine credit into the VCE or VCAL for VET units of competency.

Duplication

When a VCE VET program significantly duplicates other VCE studies or VET training in a student’s program, a reduced VCE VET unit entitlement may apply. Credit towards the VCAL may also be reduced due to duplication.

No significant duplication has been identified between the VCE VET Integrated Technologies program and other VCE studies.

Sequence

Certain units of competency will complement each other, lending to coordinated delivery that minimises content overlap. Units of competency have guidelines on the different situations and delivery contexts, and a range of delivery sequences are possible.

The intention of VCE VET programs is to provide students with a qualification that meets industry expectations. The strong advice and assumption of industry bodies is that the quality of the qualification is compromised when foundation training is neglected.

The sequencing of units of competency is determined by the registered training organisation, teacher or trainer; however, it is anticipated that a number of the core units of competency will be undertaken in the first year of the program.

VCE VET Integrated Technologies program structure

22289VIC Certificate II in Integrated Technologies

|  |  |  |  |
| --- | --- | --- | --- |
| Code | Unit Title | Release | Nominal  Hours |
| **Units 1 and 2** | | | |
| **Compulsory units:** | | | |
| MEM13014A | Apply principles of occupational health and safety in the work environment | | 10 |
| VU21701\* | Carry out an integrated technology project | | 60 |
| VU21702 | Prepare for working in the integrated technology sector | | 20 |
| **Elective units:** Select electives equivalent to a minimum of **110** hours from the Elective Bank on pages 5 to 7 of this program booklet. | | | 110 |
| **Minimum for Units 1 and 2:** | | | **200** |
| **Units 3 and 4** | | | |
| **Compulsory units:** | | | |
| VU21703\* | Work in an integrated technology environment | 1 | 40 |
| VU21704\* | Use electrotechnology skills in integrated technology work | 1 | 80 |
| VU21705\* | Use software applications in integrated technology work | 1 | 20 |
| **Elective units:** Select electives equivalent to a minimum of **60** hours from the Elective Bank on pages 5 to 7 of this program booklet. | | | 60 |
| **Total for Units 3 and 4:** | | | **200** |
| **Elective Bank:** Elective units are to be chosen from at least two specialisation streams. These are to be delivered across Units 1 to 4 as indicated in the VCE VET Integrated Technologies program structure above.  For further information on packaging rules, visit <[www.education.vic.gov.au/Documents/training/providers/rto/curr22289vicintegratedtechnologies.pdf](https://www.education.vic.gov.au/Documents/training/providers/rto/curr22289vicintegratedtechnologies.pdf)>. | | | |
| **Computer system network stream elective units** | | | |
| ICAICT302A | Install and optimise operating system software | | 20 |
| ICAICT303A | Connect internal hardware components | | 20 |
| ICANWK302A | Identify and resolve network problems | | 50 |
| ICANWK305A | Install and manage network protocols | | 40 |
| ICASAS202A | Apply problem-solving techniques to routine IT malfunctions | | 20 |
| ICASAS203A | Connect hardware peripherals | | 20 |
| ICASAS206A | Detect and protect from spam and destructive software | | 10 |
| ICASAS301A | Run standard diagnostic tests | | 20 |
| ICASAS303A | Care for computer hardware | | 20 |
| ICASAS304A | Provide basic system administration | | 20 |
| ICASAS306A | Maintain equipment and software | | 20 |
| ICASAS307A | Install, configure and secure a small office home office network | | 50 |
| VU21554 | Perform basic network and computer assembly | | 30 |
| VU21555 | Perform basic network and computer maintenance | | 30 |
| VU21556 | Install and configure basic network and computer operating systems | | 40 |
| **Robotic control systems stream elective units** | | | |
| VU20906 | Configure and program a basic robotic system | | 60 |
| VU21352 | Implement a digital circuit using a programmable logic device (PLD) | | 30 |
| VU21387 | Test and verify correct operation of a “by-wire” control system | | 30 |
| VU21388 | Set up and test an embedded control system | | 30 |
| **Security systems stream elective units** | | | |
| CPPSEC2021A | Install security equipment and systems | | 40 |
| CPPSEC2023A | Install CCTV equipment and system | | 20 |
| CPPSEC2026A | Perform routine maintenance on security equipment and system | | 32 |
| ICTCBL2136B | Install, maintain and modify customer premises communications cabling – ACMA restricted rule | | 60 |
| **Sustainable energy systems stream elective units** | | | |
| VU21541 | Maintain rechargeable battery systems | | 30 |
| VU21542 | Identify and locate building blocks of a centralised power generation system | | 30 |
| VU21543 | Set up an extra low voltage emergency power supply system (not exceeding 32v) | | 30 |
| VU21544 | Install a sustainable extra low voltage energy power system | | 30 |
| VU21552 | Operate a small power supply system | | 30 |
| VU21553 | Assemble and connect an extra low voltage battery power source | | 30 |
| **Multimedia and games systems stream elective units** | | | |
| CUFANM301A | Create 2D digital animations | | 35 |
| CUFANM302A | Create 3D digital animations | | 75 |
| ICAGAM301A | Apply simple modelling techniques | | 50 |
| ICAGAM302A | Design and apply simple textures to digital art | | 50 |
| ICAGAM303A | Review and apply the principles of animation | | 60 |
| ICAICT404A | Use online learning tools | | 30 |
| ICAPRG301A | Apply introductory programming techniques | | 40 |
| ICAPRG404A | Test applications | | 50 |
| ICAPRG406A | Apply introductory object-oriented language skills | | 60 |
| VU21706\* | Create products using 3D printing | | 40 |
| **Telecommunication systems stream elective units** | | | |
| ICTCBL2136B | Install, maintain and modify customer premises communications cabling – ACMA restricted rule | | 60 |
| ICTCMP2239B\* | Perform restricted customer premises broadband cabling work: ACMA Restricted Rule | | 20 |
| ICTDRE3156B | Install digital reception equipment | | 30 |
| ICTDRE3157B | Locate and rectify digital reception equipment faults | | 40 |
| ICTEDU3053A | Train customers in new technology | | 40 |
| ICTTEN2219A | Install and test internet protocol devices in convergence networks | | 50 |
| VU20177 | Plan and build a system using fibre optic equipment | | 30 |
| VU20178 | Use fibre optic equipment in engineering technology | | 30 |
| VU20179 | Use fibre optic equipment in communication technology | | 30 |
| **Wireless communications systems stream elective units** | | | |
| VU21566 | Install and test a wireless intercom system | | 30 |
| VU21567 | Conduct site survey for a wireless network | | 30 |
| VU21568 | Set up and operate a wireless communication link | | 30 |
| VU21569 | Install communications antennae | | 30 |
| VU21581 | Build a small wireless LAN | | 30 |

Notes

\* An asterisk (\*) against a unit code indicates that there is a prerequisite requirement that must be met. Prerequisite unit(s) must be assessed before assessment of any unit of competency with an asterisk. Check the unit of competency for information on specific prerequisite requirements <[training.gov.au/Home/Tga](https://training.gov.au/Home/Tga)> and <[www.education.vic.gov.au/Documents/training/providers/rto/curr22289vicintegratedtechnologies.pdf](https://www.education.vic.gov.au/Documents/training/providers/rto/curr22289vicintegratedtechnologies.pdf)>.

Study Score

A study score is available for the VCE VET Integrated Technologies program.

VCE VET Integrated Technologies offers a scored program option. To be eligible for a study score students must:

* satisfactorily complete all the units of competency required in the Scored Units 3 and 4 sequence
* be assessed in accordance with the tools and procedures specified in the *VCE VET Assessment Guide* and program specific assessment plan templates published annually on the VCAA website
* undertake an examination in the end-of-year examination period, based on the underpinning knowledge and skills in the compulsory units of competency in the Scored Units 3 and 4 sequence, and in accordance with the current examination specifications.

The Scored Units 3 and 4 sequence of the VCE VET Integrated Technologies program must be delivered and assessed in a single enrolment year.

The study score for the VCE VET Integrated Technologies program is based on evidence from two sources: coursework tasks and an examination. The assessment of three VCE VET coursework tasks does not replace the qualification assessments. Both tend to be complementary and may be integrated. Tasks may be designed with both assessment purposes in mind.

For further information on scored assessment refer to the *VCE VET Assessment Guide*, which contains information relating to study scores for VCE VET programs. It includes an overview of study score assessment, advice regarding the development of coursework tasks, and integration of study scores with competency assessment.

The assessment guide also contains generic templates, scoring criteria and other coursework assessment records:   
<[www.vcaa.vic.edu.au/assessment/vet-assessment/Pages/VCEVETProgramsScoredAssessment.aspx](https://www.vcaa.vic.edu.au/assessment/vet-assessment/Pages/VCEVETProgramsScoredAssessment.aspx)>.

Advice relating to the VCE VET Integrated Technologies program is published on the VCAA website and updated annually: <[www.vcaa.vic.edu.au/curriculum/vet/vce-vet-programs/Pages/integratedtech.aspx](https://www.vcaa.vic.edu.au/curriculum/vet/vce-vet-programs/Pages/integratedtech.aspx)>.

ATAR Contribution

Students wishing to receive an ATAR contribution for the VCE VET Integrated Technologies program Units 3 and 4 sequence must undertake scored assessment for the purpose of achieving a study score. This study score can contribute directly to the ATAR, either as one of the student's best four studies (the primary four) or as a fifth or sixth study increment. Where a student elects not to receive a study score no contribution to the ATAR will be available.

The increment is awarded by the Victorian Tertiary Admissions Centre (VTAC). Further information can be found on the VTAC website:

* the ATAR explained: <[www.vtac.edu.au/results-offers/atar-explained/](https://www.vtac.edu.au/results-offers/atar-explained/)>
* calculating your aggregate: <[www.vtac.edu.au/atar-scaling-guide-2022.html#item-3](https://www.vtac.edu.au/atar-scaling-guide-2022.html#item-3)>
* study groupings: <[www.vtac.edu.au/atar-scaling-guide-2022.html#item-4](https://www.vtac.edu.au/atar-scaling-guide-2022.html#item-4)>.

Where a VCE VET Program Scored Units 3 and 4 sequence is used as an increment, the increment will be calculated using 10% of the scaled score.

Structured workplace learning

The VCAA has determined that Structured Workplace Learning (SWL) is an appropriate and valuable component of all VCE VET programs. SWL involves on-the-job training in which students are required to master a designated set of skills and competencies related to VCE VET programs.

SWL complements the training undertaken at the school/RTO. It provides the context for:

* enhancement of skills development
* practical application of industry knowledge
* assessment of units of competency, as determined by the RTO
* increased employment opportunities.

The VCAA strongly recommends that students undertake a minimum of 80 hours of SWL for the VCE VET Integrated Technologies program. SWL should be spread across the duration of the training program.

The VCAA mandates SWL under the following situations:

* where a period of work placement is mandated for the award of the qualification, or
* where the Assessment Conditions from a Unit of Competency contains a statement regarding the requirement to demonstrate skills in a workplace.

Check the unit of competency for information on Assessment Conditions: <[training.gov.au/Home/Tga](https://training.gov.au/Home/Tga)>.

Further details regarding SWL, the SWL Portal and the Department of Education and Training SWL Manual is available on online: [<www.education.vic.gov.au/school/teachers/teachingresources/careers/work/Pages/structuredlearning.aspx](http://www.education.vic.gov.au/school/teachers/teachingresources/careers/work/Pages/structuredlearning.aspx)>.

The SWL Manual outlines roles and responsibilities of the student, parent, employer and principal; procedures and guidelines for placing students in the workplace; and relevant policy and legislation. The manual also has a link to Ministerial Order 55 and the SWL Arrangement form.

SWL Recognition

Structured Workplace Learning (SWL) recognition involves the development and maintenance of the Workplace Learning Record (WLR) by the student. The work placement must be in an industry area aligned to the VET certificate drawn from the VCE VET Integrated Technologies program. The completion of the WLR is a requirement for recognition by the VCAA for VCE and VCAL credit.

The VCE VET Integrated Technologies program offers SWL recognition. Further details are available at: <[www.vcaa.vic.edu.au/curriculum/vet/swl-vet/Pages/SWL-recognition.aspx](https://www.vcaa.vic.edu.au/curriculum/vet/swl-vet/Pages/SWL-recognition.aspx)>.

Work health and safety

Schools/RTOs must ensure that Work Health and Safety (WHS) issues are fully addressed in the training program.

The principal is responsible for ensuring the school meets its responsibilities for students in SWL arrangements.

Where the student will be employed under an SWL arrangement, the principal must be satisfied that the student is undertaking training in the WHS unit of competency before the arrangement can be entered into.

Students must be informed of the significance of work-related hazards. They must understand the need for, and the nature of, workplace risk controls such as safe working procedures and the use of personal protective clothing and equipment.

Schools must also be satisfied, through their review of the acknowledgment provided by employers on the SWL Arrangement form, that the workplace in question and the activities proposed will not expose a student to risk during their structured work placement.

Employers must view their duty of care towards students as essentially no different from that owed to their employees. They must understand that students cannot be expected to possess the judgment or maturity to undertake any task that presents potential risk. This means that no student may be exposed at any time to dangerous plant machinery, equipment, substances, work environments or work practices.

On the first morning of their placement, students should be introduced to their supervisor and provided with a formal induction to the workplace. This will include first aid, emergency and incident reporting arrangements.

The student should be given an orientation tour of the workplace and any excluded areas or activities should be pointed out. Students should be instructed to report without delay anything they feel may be unsafe. They should be encouraged to ask for help or further instruction if they are not sure of the correct way to carry out any task.

Close supervision of students undertaking SWL is essential. Supervisors nominated by the employer must understand all requirements for safely managing the student’s activities. Supervisors must understand that a student may not fully grasp information or instructions the first time they are told. They should encourage students to ask for help if they have forgotten or if they experience difficulty in putting information into practice.

The WorkSafe Victoria website makes available useful resources: <[www.worksafe.vic.gov.au](https://www.worksafe.vic.gov.au/)>.

Additional information

For updates or information relating to this program refer to:

* the VCE VET Integrated Technologies program web page: <[www.vcaa.vic.edu.au/curriculum/vet/vce-vet-programs/Pages/integratedtech.aspx](https://www.vcaa.vic.edu.au/curriculum/vet/vce-vet-programs/Pages/integratedtech.aspx)>
* the *VCAA* *Bulletin*: <[www.vcaa.vic.edu.au/news-and-events/bulletins-and-updates/bulletin/Pages/index.aspx](https://www.vcaa.vic.edu.au/news-and-events/bulletins-and-updates/bulletin/Pages/index.aspx)>
* the Get VET web page for videos, success stories, flowcharts and posters designed to support teachers in engaging, informing and inspiring students and parents about VET Delivered to Secondary Students: <[www.vcaa.vic.edu.au/getvet](https://www.vcaa.vic.edu.au/getvet)>.

VCE Season of Excellence

High quality works created by students who complete this VCE VET program are eligible to apply for the VCE Season of Excellence. For further information, visit: <[www.vcaa.vic.edu.au/Pages/excellenceawards/seasonofexcellence/index.aspx](http://www.vcaa.vic.edu.au/Pages/excellenceawards/seasonofexcellence/index.aspx)>.