



ENGINEERS
AUSTRALIA

Accreditation Management System

Accreditation Standard – VET Competency Programs

AMS-STD-20

Version 1.0

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Accreditation Standard – VET Competency Programs

1. Introduction

1.1 Purpose

The purpose of this document is to provide a statement of the Engineers Australia Accreditation Standard, expressed as a set of Accreditation Criteria, for Vocational Education and Training (VET) programs delivered in a competency-based framework, typically utilised in the Australian VET sector.

Programs are evaluated against the Accreditation Standard when a program is submitted for evaluation. The Standard is intended for use by Registered Training Organisations (RTOs) (VET providers) to enable them to prepare a case for accreditation, for use by accreditation panels that evaluate the submission, and for the general information of all stakeholders.

1.2 Scope

Accreditation standards are provided for all categories of the engineering team, comprising:

- Professional Engineer,
- Engineering Technologist, and
- Engineering Associate.

The accreditation standard for programs delivered in an academic curriculum-based format, typical of those delivered in the Australian Higher Education sector, is not within the scope of this document.

This Accreditation Standard is provided for the category of Engineering Associate and is specifically for AQF6 programs delivered in a competency-based format, typically utilized in the Australian VET sector.

1.3 Application of the Standard

This Accreditation Standard for VET competency programs, notwithstanding suggested forms of evidence for each Accreditation Criteria, does not provide detailed guidance on its application.

When applying this Standard, the document must be used in close conjunction with the following accompanying Manuals:

- AMS-MAN-20 Criteria Manual – VET Competency Programs,
- AMS-MAN-21 Procedures Manual – VET Competency Programs.

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1.4 Definitions and Acronyms

1.4.1 Definitions

Accreditation Criteria

The set of factors that are considered by an Evaluation Panel when evaluating the quality of a VET competency-based program. The Accreditation Criteria incorporate the Engineers Australia Stage 1 Competency Standard, that is, statements of assessable attributes to be displayed by graduates that indicate that the purpose of the program has been achieved (Reference [1])

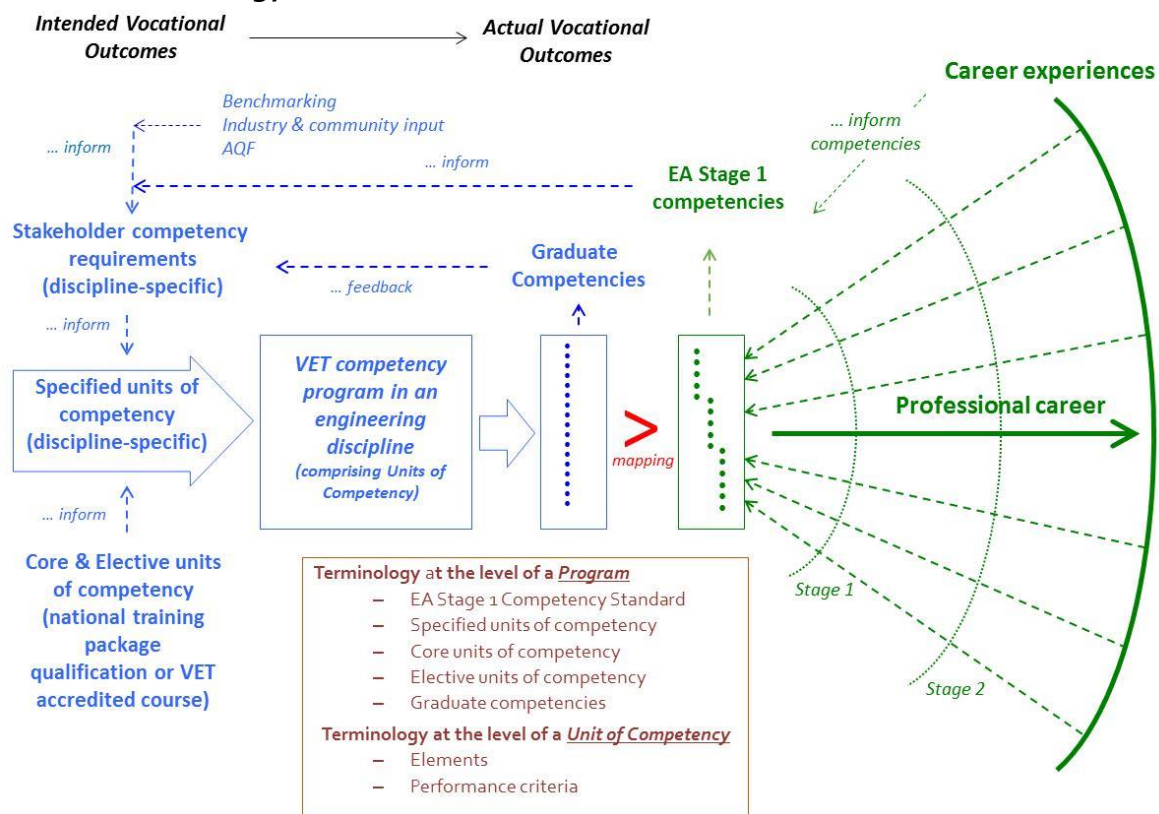
Accreditation Standard

The Accreditation Standard, comprising the Accreditation Criteria, is the threshold measure that a VET competency-based program must achieve to be accorded accreditation by Engineers Australia; each Accreditation Criterion must be individually achieved for the Standard to be met

Learner

A person being trained and/or assessed by an RTO for the purpose of issuing AQF certification documentation

Outcomes Terminology



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Outcomes Definitions

Engineers Australia Stage 1 Competencies - graduate outcomes expressed as a Standard and in the form of generic competencies required of a graduate of a curriculum-based engineering education program or competency-based VET engineering program and specified for entry to practice in the appropriate occupational category – Professional Engineer, Engineering Technologist or Engineering Associate

Competency - the consistent application of knowledge and skill to the standard of performance required in the workplace. It embodies the ability to transfer and apply skills and knowledge to new situations and environments

Competency Program - a program of competency development, delivered within the Australian VET sector and based on either a national training package qualification endorsed by the Australian Industry and Skills Committee (AISC) in accordance with the Standards for Training Packages, or alternatively a national or state VET accredited course accredited by either ASQA, the Victorian or the Western Australia VET regulators in accordance with the Standards for VET Accredited Courses

Unit of Competency - defined as the specification of the standards of performance required in the workplace, as defined in a nationally endorsed training package qualification or a VET accredited course

Core Unit of Competency - a unit of competency defined in a national training package qualification or VET accredited course, and which an industry sector has deemed to be an essential outcome, if a learner is to be accepted as competent at a particular AQF level. All units may be core, but in many cases competency at a particular level will involve core units *plus* optional, *elective* or specialisation-specific units of competency. Core competencies are normally common to the work of an industry sector or occupation category

Element of Competency - any of the basic building blocks of a unit of competency that describe the key activities that must be performed to demonstrate competence in the tasks covered by the unit

Graduate Competencies - the units of competency that have been assessed and actually attained by a graduate upon successful completion of a VET competency program, based upon a nationally endorsed training package qualification or a VET accredited course

Specified Units of Competency - the units of competency selected as targeted competency outcomes for a VET competency program from the options provided within a nationally endorsed training package qualification or a VET accredited course

Stakeholder Competency Requirements - competencies identified as necessary vocational outcomes by industry advisers and other appropriate external stakeholders, and which inform the RTO in the final selection of the Specified Units of Competency

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Actual Vocational Outcomes - are defined as the overarching occupational or job specific outcomes which learners actually achieve and demonstrate upon the completion of a VET competency program based on a nationally endorsed training package or VET accredited course

Intended Vocational Outcomes - defined as the overarching occupational or job-specific outcomes that are targeted by the RTO, under the guidance of stakeholder groups, at the start of the competency development process

Performance Criteria - the part of a unit of competency that specifies the required level of performance to be demonstrated by learners to be deemed competent

1.4.2 Acronyms

AISC	Australian Industry and Skills Committee
AQF	Australian Qualifications Framework
ASQA	Australian Skills Quality Authority
AVETMISS	Australian VET Management Information Statistical Standard
CE	Operational Environment (Competency)
CP	Competency Program
CQ	Quality Systems (Competency)
DET	Department of Education and Training
EA	Engineers Australia or Engineering Associate
ET	Engineering Technologist
IEA	International Engineering Alliance
NCVER	National Centre for Vocational Education Research
PE	Professional Engineer
RCC	Recognition of Current Competency
RPL	Recognition of Prior Learning
RTO	Registered Training Organisation
VET	Vocational Education and Training

1.5 References

- [1] International Engineering Alliance Graduate Attributes and Competency Standards, Version 3.0, 21 June 2013
- [2] International Engineering Alliance and European Network for Engineering Education. Best Practice in Accreditation of Engineering Programs: an Exemplar, 13 April 2015 (joint document)
- [3] Engineers Australia Stage 1 Competency Standard – Engineering Associate
- [4] AMS-MAN-20 Accreditation Criteria Manual – VET Competency Programs
- [5] AMS-MAN-21 Accreditation Procedures Manual – VET Competency Programs

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2. Accreditation Criteria – VET Competency Program

2.1 Criteria and Suggested Evidence of Attainment for the Competency Program (CP)

Criteria	Suggested Evidence of Attainment
<p>CP1 Development of the vocational specification for a competency-based VET program</p> <p>Purpose: To establish an unambiguous specification for the VET program design, clearly aligned with and driven by the EA Stage 1 Competency Standard for Engineering Associates</p>	<ul style="list-style-type: none"> a. An entry to practice AQF6 program that is designed to meet and align with the Engineers Australia Stage 1 Competency Standard for Engineering Associates in a clearly identified engineering discipline, and with a matching and appropriate program title b. Explicit and comprehensive competency program specification consistent with the guidelines for a nationally endorsed training package AQF qualification, or a VET accredited AQF course, and which encompasses: <ul style="list-style-type: none"> i. A sound rationale for the selection and packaging of specified units of competency, based on analysis of industry, enterprise and community needs, trends in engineering professional practice, use of benchmark indicators, graduate and key stakeholder feedback ii. Explicit mapping to demonstrate alignment of the specified units of competency with the generic competency elements of the Engineers Australia Stage 1 Competency Standard for Engineering Associate, (and therefore the IEA/Dublin Accord expectations), and with specific details of the technical knowledge and engineering application skills that are uniquely targeted for the designated engineering specialisation iii. Alignment between the specified units of competency and the intended vocational outcomes of the program c. Ongoing evaluation of engineering practices, industry needs and demand, to maintain the relevance of the specified units of competency
<p>CP2 Approach to program learning and assessment design</p> <p>Purpose: To explain the approach and processes employed to achieve the design of the learning and assessment program</p> <p>Should be read in conjunction with CP4 and CP5</p>	<ul style="list-style-type: none"> a. Systematic and formalised top down/bottom up processes in place for identifying, reviewing and verifying the selection and packaging of the specified units of competency, commensurate with the designated field of engineering practice and specialist focus b. Systematic use of a diverse range of individual and collaborative learning approaches to support structured, discovery and investigatory learning within the designated field of engineering practice c. Mapped alignment of learning strategies and assessment tasks with the individual elements of competency and associated performance criteria, validating the development and attainment of the specified units of competency, and thus the intended vocational outcomes of the program d. Competency program which provides progressive emphasis on independent self-directed learning, reflective practices, critical review, peer review and self-assessment e. Inclusion of reflective, self-assessment processes, referenced to the designated elements of competency and associated performance criteria, and which enable learners to track progressive development of their graduate competencies, ultimately matching the specified units of competency and thus the intended vocational outcomes for the program f. Systematic program review processes in place, inclusive of all teaching staff, and with ongoing input from learners, industry advisers and other key external stakeholders, that: <ul style="list-style-type: none"> i. Is holistic and outcomes driven

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Criteria	Suggested Evidence of Attainment
	<ul style="list-style-type: none"> ii. Addresses the full range of the programs' specified units of competency and thus the intended vocational outcomes iii. Tracks benchmarked practices, industry needs and learner demand iv. Is specific to each program
<p>CP3 Program structure and implementation framework Purpose: To articulate the learning and assessment concepts and program structure resulting from the application of a nationally endorsed training package AQF qualification or a VET accredited AQF course</p>	<ul style="list-style-type: none"> a. Program structure compatible with delivery of the specified units of competency and consistent with the guidelines for a nationally endorsed training package AQF qualification or a VET accredited AQF course b. Alternative learning and assessment pathways that appropriately embrace core and elective unit choices, prerequisites and/or co-requisites, access and equity, RPL/RCC arrangements, on campus, off campus, credit transfer and designated articulation routes providing equivalent vocational outcomes for the program. c. Adequate processes in place for analysing and monitoring the learning and assessment outcomes from alternative delivery pathways d. Flexibility of program structure allowing learners with advanced standing to progress; and program implementation accommodating the diversity of learner backgrounds and individual learning styles and abilities (covered in CE4 g.) e. An approach to program learning and assessment design which recognises that engineering practice is global in nature, often with multi-national engineering teams engaged in systems, processes, projects and products that have global application
<p>CP4 Engagement with professional practice Purpose: To describe how professional competencies are developed throughout the entire program</p>	<p>CP4 and CP5 should be considered together</p> <ul style="list-style-type: none"> a. Engagement with professional practice (other than formal work placement), used as an integrated learning activity embedded as part of the development of specified units of competency and contributing in a clearly defined manner to the achievement of the intended vocational outcomes of the program b. Formal work placements, where implemented, are documented with intended learning strategies mapped to the elements of the specified units of competency for the program c. For learners not concurrently employed in an appropriate engineering field of practice, exposure to engineering practice equivalent to at least (6) weeks of full-time, continuous engineering experience in an industrial workplace d. Appropriate systems for recording, tracking and assessing the learning strategies associated with exposure to industry practices (such as e-portfolios, learner reflective journal). e. Experience with the working of engineering teams
<p>CP5 Program learning strategies (includes learning materials, and content, pedagogy and assessment) Purpose: To verify that the program specification is achieved in the detail design</p>	<p>CP5 and CP4 should be considered together</p> <ul style="list-style-type: none"> a. Systematic alignment and aggregation of the elements and performance criteria from each unit of competency, consistent with delivery of the intended vocational outcomes of the program b. Clearly mapped linkages between the elements, underpinning knowledge, performance criteria, learning strategies and assessment tasks within each of the specified units of competency c. Appropriate use of clustering of selected units of competency to facilitate problem-based and/or project-based learning d. Evidence that the Engineers Australia content guidelines (AMS-MAN-20) informs the program learning strategies and delivery

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2.2 Criteria and Suggested Evidence of Attainment for the Operational Environment (CE)

Criteria	Suggested Evidence of Attainment
<p>CE1 Organisational structure and commitment to engineering vocational education and training</p> <p>Purpose: To show how the RTO is aligned to deliver the program</p>	<ul style="list-style-type: none"> a. Substantive, organisational entity with clearly specified and devolved accountability for leadership and management of engineering VET programs b. Long term, RTO commitment and strategic management to assure the development of the engineering discipline and the provision of appropriate resources c. Formally constituted governance and committee structures with clearly defined policies, procedures, processes and mechanisms for program selection, approval, review and improvement
<p>CE2 Teaching and support staff profile</p> <p>Purpose: To demonstrate how the staff profile and supporting practices enable delivery of the program</p>	<ul style="list-style-type: none"> a. Adequate program teaching staff numbers, with: <ul style="list-style-type: none"> i. Appropriate depth, mix and distribution of qualifications, experience and engineering practice exposure, scholarship and professional standing to match the range of specialist program offerings ii. Gender balance across the teaching appointment levels iii. Appropriate learner/staff ratios b. Effective use of sessional and industry presenters to enrich staff skills profile and the exposure of learners to engineering practice c. Effective teaching workload policies and practices d. Effective learner support structures, systems and staffing e. Appropriate technical and administrative support staff f. Adequate learner counselling and advisory services
<p>CE3 Teaching leadership and learning culture</p> <p>Purpose: To demonstrate the key leadership features that drive program delivery</p>	<ul style="list-style-type: none"> a. Effective program teaching team, with motivated team leadership, driving the learning and assessment design, implementation and improvement processes b. Cohesive program teaching team inclusive of all teaching and relevant support staff. c. Dynamic, cooperative learning community, inclusive of gender, culture, social differences; and engaged with: <ul style="list-style-type: none"> i. Progressive pedagogical frameworks and adoption of best practice in engineering vocational education and training ii. Cooperative industry and community outreach initiatives iii. Encouraging diversity and the development of individual staff as learning facilitators d. Staff role modelling Engineers Australia’s Stage 1 competencies e. Appropriate policy and record of staff development – in both pedagogical and professional practice skills f. Staff awareness of gender and cross-cultural issues, inclusive of a cohesive teaching team approach

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Criteria	Suggested Evidence of Attainment
<p>CE4 Funding, facilities and physical resources</p> <p>Purpose: To ensure that resources appropriate for the delivery and assessment of a para-professional engineering VET program are available throughout the accreditation period</p>	<ul style="list-style-type: none"> a. Sound business planning for current commitments and future developments b. Appropriate principles for distributing funding to support the competency program c. Ongoing viability - capacity to deliver current commitments and projected developments d. Appropriate experimental and project-based learning facilities to support both structured and investigatory learning within the designated engineering discipline. e. Adequate IT facilities and support f. Access to simulation, visualisation, analysis, design, documentation, planning, communication and management tools as well as test and measurement equipment and information resources appropriate to current industry practice g. Learning support facilities appropriate to the development and achievement of the intended vocational outcomes of the program and matching the needs of individual learners, including those with a disability
<p>CE5 Learner administration and strategic management of the learner profile</p> <p>Purpose: To ensure the learner learning baseline is managed and verifiable at the individual and cohort levels</p>	<ul style="list-style-type: none"> a. Appropriate policies and robust systems for: <ul style="list-style-type: none"> i. Learner records data management ii. Defining and maintaining learner admission standards iii. Analysis, assessment and verification of prior learning and prior experience for awarding advanced standing; individual learner progress monitoring, performance warning and exclusion iv. Determining qualification eligibility, commensurate with the attainment of the specified units of competency v. Learner advice vi. Monitoring success, retention and graduation rates vii. Monitoring enrolment trends and program viability

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2.3 Criteria and Suggested Evidence of Attainment for Quality Systems (CQ)

Criteria	Suggested Evidence of Attainment
<p>CQ1 Engagement with external stakeholders Purpose: To ensure input from downstream stakeholders drives continuous quality improvement of the program</p>	<ul style="list-style-type: none"> a. Ongoing, regular input to the establishment, review and attainment monitoring of the specified units of competency from a formal advisory body that typically includes representation from alumni, learners, industry, the community and professional organisations as well as the engineering profession b. External stakeholders facilitating appropriate professional practice exposure opportunities for learners c. Productive industry linkages arising from collaborative project activities and contributing to the professional development of staff and learners d. Provision of graduate, alumni, employer, industry, program advisory body and community input mechanisms
<p>CQ2 Engagement with learners Purpose: To ensure learner feedback informs the continuous quality improvement of the program</p>	<ul style="list-style-type: none"> a. Use of staff-learner consultation forums, focus groups and other direct input mechanisms for on-going review, evaluation and continuous program improvement b. Appropriate use of survey instruments and other methods for obtaining systematic learner feedback c. Learners seen as true partners in a culture of continuous quality improvement
<p>CQ3 Continuous quality improvement of the VET competency program Purpose: To embed continuous quality improvement as a normal program improvement activity</p>	<ul style="list-style-type: none"> a. Continuous improvement processes involving all teaching and support staff, learners and external stakeholders b. Holistic approach driven by a clear understanding of the 'big-picture' at an individual program level c. Documented records and dissemination of improvement actions and processes to facilitate continuous quality improvement a. Closing the loop within the units of competency via elements, performance criteria, performance evidence, knowledge evidence and assessment conditions b. Closing the loop on delivery of the specified units of competency, matching the actual vocational outcomes with the intended vocational outcomes c. Documented processes for: <ul style="list-style-type: none"> i. New program approval - including demand analysis, establishing rationale, selection of the specified units of competency, learning and assessment design ii. Program amendment d. Compliance with the mandatory requirements of the national VET Quality Framework or the state VET regulatory authority equivalent must be demonstrated
<p>CQ4 Dissemination of the program learning and assessment expectations to learners and stakeholders Purpose: To provide the professional context of</p>	<ul style="list-style-type: none"> a. Providing an adequate overview of the intended vocational outcomes of the program and the justified selection of the specified units of competency b. Program guideline documents, including learning, delivery and assessment plans, which clearly reflect the program learning and assessment strategies and which map the aggregation of learning strategies and assessment tasks to assure the development and attainment of the specified units of competency c. Adequate documentation for each of the specified units of competency, demonstrating the mapped linkages between the elements, performance criteria,

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Criteria	Suggested Evidence of Attainment
the program to learners	<p>underpinning knowledge, learning activities and assessment tasks</p> <p>d. Adequate identification of the learning and assessment resources needed to support the delivery and assessment of the program</p>
<p>CQ5 Benchmarking Purpose: To facilitate strategic ongoing continuous quality improvements to the program.</p>	<p>a. Regular implementation of appropriate processes for ensuring that the intended vocational outcomes and specified units of competency for the program are aligned with:</p> <ul style="list-style-type: none"> i. the expectations of learners, key employers and other external stakeholders ii. current national and international learning theory and assessment practices iii. comparable program implementations in other RTOs, both locally and nationally iv. the application of appropriate ASQA, AVETMISS, DET, NCVER and other relevant VET performance data to help drive continuous quality improvements to the program

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Context of this Document in the AMS

This document, AMS-STD-20 Accreditation Standard – VET Competency Programs, is located within the hierarchy of the Accreditation Management System as depicted in the table below.

PRINCIPLES	<i>Statement of accreditation principles (policy)</i>	
	AMS-POL-01	Accreditation Principles
STANDARDS	<i>Standards against which compliance is evaluated</i>	
	EA Stage 1	Competency Standards (at Engineers Australia website)
	AMS-STD-10	Accreditation Standard – Higher Education
<i>This document</i>	AMS-STD-20	Accreditation Standard – VET Competency Programs
MANUALS	<i>Instructions for accreditation</i>	
	AMS-MAN-10	Criteria Manual – Higher Education
	AMS-MAN-11	Procedures Manual – Higher Education
	AMS-MAN-20	Criteria Manual – VET Competency Programs
	AMS-MAN-21	Procedures Manual – VET Competency Programs
HANDBOOK	<i>Contextual information on professional practice</i>	
	AMS-HBK-01	Engineering Handbook (not yet available)
TEMPLATES	<i>Documents with specified format and structure</i>	
	AMS-TPL-xx	Accreditation Submission (Self-Study Report)
	AMS-TPL-xx	Table of Programs Offered for Accreditation
	AMS-TPL-xx	Admissions and Enrolments
	AMS-TPL-xx	Engineering School Academic Staff Profile
	AMS-TPL-xx	Pro forma for Staff CV
PRACTICE NOTES	<i>Information about, and examples of, good accreditation practice</i>	
	Code of Ethics	Engineers Australia Code of Ethics (at EA website)
	PPIR	Professional Performance, Innovation and Risk (Warren Centre)
	Various	To be developed

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Revision History of this Document

Document source: AMSi-TPL-03 Generic Document Template			
Date	Version	Description	Author
21 February 2018	1.0	Initial release	Chair, Accreditation Board