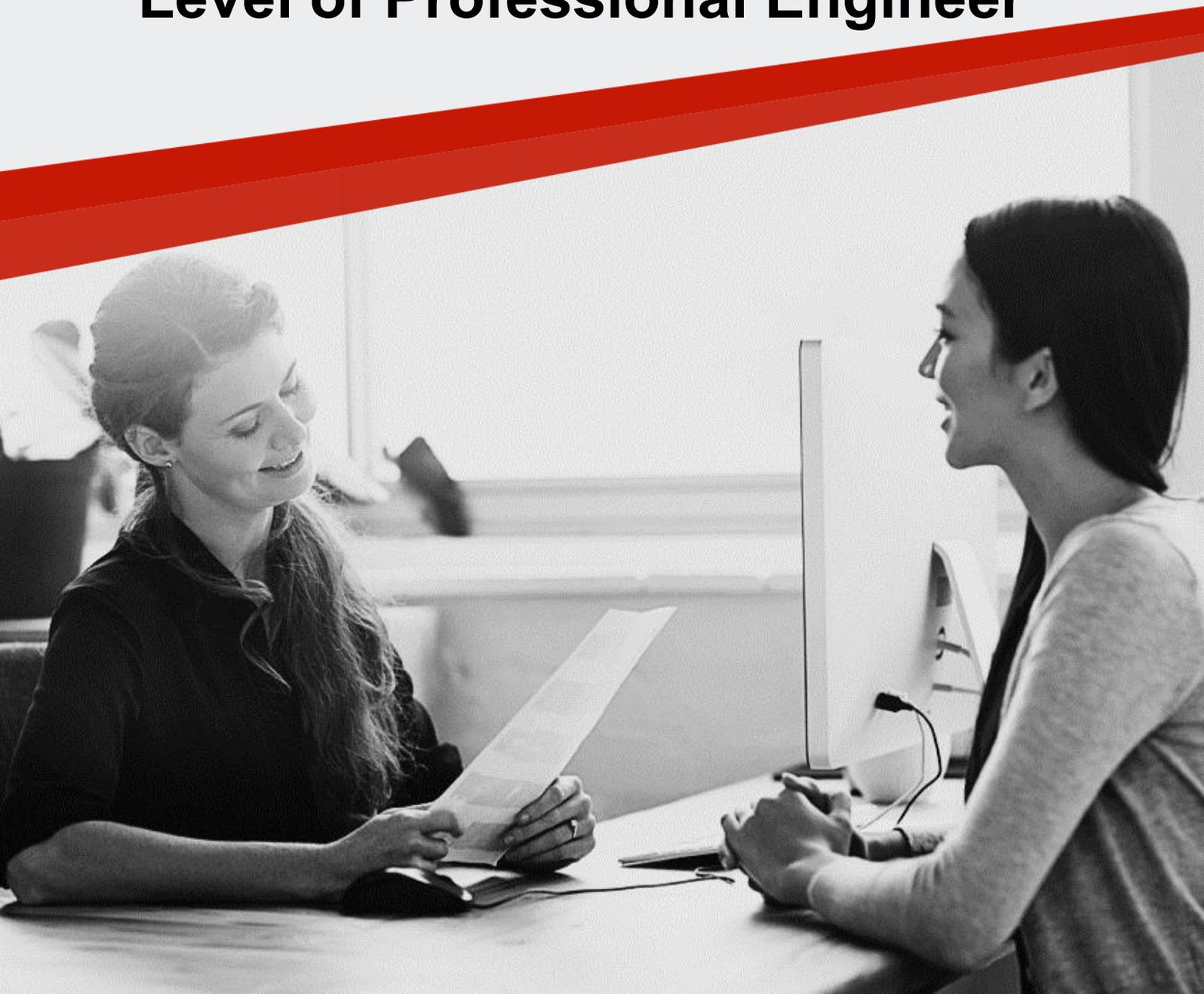




ENGINEERS
AUSTRALIA

Guideline for Accreditation of Entry-to-Practice Masters Level Engineering Programs at the Level of Professional Engineer



1. Function and Scope of Accreditation

Engineers Australia is the national authority responsible for accreditation of engineering education programs offered by Australian universities, educational institutions and training organisations. The prime function of accreditation is to ensure that a program of engineering education, in a holistic sense, will deliver graduates equipped with the competencies defined in the appropriate Stage 1 Competency Standard, the educational base necessary for initial entry to engineering practice at the relevant occupational level. The Competency Standards are defined for the occupational categories of Professional Engineer, Engineering Technologist and Engineering Associate.

Accreditation criteria covering the operating and delivery environment, the educational design of the program and the underpinning quality systems are defined separately for programs in each of the occupational categories. These criteria have been developed with the objective of ensuring that the academic standards of accredited programs are substantially equivalent to the expectations and graduate outcome statements set down by the separate Washington, Sydney and Dublin educational Accords for each occupation category, under the International Engineering Alliance (IEA).

The accreditation system encourages innovation in engineering education, and expects an outcomes-based approach to educational design, based on delivery of the Stage 1 competencies. The accreditation system does not therefore prescribe program structure or content, other than to provide a guideline on balance of emphasis and minimum study periods for programs in each category.

Programs that are accredited for delivery of a Professional Engineer outcome require 4 or more years of full time study from an Australian year 12 or equivalent entry. This aligns with the guideline statement that programs accredited at the level of the Washington Accord typically have 4 to 5 years of post school study. This range of study duration embraces both the traditional 4-year Bachelor of Engineering model, as well as the emerging 3+2 year (typically) model.

For the Engineering Technologist, the educational base is 3 or more years of full time study leading to a Bachelor of Technology, Bachelor of Engineering Technology, Bachelor of Engineering Science or equivalent. This aligns with Sydney Accord requirements.

The Board is conscious that accreditation occurs within the Australian educational context that also includes the requirements of the Australian Qualifications Framework (AQF). The Board operates on the basis that compliance with AQF is the responsibility of the university, while engineering accreditation is focused on the Stage 1 Competency Standards. To ensure that there is no misalignment between the two, the accreditation process includes a requirement for assurance from the Chair of the relevant University Academic Senate/Board/Council that the program submitted for accreditation is designed to and has been certified as meeting the claimed AQF Level outcomes.

2. Evolution of the Master of Engineering

Engineering education at the masters level in Australia has developed significantly over the past three decades. The masters by coursework, as distinct from the research based masters, has manifested in a wide variety of formats and under a wide range of degree titles. The range of offerings has covered a vast range of specialist fields of engineering practice as well as broad professional domains.

The objectives set out for these offerings also vary considerably. Traditionally, the coursework masters programs have focussed on professional development for qualified, practising engineering professionals moving toward Stage 2 Competency and Chartered status and so have not been within the scope of the accreditation system operated by Engineers Australia at this time. These programs typically focussed on building high level, specialist technical and/or research capability, or appropriate professional skills and knowledge in areas such as management, leadership and business enterprise.

The past decade, in particular, has seen the emergence of masters level programs designed for entry to practice for candidates whose educational backgrounds include:

- a) a professional qualification such as a bachelor degree (3 or 4 years) in a non engineering domain;
- b) a 4-year Bachelor of Engineering qualification (or equivalent) in the same field of practice that is not recognised under the Washington Accord system;
- c) a 3-year technologist level qualification in a congruent field of practice (*articulation*);
- d) a 4-year Bachelor of Engineering qualification (or equivalent) in a different field of practice;
- e) a 3-year bachelor degree qualification constituting the first cycle of a 3+2 sequence.

Given the diverse educational backgrounds of enrolled students, a wide variety of masters level programs with varying study durations and delivery modes have emerged.

3. Accreditation of Master Level Entry-to-Practice Engineering Programs

Engineers Australia strongly encourages all educational institutions to seek accreditation of this class of engineering masters program. Accreditation confirms the integrity of educational outcomes such that graduates are fit to enter practice as professional engineers and enjoy the recognition, mobility and professional development benefits that an accredited qualification ensures.

The following guideline statements have been prepared to clarify the expectations of the Accreditation Board for entry-to-practice style engineering masters programs.

4. Guideline Statements

1. The objective for Engineers Australia is to assess the program against the published accreditation criteria and to determine, with confidence, that the Stage 1 Competencies will be delivered, in a holistic sense, to all graduates.
2. The accreditation process is based on the assumption that compliance with AQF is the responsibility of the university, while engineering accreditation is focused on the Stage 1 Competency Standards. To ensure that there is no misalignment between the two, the accreditation process includes a requirement for assurance from the Chair of the relevant University Academic Senate/Board/Council that the program submitted for accreditation is designed to and has been certified as meeting AQF Level 9 outcomes.
3. For a candidate entering with a non-engineering bachelor degree, but satisfying entry requirements for mathematics and general sciences, the minimum study duration for an entry-to-practice style masters program aimed at the Professional Engineer outcome should be nominally 3-years (full time study).
4. Any required preparatory studies to build foundation skills and knowledge for candidates entering with a non-engineering bachelor degree must be structured and formalised as a component of the overall (nominally 3-years full time) study program and submitted as an integrated package. A 2-year full time structured masters program preceded by ad-hoc preparation studies prescribed on a case by case basis for such candidates would not be acceptable for accreditation.
5. For candidates entering an entry-to-practice style masters with an engineering foundation qualification, it may be acceptable for advanced standing credits to be granted for part, if not all of this 1-year preparation period. For example, candidates with a recognised Engineering Technologist qualification, or with a recognised or non-recognised Bachelor of Engineering, or those with a first cycle 3-year engineering qualification under the 3+2 style model may well be entirely exempted from the preparation year and simply undertake a 2-year (full time) sequence of study to obtain the masters outcome.
6. For masters level programs that restrict intakes to particular categories of bachelor graduates (such as those from a specific program within their own institution), the preparation program may be reduced or eliminated within the program specification.
7. In special circumstances where there is a rigid coupling specified between an undergraduate engineering foundation program and the follow-on masters program, perhaps also with prior professional practice experience requirements, there may well be a case for reducing the masters study period to less than 2-years (full time), but this would need to be considered on a case by case basis.



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