VCE VET Plumbing

Program Booklet

Incorporating

22304VIC Certificate II in Plumbing (Pre-apprenticeship)

October 2018

This program is for implementation from January 2019

VICTORIAN CURRICULUM AND ASSESSMENT AUTHORITY

VICTORIA State Government

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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

The VCE VET Plumbing program is for implementation from January 2019 and must be used in conjunction with the accredited curriculum, 22304VIC Certificate II in Plumbing (Pre-apprenticeship). This is a new VCE VET program and replaces the block credit version of the qualification which has been undertaken by students for a number of years. The VCE VET Plumbing program is a consequence of support from industry and identified skills needs across Victoria.

The VCE VET Plumbing Program Extract must be used in conjunction with the accredited curriculum document and VCAA VET Program Guide. The accredited curriculum document provides details on each unit of competency, the qualification packaging rules and assessment requirements.

The VCE VET Plumbing program provides students with the knowledge and skills for entry into an apprenticeship (Certificate III in Plumbing) in one of the various sectors of the plumbing industry.

Transition arrangements

Arrangements for continuing students

Students who have commenced the 22304VIC Certificate II in Plumbing (Pre-apprenticeship) in 2018 as a Block Credit (VFE) must transition to the VCE VET (VE1) version to continue their studies in 2019.

For VCE students seeking a Unit 3+4 sequence in 2019, units of competency successfully completed in 2018 must be moved across to the VCE VET (VE1) version enrolment.

Students commencing in 2019 and beyond

All students commencing a VCE VET Plumbing Program from January 2019 and beyond must comply with the requirements outlined in this extract.

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Industry Overview

Accredited Course

The plumbing industry in Australia is a highly regulated sector of the building and construction industry. It consists mainly of small business operators and contractors.

The plumbing industry has had a long association with, and has offered considerable support for, pre-apprenticeship training. Whilst it is not the only pathway to employment, stakeholders encourage new entrants to have a range of basic skills that promote safety and an understanding of how the industry works before commencing a full- time apprenticeship.

Previous course reaccreditation processes have attracted significant interest from the major stakeholders including the Master Plumbers Association, Plumbing Trades Employees Union, Air-Conditioning and Mechanical Contractors Association, Victorian Building Authority and directly from employers.

Both the industry and the community value a safe, clean water supply, quality sanitation facilities and dray and comfortable shelter and this is reflected by the fact that plumbing is a highly regulated industry that is also a registered and licensed occupation.

This qualification has a range of units that introduce the learner to basic plumbing skills and knowledge including:

- working safely as part of a team
- measuring and calculating
- using basic industry terminology to communicate effectively
- reading plans and specifications
- selecting and using plumbing tools, equipment and materials
- producing simple technical drawings
- using basic welding equipment
- using plumbing pipes, fittings and fixtures to simulate plumbing installations.

The VCE VET Plumbing Program allows for credit in the VCE and VCAL, and a nationally recognised qualification. This qualification is an endorsed accredited curriculum which can be found at:
http://www.education.vic.gov.au/Documents/training/providers/rto/curr22304VICplumbing.pdf

Qualifications / Packaging Rules

22304VIC Certificate II in Plumbing (Pre-apprenticeship)

To be eligible for the award of this qualification students must successfully complete all nineteen (19) units of competency.

All units are core to provide a consistent outcome for graduates with basic skills that allows for employment across all streams of plumbing.

Where the full course is not completed a Statement of Attainment will be issued for any completed unit.

Students who complete the unit CPCCOHS1001A Work safely in the construction industry may apply to Work Safe Victoria for a Construction Induction Card. Students who visit a construction

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site will require a Construction Induction Card (CIC) issued by Work Safe Victoria. Further information is available at www.worksafe.vic.gov.au.

This course is consistent with the Australian Qualifications Framework (AQF) for a Certificate II level qualification in that graduates will have the following learning attributes.

Outcomes

The outcomes of the 22304VIC Certificate II in Plumbing (Pre-apprenticeship) are consistent with the distinguishing features of the learning outcomes specified in the Australian Qualifications Framework in that they will enable students to:

- perform tasks where the choice between a limited range of options is required (e.g. pipe sizes and lengths)
- demonstrate skills and problem-solving techniques where the range of skills and solutions is clearly defined (e.g. select appropriate basic plumbing tools and equipment for use)
- demonstrate basic operational knowledge in a moderate range of areas particularly trade-specific skills (e.g. use power tools)
- collect, interpret and record information from varied sources (e.g. read and interpret plans and specifications)
- take limited responsibility for his or her own productivity in work and learning (e.g. the ability to complete tasks within a given time frame)
- develop methods and strategies to obtain employment in the plumbing sector.

On completion of the Certificate II in Plumbing (Pre-apprenticeship) participants will have the skills and knowledge to:

- define and relate plumbing industry terminology
- distinguish plumbing industry streams and opportunities
- identify the properties and characteristics of plumbing and building materials
- distinguish, select and use plumbing tools for their appropriate application
- plan, calculate and mark out basic plumbing tasks
- follow work instructions and select safe working procedures.

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VCE VET Plumbing Program Details

Aims

The VCE VET Plumbing Program aims to:

- provide students with a broad-based underpinning competencies in a range of plumbing skills such as using plumbing tools, equipment and materials, using plumbing pipes, fittings and fixtures to simulate plumbing installations and reading plans and specifications, which will prepare them for entry-level employment in the industry through an apprenticeship
- provide students with knowledge of a range of occupations at the plumbing trade level enabling graduates to make informed choices in the selection of vocational career paths
- provide students with knowledge of industry terminology and welding equipment
- provide students with social and interpersonal skills relevant to participation in the plumbing industry by integrating general competencies as part of the course curriculum

Structure

The VCE VET Plumbing program offers a certificate II providing VCE credit at Units 1 to 4, including a Units 3+4 sequence. This certificate is typically completed over two years.

Qualification

22304VIC Certificate II in Plumbing (Pre-apprenticeship)

This program comprises a minimum of 19 units of competency, all of which are compulsory.

The VCAA mandates that the following two units of competency be undertaken during the first year of the program.

- CPCCOHS1001A Work safely in the construction industry
- CPCPCM2039A Carry out interactive workplace communication

VCE VET Credit

On successful completion of the qualification, students will be eligible for:

- 22304VIC Certificate II in Plumbing (Pre-apprenticeship)
- VCE VET Units 1 and 2 and a 3-4 sequence
- Up to five (5) Units of credit - VCE VET Units 1,2,3,4
- VCE VET Plumbing program does not offer scored assessment however students who receive a Units 3 and 4 sequence may be eligible for an increment towards their ATAR

Nominal Hour Duration

Nominal hours are determined by the Victorian State Training Authority (Department of Education and Training), they reflect the anticipated time taken to deliver and assess the outcomes of a unit of competency excluding unsupervised delivery or the time taken for repeated practical application of skills.

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

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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 Plumbing program and other VCE studies.

Credit for a unit of competency will only be counted once towards the VCE or VCAL.

Sequence

Advice for determining the sequence of the scored VCE VET Plumbing Program:

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.

Schools are advised that this program is not designed as a one year study. 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 volume of learning for this qualification has been designed to be undertaken over a minimum of two years and incorporates a range of learning activities such as:

- structured activities to develop the technical skills of the course and the theoretical knowledge that underpins performance
- unstructured activities to reinforce and practice skills and collect and consider information about different employment areas and work opportunities.

It is recommended that the potential students have basic communication, literacy and numeracy skills that are sufficiently well developed for them to participate in the training.

The nature of work undertaken in the plumbing industry is hands-on and practical. Assessment strategies should therefore reflect this.

It is recommended that the assessment strategy for the Certificate II in Plumbing (Pre-apprenticeship) qualification includes:

- oral or written questioning related to underpinning knowledge
- the practical demonstration of activities which combine a number of learning outcomes to provide depth and context to the pre-apprenticeship training
- holistic assessment that reflects realistic job tasks.

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VCE VET Plumbing Program Structure

22304VIC Certificate II in Plumbing (Pre-apprenticeship)

Code	Unit title	Nominal hours
Units 1 - 4		
Compulsory		
VCAA Mandates the completion of these two UoCs in Year 1 of the program.		
CPCCOHS1001A	Work safely in the construction industry	6
CPCPCM2039A	Carry out interactive workplace communication	10
Delivery of UoCs flexible over two years		
CPCCOHS2001A	Apply OHS requirements, policies and procedures in the construction industry	20
CPCCCM1015A	Carry out measurements and calculations	20
CPCCCM2001A	Read and interpret plans and specifications	36
BSBWRT301	Write simple documents	30
CUVACD303A	Produce technical drawings	50
HLTAID002	Provide basic emergency life support	8
VU21789*	Apply basic sheet metal practices	50
VU21790*	Cut and penetrate building materials and structures	30
VU21791*	Fabricate simple plumbing pipe systems	30
VU21792	Identify career pathways in the plumbing industry	30
VU21793*	Perform basic oxy-acetylene welding and cutting	20
VU21794	Prepare to work in the plumbing industry	20
VU21795	Use and apply basic levelling equipment for plumbing	8
VU21796*	Use basic electric welding equipment and techniques	20
VU21797*	Use basic plumbing hand tools	50
VU21798*	Use basic power tools	20
VU21799*	Use plumbing pipes, fittings and fixtures to simulate plumbing installations	30
	Total:	**488**

Key:
* Pre-requisite CPCCOHS1001A Work safely in the construction industry

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Delivery modes

It is recommended that the units in this course be delivered in a simulated sequence that relates to applied specific industry sector work tasks.

Adequate supervision must be provided whenever learners are using tools and/or equipment, working near dangerous machinery or substances or in potentially hazardous environments, particularly as the learners may have little or no experience in work conditions and practices. Each unit of competency details the range of personal protective clothing and equipment that must be worn where the work situation warrants it to achieve the learning outcomes.

It is recommended that units *CPCCOHS1001A Work safely in the construction industry* and *CPCPCM2039A Carry out interactive workplace communication* are delivered at the commencement of the course to ensure safety and clear communication is followed throughout the course delivery.

The Certificate II in Plumbing (Pre-apprenticeship) may be delivered using a combination of delivery modes including:

- face-to-face, classroom-based delivery
- practical demonstration
- blended or flexible (e-learning) delivery
- delivery in a simulated workplace.

The units have been developed to support a variety of applications within the context of the suggested range of variables. This may involve the use of practical industry-based activities and/or projects to develop skills and knowledge. Therefore the delivery strategy is suited for the units to be delivered as stand-alone units or combined as a delivery strategy.

It is recommended that the practical exercises take the form of realistic and holistic projects to provide the participants with a simulated real work experience under supervision.

Resources

Delivery of the Certificate II in Plumbing (Pre-apprenticeship) requires:

- basic plumbing tools
- classroom facilities
- workshop facilities including welding
- a simulated workplace environment
- basic materials to complete practical plumbing projects
- a computer or mobile device with internet access
- relevant plumbing documentation and legislation.

Refer to the individual units for specific tools and equipment required for assessment.

Personal protective equipment (PPE) is identified in each of the specific units. The use of these OHS resources and the safe use of tools and equipment are implicit in every unit within the pre-apprenticeship and must be incorporated with the introduction of any new task or activity.

ATAR Contribution

Students who receive a Units 3 and 4 sequence for VCE VET Plumbing may be eligible for an increment towards their ATAR. Increments for unscored VCE VET programs are calculated using 10% of the lowest study score of the primary four.

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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.

Students must complete *CPCCOHS1001AWork safely in the construction industry prior* to visiting, commencing training or assessment in the workplace. This will meet the requirements for being issued the construction induction card (CI Card). This card is issued by Worksafe Victoria and must be obtained prior to commencing work on a building site either as an employee or as a work placement student. Where SWL opportunities are limited, schools are advised to organise industry visits. A range of industry settings may provide a useful and appropriate context for industry familiarisation.

Structured Workplace Learning (SWL) provides students with the opportunity to integrate practical on-the-job experience and learnings in industry with nationally recognised VET undertaken as part of either the VCE or the VCAL. It provides the context for:

- enhanced skill development
- practical application of industry knowledge
- assessment of units of competency, and
- enhanced employment opportunities.

The VCAA strongly recommends a minimum of **80 hours** over the duration of the VCE VET Plumbing Program. Further information on SWL arrangements is available on the Victorian Department of Education and Training (DET) website:

www.education.vic.gov.au/school/teachers/teachingresources/careers/work/Pages/structuredlearning.aspx

SWL Recognition

Structured Workplace Learning Recognition (SWLR) for VCE and VCAL students is a systematic and formal approach to workplace learning. SWLR provides the formal framework and processes to enable students to integrate their on-the-job experience and learning in a workplace, with nationally recognised VET undertaken as part of either the VCE or the VCAL.

SWLR involves the development and maintenance of the workplace learning record (WLR) by the student and accessed at school. The completion of the WLR is a requirement for recognition by the VCAA for VCE and VCAL credit.

The VCE VET Civil Infrastructure program offers SWL Recognition. Further details are available here:

http://www.vcaa.vic.edu.au/Pages/vet/publications/swlr/recognition.aspx

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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.

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 instruction 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 provides useful resources available:

https://www.worksafe.vic.gov.au/documents

LEGAL CONSIDERATIONS FOR LEARNERS IN THE WORKPLACE/ON PLACEMENTS

Assessment of competency will be in accordance with the relevant industry sector and State/Territory legislation applying in each State and Territory. This will include:

- Duty of care requirements;
- Work Health and Safety Acts and Regulations;
- Environmental Protection Acts and Regulations;
- Heritage Protection Acts and Regulations; and
- Petroleum Acts and Regulations.

In certain circumstances other legislation/regulations will also be relevant including:

- Mining Acts and Regulations;
- Submerged Lands Acts and Regulations;
- Dangerous Goods Regulations; and
- Water Drilling Licensing requirements.

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Additional Information

For updates or information relating to this program refer to:

VCAA website – VET page:

http://www.vcaa.vic.edu.au/Pages/vet/index.aspx

VCAA website - Bulletin page:

http://www.vcaa.vic.edu.au/Pages/correspondence/index.aspx

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Employability skills

Employability skills are generic skills that describe non-technical skills and competencies that contribute to an individual's effective and successful participation in the workplace.

Training packages seek to ensure that industry-endorsed employability skills are explicitly embedded in each unit of competency. The application of each skill and the level of detail included in each part of the unit will vary according to industry requirements and the nature of the unit of competency.

The eight employability skills are:

- communication that contributes to productive and harmonious relations across employees and customers
- teamwork that contributes to productive working relationships and outcomes
- problem solving that contributes to productive outcomes
- initiative and enterprise that contribute to innovative outcomes
- planning and organisation that contribute to long and short-term strategic planning
- self-management that contributes to employee satisfaction and growth
- learning that contributes to ongoing improvement and expansion in employee and company operations and outcomes
- Technology that contributes to the effective carrying out of tasks.

The following table contains a summary of the employability skills for the *Certificate II in Plumbing (Pre-apprenticeship)*. This table should be interpreted in conjunction with the detailed requirements of each unit of competency packaged in this course. The outcomes described here are broad industry requirements and will vary according to electives undertaken.

This table is a summary of employability skills that are typical of the outcomes of this course and should not be interpreted as definitive.

Employability Skills	Industry/enterprise requirements for this qualification include the following:
Initiative and enterprise	• Adapt to new situations • Identify opportunities for future employment in the plumbing industry • Translate ideas into action within limits of responsibility
Communication	• Listen to and understand workplace instructions and information • Complete written reports and other relevant documentation • Enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand • Use language and concepts appropriate to cultural differences • Use appropriate terminology associated with plumbing tasks • Report faults • Communicate information about problems with work • Read and interpret work instructions, plans, specifications and signs • Use numeracy effectively to calculate material requirements • Share workplace information

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Employability Skills	Industry/enterprise requirements for this qualification include the following:
Teamwork	• Work as a team member to cooperatively share tools, equipment and workspace • Work as a member of a team to contribute to the planning and execution of work tasks • Define role as part of a team • Apply teamwork skills to a range of situations • Identify strengths of team members
Technology	• Use appropriate tools, machines and equipment safely and effectively • Use communication technology appropriate to the workplace • Commission equipment to enable use • Clean and service tools
Problem solving	• Identify and report any workplace hazards • Use tools in appropriate sequence • Secure materials in an appropriate manner • Identify distortions and faults • Adjust work method in response to changing situation • Show independence and initiative in identifying problems and solving them within limits of responsibility • Apply knowledge of materials, product purpose and processes to operations • Monitor workplace activities and identify and report faults or problems • Apply problem solving strategies
Self management	• Evaluate and monitor own performance to ensure good work standard and completion of work on time • Use and apply PPE equipment • Identify resources to seek employment • Understand the standard of work expected at a work site • Take some responsibility for planning and organising own work to complete assigned tasks • Have knowledge and confidence in own abilities • Follow OHS practices during the production and manufacturing of products
Planning and organising	• Manage time and priorities to complete work • Manage materials in a sustainable manner • Store tools, materials and equipment when not in use • Take initiative and make decisions within limits of responsibility • Establish goals and deliverables • Identify and obtain appropriate equipment • Participate in continuous improvement and planning
Learning	• Be willing to learn new ways of working • Apply the principles of sustainability • Understand Australian Standards and plumbing regulations • Identify different streams and sectors in the plumbing industry • Determine range of roles in the plumbing industry • Seek information to improve performance from people and workplace documents such as policies and procedures • Understand tools and equipment characteristics, technical capabilities, limitations and procedures • Ask questions to expand own knowledge

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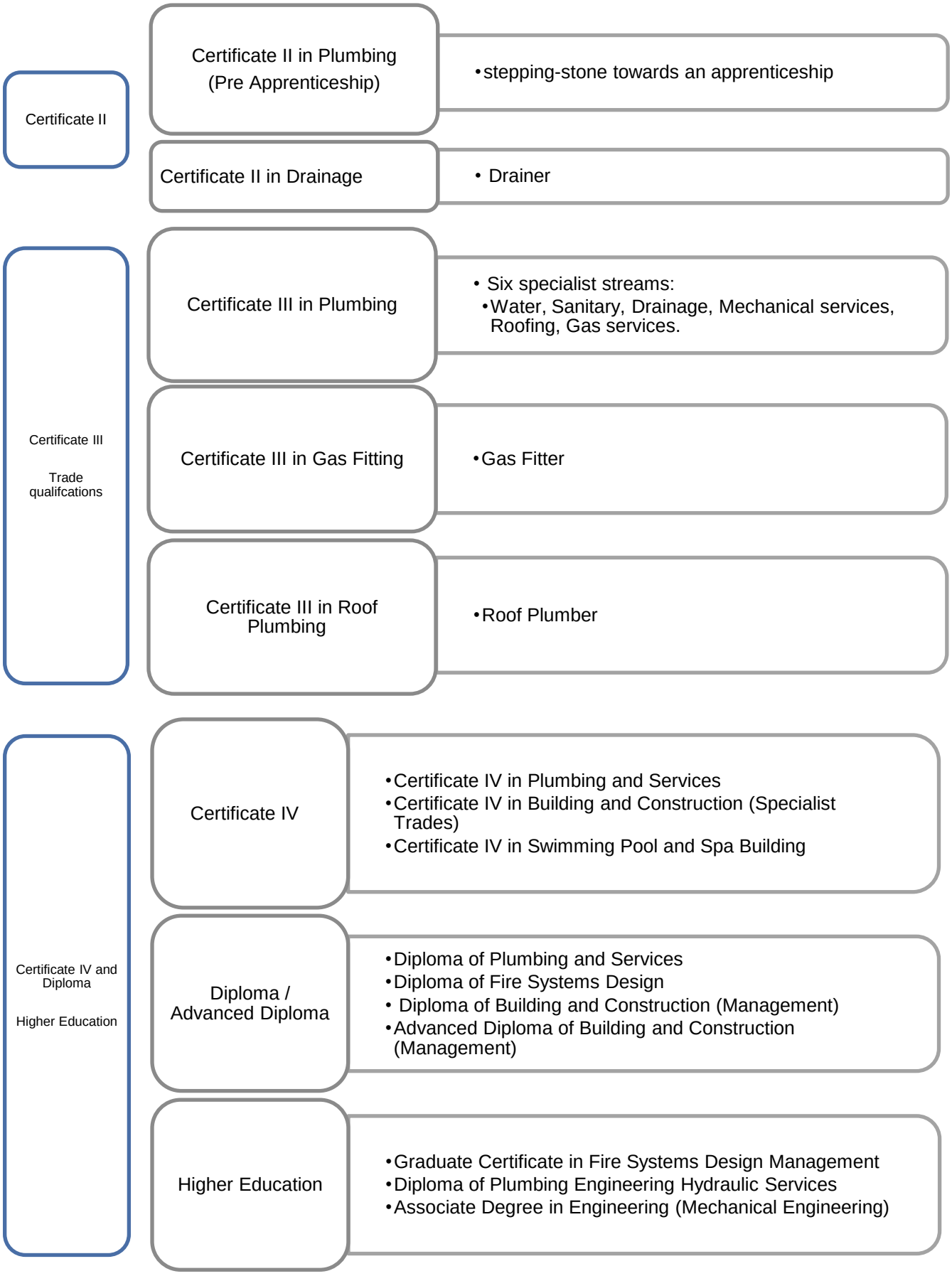
Pathways

The VCE VET Plumbing program opens up many different training and employment pathways. The VCAA recommends study at the lower levels to develop industry foundation skills before moving to higher level qualifications.



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Appendix – Sample Program

Sample 1: 22304VIC Certificate II in Plumbing (Pre-apprenticeship)

This sample program may provide:

- two VCE units at Units 1 and 2 level
- a Units 3 and 4 sequence and an additional Unit 1
- completion over two years of 22304VIC Certificate II in Plumbing (Pre-apprenticeship)

Code	Unit title	Nominal hours
YEAR 1		
CPCCOHS1001A	Work safely in the construction industry	6
CPCPCM2039A	Carry out interactive workplace communication	10
CPCCCM2001A	Read and interpret plans and specifications	36
CPCCCM1015A	Carry out measurements and calculations	20
HLTAID002	Provide basic emergency life support	8
VU21789*	Apply basic sheet metal practices	50
VU21797*	Use basic plumbing hand tools	50
VU21798*	Use basic power tools	20
BSBWRT301	Write simple documents	30
VU21794	Prepare to work in the plumbing industry	20
	Year 1 Nominal Hours	**250**
YEAR 2		
CPCCOHS2001A	Apply OHS requirements, policies and procedures in the construction industry	20
CUVACD303A	Produce technical drawings	50
VU21790*	Cut and penetrate building materials and structures	30
VU21791*	Fabricate simple plumbing pipe systems	30
VU21792	Identify career pathways in the plumbing industry	30
VU21793*	Perform basic oxy-acetylene welding and cutting	20
VU21795	Use and apply basic levelling equipment for plumbing	8
VU21796*	Use basic electric welding equipment and techniques	20
VU21799*	Use plumbing pipes, fittings and fixtures to simulate plumbing installations	30
	Year 2 Nominal Hours	**238**

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