

VET in the VCE ENGINEERING STUDIES

VICTORIAN CURRICULUM AND ASSESSMENT AUTHORITY



**21566VIC
Certificate II in Engineering Studies**

**21565VIC
Certificate III in Engineering Studies**

October 2004

This program booklet must be used in conjunction with the course accreditation document

Acknowledgments

The Victorian Curriculum and Assessment Authority gratefully acknowledges the work of the following people in the preparation of this booklet:

George Adda	Curriculum Maintenance Manager – Box Hill Institute of TAFE
Klaus Bienert	Curriculum Maintenance Manager – Box Hill Institute of TAFE
Ian Browning	Corio Bay Senior Secondary College
Ian Brownlie	Northern Melbourne Institute of TAFE
Peter Canavan	Engineering Skills Training Board
John Cawley	Swinburne University of Technology (TAFE Division)
John Ducardus	Sebastopol College
David Fulton	Box Hill Senior Secondary College
Joe Micaloff	Victoria University
Beng Tan	Mazenod College
Wayne Theisinger	Northern Melbourne Institute of TAFE
Nick Viney	Kangan Batman Institute of TAFE

© Victorian Curriculum and Assessment Authority 2004

Published by the Victorian Curriculum and Assessment Authority

41 St Andrews Place Victoria 3002

ISBN 1 920992 11 1

First published 2004

All rights reserved. Except under the conditions described in the *Copyright Act 1968* and subsequent amendments, and except for the exemption below, no part of this publication may be reproduced by any process without permission in writing from the publishers. Photocopying: Victorian schools and TAFE institutes only may photocopy this publication for use by teachers.

The artwork on the cover has been reproduced from 1998 VCE student work:

Clare James

'Can Opener' 1998 (detail)

Ink, gouache and oil stick on paper

188 x 152.5 cm

Copyright remains the property of the artist.

CONTENTS

1	<i>Introduction</i>
	National Training Framework
2	Program revision
	Arrangements for continuing students
	Students commencing in 2005
3	<i>Program details</i>
	Aims
	Completion requirements
4	VCE VET program structure
	Program duration
5	Program 1
6	Program 2
7	Sequence
8	Structured Workplace Learning (SWL)
9	Occupational Health And Safety
10	<i>Recognition within the VCE</i>
	VCE VET Unit Entitlement
	Duplication
	Equivalent National Tertiary Entrance Rank (ENTER)
11	<i>Recognition within the VCAL</i>
12	<i>Delivery and assessment</i>
	Role of Registered Training Organisations
13	Delivery options
	Delivery in schools
15	Delivery in the workplace
	Assessment
16	<i>Resources</i>
17	<i>Administration</i>
	Enrolments
	Recording results
	VCE VET unit completion
18	Reporting
	Certification
19	<i>Articulation and pathways</i>
20	<i>Registration</i>
21	<i>Useful contacts and information sources</i>
24	<i>Glossary</i>

Introduction

VCE VET programs are vocational certificates approved by the Victorian Curriculum and Assessment Authority (VCAA) as appropriate for senior secondary school students, fully integrated within the VCE and endorsed for recognition in the VCE by the Victorian Qualifications Authority (VQA).

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 certificate.

VCE VET programs:

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

NATIONAL TRAINING FRAMEWORK

The two key elements of the National Training Framework are the Australian Quality Training Framework (AQTF) and training packages. Under the AQTF, Registered Training Organisations (RTOs) are responsible for the assessment and certification of training qualifications, regardless of whether programs are curriculum based or based on training packages.

National training packages are agreed to by Industry Skills Councils (formerly Industry Training Advisory Bodies) and endorsed by the Australian National Training Authority (ANTA). Training packages consist of a set of competency standards, assessment guidelines and national qualifications that apply across an industry. These packages underpin delivery of training by RTOs and industry.

The 21566VIC Certificate II in Engineering Studies and 21565VIC Certificate III in Engineering Studies, include three units of competence from the MEM98 Metal and Engineering Training Package. All the other units of competence are new and have been specifically designed for these certificates. The certificates have been accredited by the VQA as nationally recognised qualifications.

PROGRAM REVISION

This program booklet replaces the VCE VET Engineering Technology booklet published in November 2000. The enhanced recognition status of VCE VET programs and the accommodation of the requirements of assessment for Study Score purposes are reflected in this program booklet. The new VCE VET Engineering Studies program offers students a choice between Certificate II in Engineering Studies and Certificate III in Engineering Studies.

ARRANGEMENTS FOR CONTINUING STUDENTS

Students enrolled in the VCE VET Certificate I in Engineering Technology in 2004 or earlier, should complete their program under the arrangements outlined in the VCE VET Engineering Technology booklet published in November 2000. No new students may enrol in 2106AIC Certificate I in Engineering Technology in 2005 and beyond.

STUDENTS COMMENCING IN 2005

All students commencing VCE VET Engineering Studies in 2005 and beyond must comply with the requirements outlined in this booklet.

Program details

AIMS

The aims of the VCE VET Engineering Studies program are to:

- provide participants with the knowledge and skills to achieve units of competence that will enhance their employment prospects in the engineering or engineering related industries
- enable participants to gain a recognised credential and make a more informed choice of vocation and career paths.

The Certificate II in Engineering Studies provides a pathway into an engineering apprenticeship. The Certificate III in Engineering Studies provides a pathway into technician and para-professional occupations.

COMPLETION REQUIREMENTS

The following information needs to be read in conjunction with the course accreditation document:

- for Program 1 – 21566VIC Certificate II in Engineering Studies.
- for Program 2 – 21565VIC Certificate III in Engineering Studies.

Structure of the qualification

The Certificates II and III in Engineering Studies course structure is based on a framework of essential core units and elective units of competence. Embedded in the core are ten units of competence common to both Certificates.

The award of either the Certificate II or Certificate III in Engineering Studies requires satisfactory completion of all core units of competence plus one elective unit of competence.

Students exiting prior to meeting the course requirements will be issued with a Statement of Attainment for all units of competence successfully achieved.

VCE VET PROGRAM STRUCTURE

Two programs are provided:

- Program 1 – 21566VIC Certificate II in Engineering Studies
- Program 2 – 21565VIC Certificate III in Engineering Studies

Core units of competence for both qualifications have been structured to form the VCE VET Units 1 and 2 for both Program 1 and Program 2. Students may choose to complete either the Certificate II in Engineering Studies or the Certificate III in Engineering Studies after completing VCE VET Units 1 and 2.

Program 1 – Certificate II in Engineering Studies:

is comprised of thirteen compulsory units of competence, ten of which are core units in common with the 21565VIC Certificate III in Engineering Studies. There are seven elective units of competence, ONE of which must be selected to contribute to completion of the certificate.

Program 2 – Certificate III in Engineering Studies:

is comprised of twelve compulsory units of competence, ten of which are core units in common with the 21566VIC Certificate II in Engineering Studies. There are seven elective units of competence, ONE of which must be selected to contribute to completion of the certificate.

PROGRAM DURATION

The VCE VET Engineering Studies Programs 1 and 2 involve a nominal duration of 400 hours each.

The nominal hours attached to each unit of competence are calculated by the Office of Training and Tertiary Education (OTTE) for funding purposes. They are a guide only, and the actual duration of the training required is affected by students' readiness to be assessed for the particular unit of competence.

It is important to note that the allocation of nominal hours for each unit of competence is intended to cover both delivery and assessment.

PROGRAM 1: 21566VIC CERTIFICATE II IN ENGINEERING STUDIES

VCE VET Units 1–2			
Code	Unit of competence	Nominal Hours	Prerequisites
<i>MEM1.2FA</i>	<i>Apply principles of Occupational Health & Safety in work environment</i>	20	–
<i>VBN768</i>	<i>Develop an individual career plan for the engineering industry</i>	20	–
<i>VBN769</i>	<i>Perform basic machining processes</i>	40	–
<i>VBN770</i>	<i>Apply basic fabrication techniques</i>	40	–
<i>VBN772</i>	<i>Use computers for engineering related work activities</i>	20	–
<i>VBN774</i>	<i>Apply basic computational principles in engineering work activities</i>	20	–
<i>MEM18.1AB</i>	<i>Use hand tools</i>	20	–
<i>MEM18.2AA</i>	<i>Use power tools/hand held operation</i>	20	–
Subtotal		200	
VCE VET Units 3–4			
Compulsory units			
<i>VBN771</i>	<i>Apply electrotechnology principles in an engineering work environment</i>	20	–
<i>VBN773</i>	<i>Produce basic engineering sketches and drawings</i>	20	–
VBN776	Use basic engineering concepts to plan the manufacture of engineering components	20	–
VBN777	Handle engineering materials	20	–
VBN778	Produce basic engineering components and products using fabrication and machining	60	VBN769, VBN770, VBN773
Electives: select ONE of the following			
VBN779	Perform cutting, grinding and turning operations	60	VBN769, VBN770, VBN773
VBN780	Form, bend and shape engineering materials	60	VBN770
VBN781	Use fundamental refrigeration principles and processes to make refrigeration and/or air-conditioning equipment operational	60	MEM18.1AB MEM18.2AA VBN773, VBN774
VBN782	Perform basic welding and thermal cutting processes to fabricate engineering structures	60	–
VBN783	Create engineering drawings using computer aided systems	60	VBN772, VBN773
VBN785	Assemble and test electronic engineering equipment and make it operational	60	MEM18.1AB MEM18.2AA VBN774
VBN786	Fabricate basic jewellery items	60	MEM18.1AB MEM18.2AA VBN773, VBN776
Subtotal		200	
TOTAL		400	

Italicised units are common with the Certificate III in Engineering Studies

PROGRAM 2: 21565VIC CERTIFICATE III IN ENGINEERING STUDIES

VCE VET Units 1–2		
Code	Unit of competence	Nominal Hours
<i>MEM1.2FA</i>	<i>Apply principles of Occupational Health & Safety in work environment</i>	20
<i>VBN768</i>	<i>Develop an individual career plan for the engineering industry</i>	20
<i>VBN769</i>	<i>Perform basic machining processes</i>	40
<i>VBN770</i>	<i>Apply basic fabrication techniques</i>	40
<i>VBN772</i>	<i>Use computers for engineering related work activities</i>	20
<i>VBN774</i>	<i>Apply basic computational principles in engineering work activities</i>	20
<i>MEM18.1AB</i>	<i>Use hand tools</i>	20
<i>MEM18.2AA</i>	<i>Use power tools/hand held operation</i>	20
	Subtotal	200
VCE VET Units 3–4		
Compulsory units		
<i>VBN771</i>	<i>Apply electrotechnology principles in an engineering work environment</i>	20
<i>VBN773</i>	<i>Produce basic engineering sketches and drawings</i>	20
<i>VBN787</i>	Apply mathematical principles to engineering designs	40
<i>VBN788</i>	Design and prototype components and/or small structures using engineering design principles	60
Electives: select ONE of the following		
<i>VBN789</i>	Use manual and/or computer aided drafting systems in the design of engineering components or structures	60
<i>VBN790</i>	Produce engineering components by programming and operating CNC manufacturing cells	60
<i>VBN791</i>	Place, assemble and/or fabricate engineering components by programming and operating robots	60
<i>VBN792</i>	Apply refrigeration principles and processes in the design of basic refrigeration systems	60
<i>VBN793</i>	Control a small manufacturing sub system through the application of electronic control devices and systems	60
<i>VBN794</i>	Apply electronic control principles to machine systems	60
<i>VBN795</i>	Evaluate manufacturing processes for a range of engineering applications	60
	Subtotal	200
	TOTAL	400

Italicised units are common with the Certificate II in Engineering Studies

Note: there are no prerequisites in this certificate

SEQUENCE

While a range of delivery sequences is possible, for 21566VIC Certificate II in Engineering Studies (Program 1) the selected delivery schedule must comply with the prerequisites described in the course accreditation document.

Schools are advised that the Unit 3–4 sequence is not designed as a stand-alone study. The intention of VCE VET programs is to provide students with a qualification that meets industry expectations. The foundation knowledge and skills for the ability to function effectively in the workplace are often acquired in the early stages of the training program and are necessary for the achievement of competence in other areas of the program. A student may have great difficulty in achieving competence in the specified areas without first having undertaken training in the foundation or core units of competence. The strong advice and assumption of industry bodies is that the value of the training will be compromised unless based on the foundation skills specified by industry for each qualification.

MEM1.2FA Apply principles of Occupational Health and Safety in work environment must be undertaken prior to structured workplace learning and should be delivered early in the program.

From 2006, a Study Score will be available for 21566VIC Certificate II in Engineering Studies (Program 1) and 21565VIC Certificate III in Engineering Studies (Program 2). Students wanting access to the Study Score must be able to undertake all the units of competence designated as the Unit 3–4 sequence in the same enrolment year.

However, for:

- *VBN773 Produce basic engineering sketches and drawings*
- *VBN777 Handle engineering materials*

it is expected that students will undertake the training for these units of competence over the length of the program, but the assessment for these units will occur in the year in which the student is enrolled in the Unit 3–4 sequence.

STUDY SCORE

A Study Score is available for both 21566VIC Certificate II in Engineering Studies and 21565VIC Certificate III in Engineering Studies in 2006.

To be eligible for a Study Score students must:

- achieve all the units of competence designated as the Unit 3–4 sequence
- be assessed in accordance with the tools and procedures specified in the *Engineering Studies Assessment Guide*, to be published by the VCAA
- undertake an examination in the end-of-year examination period, based on the underpinning knowledge and skills in the units of competence advised by the VCAA.

Schools are advised that students may receive a Study Score for only one of the certificates in Engineering Studies.

STRUCTURED WORKPLACE LEARNING (SWL)

The VCAA has determined that structured workplace learning is an appropriate and valuable component of all VCE VET programs. Structured workplace learning 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 competence, as determined by the RTO
- increase of employment opportunities and marketability.

The VCAA strongly recommends that students undertake a minimum of 80 hours structured workplace learning for either of the Certificate II or Certificate III in Engineering Studies.

While structured workplace learning is not limited to an engineering job site, it is highly desirable that students gain experience in an engineering workshop or workplace.

The school/RTO should keep evidence of the student's structured workplace learning which may take place over weekends and during school holidays as well as during the school week.

Under the new SWL arrangements outlined in Ministerial Order 23, students undertaking SWL must first complete the Occupational Health & Safety (OH&S) training relevant to the workplace before commencing their SWL placement. In the situation where assessment of OH&S units of competence is conducted in the workplace, all training up to assessment stage must be completed before the student commences SWL.

MEM1.2FA Apply principles of Occupational Health and Safety in work environment must be undertaken prior to structured workplace learning.

Local community partnerships

'SWL has grown rapidly in recent years. So that industry is not overwhelmed with requests, clusters of government and non-government schools work together with business to maximise the benefits of SWL. Clusters usually operate through a 'local community partnership' which employs staff specifically to coordinate placements and monitor their quality. Local community partnerships are often incorporated bodies with a board of management with representatives from education, industry and the community. The partnerships previously funded through the Enterprise and Career Education Foundation are now funded and managed by the Australian Government Department of Education, Science and Training. There are over 200 partnerships across Australia.

The Curriculum Corporation website provides support for SWL programs including case studies: www.curriculum.edu.au

Sourced from the Department of Education, Science and Training website:
www.dest.gov.au

OCCUPATIONAL HEALTH AND SAFETY

Schools/RTOs must ensure that occupational health and safety issues are fully addressed in the training program. To assist principals in meeting the schools' responsibilities for students in structured workplace learning (SWL), delivery of training for the unit of competence *MEM1.2FA Apply principles of Occupational Health and Safety in work environment* must be completed before students begin their structured workplacement.

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.

Schools must also be satisfied, through their review of the acknowledgement provided by employers in 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 toward 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 which presents potential risk. This means that no student may be exposed at any time to dangerous plant, 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.

Close supervision of students undertaking SWL is essential. Supervisors nominated by the employer must understand all requirements for safely managing the student's activities.

These websites may provide useful resources for schools/RTOs:

www.worksafe.vic.gov.au/dir090/vwa/home.nsf/pages/worksafe_home

www.ohs.labour.net.au/youthsafe/safety_first/index.html

* Employers should be provided with the Department of Education and Training Structured Workplace Learning Guidelines for Employers, which sets out their responsibilities and provides information to assist them with induction and supervision of students. This is available on the Sofweb website: www.sofweb.vic.edu.au.

Recognition within the VCE

VCE VET UNIT ENTITLEMENT

The Certificates II and III in Engineering Studies each provides a Unit 3–4 sequence for satisfactory completion purposes.

Students undertaking either Program 1 or Program 2 are eligible for credit of up to four VCE VET units on their VCE Statement of Results: two units at Unit 1–2 level and a Unit 3–4 sequence.

Students may undertake both Certificate II and Certificate III programs but in that case only one certificate will provide credit towards satisfactory completion of the VCE and only one Unit 3–4 sequence will contribute to the calculation of the ENTER.

Students may accumulate VCE VET units over more than one year.

DUPLICATION

VCE VET units may only make the maximum available contribution towards satisfactory completion of the VCE where no significant duplication exists between the VCE VET program and VCE studies or another VET certificate in a student's program.

Where significant duplication does exist, students may enrol in the VCE VET program and the VCE studies or other VET certificate identified, but a reduced VCE VET unit entitlement will then apply.

Note: Significant duplication has been identified between the VCE VET Engineering Studies program and the School Based New Apprenticeship (SBNA) in Engineering. A student may not be enrolled simultaneously in the VCE VET Engineering program and the SBNA in Engineering.

EQUIVALENT NATIONAL TERTIARY ENTRANCE RANK (ENTER)

The ENTER is calculated by the Victorian Tertiary Admissions Centre (VTAC), subject to satisfactory completion of the VCE and using the study scores students have received for a specified set of VCE studies.

The contribution of the VCE VET Engineering Studies program to the ENTER is as follows:

- Any contribution to the ENTER is subject to satisfactory completion of the Unit 3–4 sequence.
- A Study Score is available for this program in 2006. The Study Score will contribute directly to the ENTER, either as one of the student's best four studies ('the primary four') or as a fifth or sixth study.
- A contribution to the ENTER is subject to receiving a Study Score.
- Students may choose not to receive a Study Score, but in that case will not be eligible for any ENTER contribution.

For further information on the calculation of the ENTER, refer to the VTAC website:
www.vtac.edu.au

Recognition within the VCAL

The Certificates II and III in Engineering Studies are available for students who are enrolled in the VCAL.

The contribution of the Certificates II and III in Engineering Studies to a student's VCAL program is determined by the number of units of competence completed. Each 100 hours of training will contribute one credit towards satisfactory completion of a student's VCAL program. The Certificates II and III in Engineering Studies will satisfy learning outcomes for the Industry Specific and Work Related Skills strands.

The Certificates II and III in Engineering Studies may contribute to the VCAL at the Foundation, Intermediate or Senior levels.

Delivery and assessment

VCE VET programs function within the AQTF, so that students may be eligible for nationally recognised qualifications or gain credit toward those qualifications.

ROLE OF REGISTERED TRAINING ORGANISATIONS

Under the AQTF, all quality assurance requirements in relation to training delivery, assessment and certification are the responsibility of RTOs. RTOs are responsible for issuing qualifications and Statements of Attainment.

The AQTF has a number of requirements of RTOs including the following:

- documented systems for quality training and assessment
- conduct of an internal audit at least annually
- documented agreements with other organisations when they provide training or assessment in partnership
- written procedures for recruitment, induction and professional development of staff, as well as induction programs
- use of trainers and assessors with specified competencies
- explicit requirements for quality assurance in assessment.

The detailed standards for RTOs under the AQTF are available from the following website: www.anta.gov.au/aqtfStandards.asp

In particular, Standard 7.4 addresses the issue of suitably competent staff to deliver training:

‘The RTO must ensure that training is delivered by a person who:

- i. has all the competencies in the Certificate IV from the Training Package for Assessment and Workplace Training (or has demonstrated the equivalent competencies) or who is under direct supervision* of a person with these competencies; and
- ii. is able to demonstrate vocational competence at least to the level of those being delivered.

**Direct supervision is achieved when a person delivering training on behalf of the RTO has regular guidance, support and direction from a person designated by the RTO who has the competencies in Standard 7.4 (i) and who monitors and is accountable for the training delivery. It is not necessary for the supervising person to be present during all the training delivery.’*

RTOs may be TAFE institutes, private providers, group training companies, industry organisations, schools and enterprises.

Assessment may be conducted only by, or under the auspices of, an RTO. Cooperative arrangements may be established between schools and RTOs for the delivery and assessment of components of a training program. A school not registered as an RTO but intending to deliver training must do so under the auspices of an RTO.

Schools need to be assured that training providers are registered before entering an arrangement. A list of RTOs is available from Department of Education and Training regional offices, OTTE or the National Training and Information Service: www.ntis.gov.au

For further information refer to ‘Registration’, on page 20.

DELIVERY OPTIONS

Schools may consider two options for the delivery of VCE VET programs.

Option 1: School and RTO partnerships

School and RTO partnerships may work in the following ways:

- shared delivery
- delivery on behalf of the school by the RTO
- delivery by the school of the whole program, under the auspices of the RTO.

Schools can negotiate with an RTO to deliver components of the program, where the school can demonstrate access to suitable staffing and resources. The RTO may also auspice the school to gather evidence for assessment or to conduct assessment of the components delivered by the school.

A school in partnership with an RTO is not required to register as a training organisation, because any delivery by the school will be auspicied by the RTO.

A school may arrange for an RTO to deliver and assess the entire program.

Schools are responsible for enrolling their students with the VCAA and for entering student results on the Victorian Assessment Software System (VASS) according to VCAA timelines.

Option 2: Schools as RTOs

Schools may apply to the OTTE through a Training Recognition Consultant to become an RTO for the provision of specified qualifications. A summary of registration requirements and contact details for registration are provided on page 20.

Schools that register to deliver training become responsible for all elements of delivery, assessment and quality assurance, as well as the awarding of Certificates and Statements of Attainment.

A school registered as an RTO is responsible for enrolling its students with the VCAA in the relevant certificate and units of competence and for entering results on VASS when units of competence have been achieved. The school is also responsible for provision of enrolment, results and other data within the training sector.

DELIVERY IN SCHOOLS

Two modes of delivery are possible in the school context:

1. The delivery may be conducted through separate, timetabled classes dedicated to VET training, where there are enough students enrolled in the specific VCE VET program.
2. The school may timetable the delivery of training within the time allocated to one or more VCE studies which provide an appropriate delivery setting for the VET training. Students need not necessarily be enrolled in the VCE studies. This is most suited to provision for a small group of students wishing to undertake a VET certificate. The school must ensure that the VET training requirements are met separately from the VCE outcomes. The assessment tasks and evidence of achievement of units of competence must be separately demonstrated and recorded.

This option may work in two ways:

- The VCE studies may offer an appropriate delivery setting for achievement of the units of competence. Some aspects of both the VCE and VET may be integrated, while others may have to be delivered through separate learning activities.
- Where there is a high degree of comparability between the VET competencies and the VCE unit outcomes, the delivery of the VET training may be integrated with the VCE study. Students must undertake separate assessments in order to meet the VET requirements and VCE outcomes. The gathering of evidence for the achievement of units of competence may occur within the school if the RTO partner is satisfied that the school has the necessary resources and expertise.

It is the responsibility of the RTO to ensure that all units of competence required for a particular VET qualification are achieved to the standard specified by the performance criteria, and are assessed according to the assessment guidelines specified in each unit of competence.

It is possible for providers to deliver the training programs in an appropriately simulated environment, as long as the contexts for assessment as described in the course accreditation document are complied with.

Note: When simulations are used for assessing competence, it is vital that they are set up to reflect real activities and conditions. Simulations must be devised, set up and operated with care, as simulations are a source of performance evidence of how the activity was carried out. The costs of setting up a valid simulation can be considerable, therefore simulations should not be considered as an inexpensive alternative.

Some elements of units of competence may be best delivered and assessed in the workplace. This may be facilitated through structured workplace learning arrangements or projects.

The following table provides advice on the VCE studies that may provide an appropriate context for delivery of some components of the VET training. Information provided is based on current practice. All such arrangements are subject to agreement with the RTO responsible for issuing the certificate. Schools may negotiate with RTOs to deliver other components of the training within VCE resources, if training and quality assurance requirements can be met. The RTO remains responsible for assessment (refer to page 15 under ‘Assessment’).

Unit of competence		Appropriate delivery context
MEM1.2FA	Apply principles of Occupational Health & Safety in work environment	Industry and Enterprise Studies Unit 1–2
VBN768	Develop an individual career plan for the engineering industry	
MEM18.1AB MEM18.2AA	Use hand tools Use power tools/hand-held operations	Systems and Technology Units 1–4 Design and Technology Units 1–4
VBN774	Apply basic computational principles in engineering work activities	Foundation Mathematics General Mathematics
VBN772	Use computers for engineering work related activities	Information Technology Units 1–2 VCE VET Certificate II in Information Technology

DELIVERY IN THE WORKPLACE

Schools and RTOs may arrange for delivery of training and assessment to occur in the workplace.

If a school or RTO wishes particular components of the training to be delivered and outcomes assessed in the workplace, the following industry requirements apply:

- Delivery and assessment strategies and relevant responsibilities should be clearly communicated to all parties (school, RTO, employer and student) to ensure that all roles in the delivery and assessment process are understood.
- There is appropriate workplace supervision and training in relation to the specific units of competence delivered in the workplace.
- The person responsible for the structured workplace learning must have competence at the certificate level being delivered or higher.
- Assessment in the workplace requires a qualified Workplace Assessor with relevant industry experience, or the assessment may be conducted by a Workplace Assessor in cooperation with the workplace supervisor.

ASSESSMENT

Training packages have specific requirements regarding demonstration of competence and appropriate assessment of competence. These requirements are detailed in each unit of competence under the sub-headings Performance Criteria, Range of Variables and Evidence Guide. Teachers should give careful consideration to the details of these sections when planning programs.

Assessment of units of competence is the responsibility of the RTO. A school that is not an RTO may be auspiced by an RTO to conduct the assessments, either in an appropriate simulated environment or in conjunction with the supervisor in the workplace.

For further information, refer to AQTF Standard 7. A copy of the Standards can be downloaded from the AQTF website: www.anta.gov.au/aqtfStandards.asp

In particular, Standard 7.3 addresses the issue of suitably competent staff to conduct assessments:

‘The RTO must ensure that assessments are conducted by a person who has:

- i. the following competencies from the Training Package for Assessment and Workplace Training, or demonstrated equivalent competencies:
 - a BSZ401A Plan Assessment
 - b BSZ402A Conduct Assessment
 - c BSZ403A Review Assessment; and
- ii. relevant vocational competencies, at least to the level being assessed.’

Resources

Program providers require access to the course accreditation document for 21566VIC Certificate II in Engineering Studies and 21565VIC Certificate III in Engineering Studies. All delivery resources and examples should be industry-focused and relevant to current industry practice.

Resources for *MEM18.1AB Use hand tools* and *MEM18.2AA Use power tools/hand-held operations* are available at:
www.resourcegenerator.gov.au

Other resource requirements specific to each unit of competence are listed in the Evidence Guide of the unit of competence. Refer to the course accreditation document.

Some resources developed for modules contained in the superseded Certificate I in Engineering Technology will still be suitable for many of the new units of competence. The following organisations hold resources that may be relevant:

Australian Training Products:
www.atpl.net.au

TAFE Frontiers:
www.tafefrontiers.com.au

Engineering Curriculum Maintenance Manager:
www.bhtafe.edu.au/Industry/cmm.htm

For complete contact details see page 21.

Administration

ENROLMENTS

It is the responsibility of the student's home school to administer the VCE VET program and all aspects of VCE VET enrolment and results on VASS. A student must be enrolled in all units of competence by the home school, regardless of where the training is delivered and competence assessed.

Schools must enrol students in the VCE VET program as follows:

1. Enrol all students undertaking the program in **either** 21566VIC Certificate II in Engineering Studies **or** 21565VIC Certificate III in Engineering Studies.
2. Enrol students in the units of competence they are expecting to achieve in that year. If a student does not achieve a unit of competence and wishes to continue in a following year, the student must be re-enrolled in that year.
3. Ensure that students expecting to satisfactorily complete a Unit 3–4 sequence in that year have been enrolled in the units of competence comprising the Unit 3–4 sequence.

For further information on undertaking a Study Score in 2006, schools are referred to the *Engineering Studies Assessment Guide* to be published by the VCAA.

Schools do not need to enrol students in VCE VET units. Enrolment or withdrawal of a student from a VCE VET unit occurs automatically via enrolment in or withdrawal from the units of competence.

RECORDING RESULTS

Achievement of units of competence

To achieve a unit of competence, a student must be assessed competent for all the elements of that unit. Schools are required to record the student's achievement of all units of competence on VASS.

Results must be entered on VASS in time to meet the VCAA deadlines. Refer to the current VCE and VCAL Administrative Handbook for the due date. It is the responsibility of the home school to ensure that all results from other providers are accurate and received in time to be entered on VASS.

Schools and RTOs must ensure that records are kept of individual student achievement for all units of competence in the program.

VCE VET UNIT COMPLETION

Enrolment in units of competence automatically leads to enrolment in VCE VET units. As units of competence are recorded as completed, completion of VCE VET units is automatic.

REPORTING

VCE VET units are reported on the student's VCE or VCAL Statement of Results, together with other VCE or VCAL units completed. Students will also receive from the VCAA a separate VCE VET Statement of Results listing all units of competence achieved.

The student receives 'S' for each unit of competence achieved. The VET Statement of Results includes only units of competence for which the student has been awarded an 'S'.

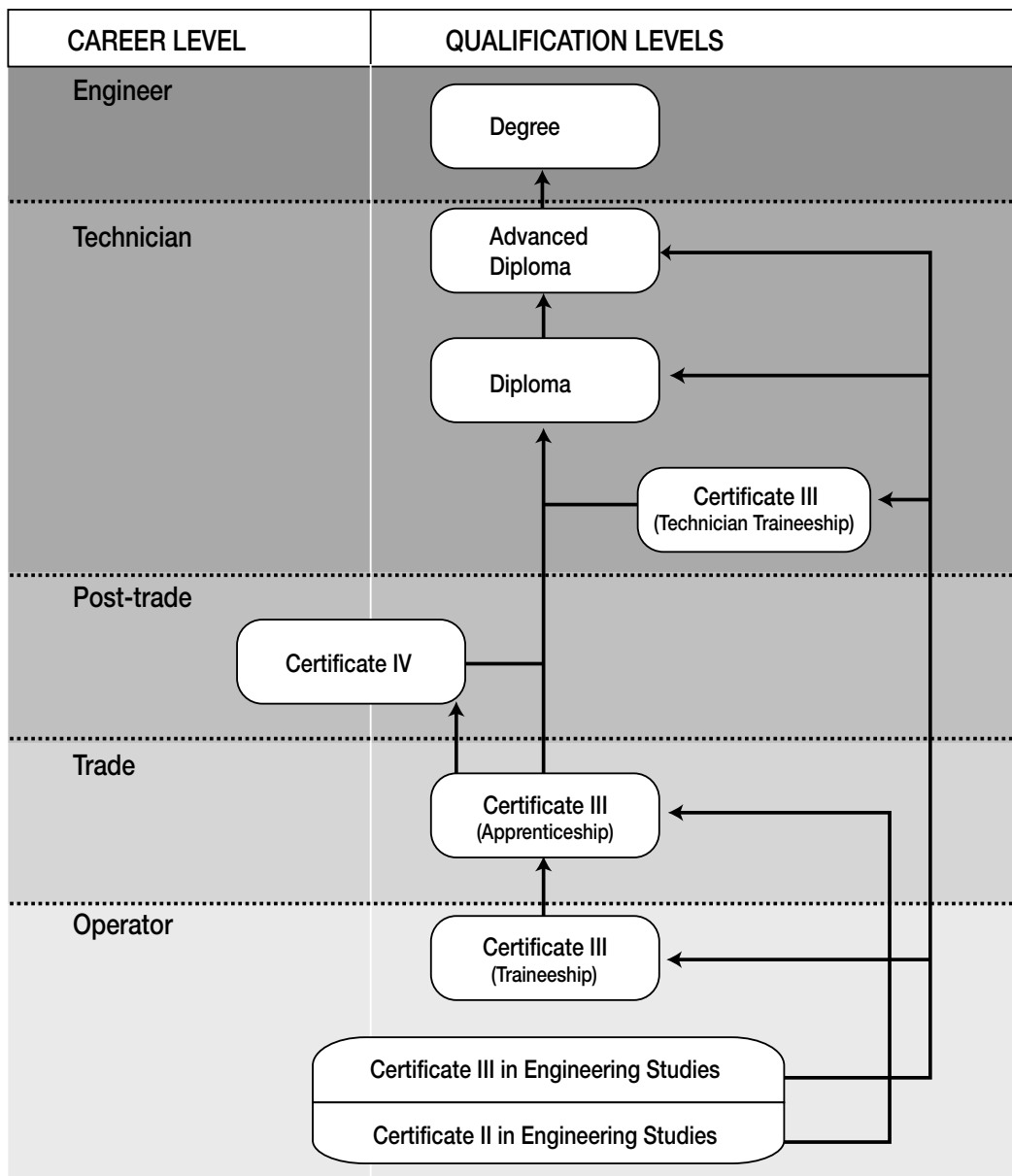
CERTIFICATION

Students who complete all the requirements of a program will be awarded a certificate by the RTO. Partial completion is recorded on a Statement of Attainment issued by the RTO.

Articulation and pathways

The Certificates II and III in Engineering Studies contain units of competence from the *MEM98 Metal and Engineering Training Package*. Students who complete either of these qualifications may articulate into higher qualification levels of the *Metal and Engineering Training Package*.

The Certificate II in Engineering Studies provides pre-employment training for pathways into apprenticeships. The Certificate III in Engineering Studies provides training in technical skills at the technician and para-professional level in disciplines including robotics, design, CNC (Computer Numerical Control) programming and CAD/CAM (Computer Aided Design/Computer Aided Manufacturing).



Registration

Under the AQTF, only RTOs may issue VET qualifications.

In order to comply with these arrangements, a school offering VCE VET programs has two options: to form a partnership with an RTO, or to register through OTTE as an RTO in its own right.

Registration of training organisations in Victoria is the responsibility of the VQA. RTOs are subject to guidelines and procedures promulgated by the VQA, which are administered by OTTE.

If a school elects to become an RTO, OTTE registration requirements must be met. There are two elements to the registration requirements:

- qualification-specific information (teacher qualifications, facilities, equipment)
- infrastructure (including reporting and recording systems, codes of practice, grievance procedures, policies for Recognition of Current Competence/Prior Learning).

The application form for RTO registration and conditions of registration are available from:

VET Provider Registration Branch

Office of Training and Tertiary Education.

Tel: (03) 9637 2762

Fax: (03) 9637 2520

Website: www.otte.vic.gov.au

Useful contacts and information sources

Course accreditation document

Schools intending to offer the VCE VET Engineering Studies program are required to use the course accreditation document for 21566VIC Certificate II in Engineering Studies and 21565VIC Certificate III in Engineering Studies.

The course accreditation document provides the details on certificate completion requirements and each unit of competence and assessment requirements. Schools may obtain the course accreditation document and training and assessment support materials at the following address:

Curriculum Maintenance Manager – Engineering Industries

Mr George Adda
Box Hill Institute of TAFE
465 Elgar Road
BOX HILL VIC 3128
Tel: (03) 9286 9880
Fax: (03) 9286 9800
Email: g.adda@bhtafe.edu.au

Further information may also be available from:

Engineering Skills Training Board

1378A Toorak Rd
TOORAK VIC 3125
Tel: (03) 9889 0966
Fax: (03) 9809 4799
Email: general@estb.com.au
Website: www.estb.com.au

Other sources of implementation advice

The following is a list of contacts for additional information and advice.

Australian Training Products

Level 25, 150 Lonsdale Street
MELBOURNE VIC 3000
Tel: (03) 9655 0600
Fax: (03) 9639 4684
Email: sales@atpl.net.au
Website: www.atpl.net.au

TAFE Frontiers

Level 3 620 Bourke Street
MELBOURNE VIC 3000
Tel: (03) 9670 8123
Fax : (03) 9670 8125
Website: www.tafefrontiers.com.au

VCE VET program structure

Victorian Curriculum and Assessment Authority
Vocational Education – Curriculum Branch
Tel: (03) 9651 4458
Fax: (03) 9651 4324
Email: vet.vcaa@edumail.vic.gov.au
Website: www.vcaa.vic.edu.au/vet

VCAL program structure

Victorian Curriculum and Assessment Authority
VCAL Unit – Curriculum Branch
Tel: (03) 9651 4532
Fax: (03) 9651 4324
Email: vet.vcaa@edumail.vic.gov.au
Website: www.vcaa.vic.edu.au/vet

Student enrolment

Victorian Curriculum and Assessment Authority
VASS Unit
Hotline (metro): (03) 9651 4482
Hotline (country):1800 827 721
Fax: (03) 9651 4324
Email: vass.support@edumail.vic.gov.au

VCE certification/eligibility

Victorian Curriculum and Assessment Authority
Student Records and Results Unit
Hotline (metro): (03) 9651 4402
Hotline (country):1800 653 045
Fax: (03) 9651 4324

VET certification/eligibility

The RTO is responsible for certification.

Program support

Post Compulsory Pathways Branch
Office of Learning and Teaching
Department of Education and Training
Tel: (03) 9637 2314
Fax: (03) 9637 2160
Website: www.sofweb.vic.edu.au

Registration

VET Provider Registration Branch
Office of Training and Tertiary Education
Tel: (03) 9637 2762
Fax: (03) 9637 2520
Website: www.otte.vic.gov.au

Tertiary entrance requirements

Victorian Tertiary Admissions Centre
Tel: 1300 364 133
Website: www.vtac.edu.au

Victorian Curriculum and Assessment Authority publications

The *VCAA Bulletin* (published monthly excluding January) provides administrative information and documents developments in VET in the VCE. Schools should ensure relevant information is circulated to appropriate staff and distributed to RTO partners.

VCE and VCAL Administrative Handbook (for the current year)

Also refer to VASS Help Screens for advice

Glossary

Auspice

A process whereby an RTO authorises delivery and/or assessment to be carried out by industry, individual enterprises or schools.

Australian Quality Training Framework (AQTF)

A set of nationally agreed standards ensuring the quality of vocational education and training services throughout Australia. Includes processes for registering training organisations as a quality assurance mechanism for the training system. The AQTF is the name given to the revised Australian Recognition Framework.

Australian Qualifications Framework (AQF)

The Australian Qualifications Framework is set of descriptors that determine the level of the qualification. The level depends on the depth and complexity of the work and the degree of autonomy involved.

Competency standards

Competency standards are statements which define the skills and knowledge needed for effective work performance at the standard required in the workplace. These standards have been agreed nationally by industry advisory bodies across Australia and are part of the national training packages endorsed by ANTA. The standards define the required training outcomes and outline what must be demonstrated before a candidate may be assessed competent.

Curriculum Maintenance Managers (CMMs)

The role of the CMM is to maintain the stock of Victorian Crown copyright curriculum and to provide advice on training packages. The CMM's function is carried out by staff located within TAFE institutes in Victoria. They are recognised as officers of OTTE.

Industry Skills Councils (formerly Industry Training Advisory Bodies – ITABs)

Industry Skills Councils support the development and implementation of training products, including training packages and provide the VET sector with information on current and future skill needs and training requirements.

National Training Framework

This is the system of vocational education and training that applies nationally. It is comprised of the Australian Quality Training Framework and nationally endorsed training packages.

Office of Training and Tertiary Education (OTTE)

OTTE is responsible for the planning, regulation and delivery of a range of education and training programs and services in Victoria.

Registered Training Organisation (RTO)

A nationally recognised provider of training registered with the relevant State/Territory Training Authority (in Victoria through the VQA).

Training package

A set of documents that sets out the training framework determined by industry for an industry sector. National competency standards, assessment guidelines and national qualifications form the endorsed components of training packages. Assessment materials, learning strategies, and professional development materials may support these as non-endorsed components.

Unit of competence

A distinct work performance specified in terms of what should be done and the standard to which it must be performed, as required in industry. Units of competence are divided into elements, each with performance criteria and a guide to the evidence on which assessment of competence should be based.

Victorian Assessment Software System (VASS)

An Internet-based system used by schools to enter VCE and VCAL enrolments and results directly onto the VCAA central database.

VCE unit

A unit of study within the VCE, normally undertaken over one school semester and contributing towards the satisfactory completion of the VCE.

VCE VET unit

A group of VET units of competence or curriculum based modules deemed to be equivalent to one VCE unit.

Vocational Education and Training (VET)

A generic term, applying both to the training sector generally and to a variety of forms of post-compulsory education and training, which focuses on the development of work-related competencies that provide pathways into employment and further training.

VET in the VCE

A set of vocational certificates approved by the VCAA as appropriate for delivery within a school's VCE program. This is part of the Victorian implementation of a national initiative, VET in Schools, supporting the provision of vocational education and training programs for secondary school students.

Victorian Qualifications Authority (VQA)

The Victorian Qualifications Authority is responsible for all qualifications issued in Victoria, the registration of training providers and accreditation of all post-compulsory courses except higher education courses.