

ENGINEERS AUSTRALIA

ACCREDITATION BOARD

ACCREDITATION MANAGEMENT SYSTEM

EDUCATION PROGRAMS AT THE LEVEL OF PROFESSIONAL ENGINEER

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Australia National Competency Standards



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1. NATIONAL GENERIC COMPETENCY STANDARDS AND LINKS WITH PROGRAM ACCREDITATION

Engineers Australia publishes and maintains the **National Generic Competency Standards** for Professional Engineers, Engineering Technologists and Engineering Officers and has a system for assessing the competencies of applicants against the standards. The standards are available in full at www.engineersaustralia.org.au. The standards recognise two stages of competency:

Stage 1 is the level of competency needed for entry to practice as a qualified member of the engineering team, corresponding to completion of an accredited or recognised educational qualification. Graduates of accredited professional engineering programs and accredited engineering technologist programs are deemed to have attained the competencies of a Stage 1 Professional Engineer or Engineering Technologist as appropriate without further assessment.

Stage 2 is the level of competency expected of an experienced engineering practitioner, and is the requirement for Chartered membership of Engineers Australia as well as professional registration. Attainment of Stage 2 competencies requires a period of experiential formation under appropriate professional guidance. A Chartered Professional Engineer, Chartered Engineering Technologist or Chartered Engineering Associate is competent to practise independently; to the highest standards; committed to maintaining professional currency and is accountable for quality, safety and ethical behaviour within the boundaries of the appropriate career category. Competency assessment is performed by an assessment panel and involves a self-assessment, the writing of a practice report, a professional interview and a commitment to continuing professional development. The published Stage 2 Competency Standards provide a comprehensive definition of Stage 2 practice competencies, and require that Stage 1 enabling competencies have already been demonstrated. The successful attainment of Stage 1 competencies allows the period of guided professional formation, and thus the development of the practice competencies, to begin. The most common means of attaining the Stage 1 competencies is by graduating from an accredited engineering education program, at the appropriate level, however this is not a mandatory route. Engineers Australia accredits academic programs appropriate to the career categories of Professional Engineer, Engineering Technologist and Engineering Officer.

The National Generic Competency Standards – Stage 1 Competency Standard for Professional Engineers (Reference 1) provides a basis for assessing persons who do not hold accredited or recognised engineering qualifications at the professional engineer level level, and who are seeking membership of Engineers Australia. Examples include:

- candidates holding Australian engineering qualifications that have not been accredited or approved by Engineers Australia;
- candidates holding engineering qualifications from overseas countries with which Engineers Australia does not have formal accreditation or mutual recognition agreements;
- candidates holding qualifications in fields related to engineering, not recognised by Engineers Australia, who have substantial experience in engineering work.

Stage 1 competency at the level of Professional Engineer requires the demonstration of:

- enabling skills and knowledge appropriate to the designated field of practice;
- knowledge and application skills in the major technical domains comprising the field of practice;
- in-depth knowledge and skills in at least one specialist area of application;
- the ability to apply techniques, tools and resources appropriate to the field of practice;
- the ability to undertake complex problem solving, engineering design and to conduct engineering projects;
- an understanding of broad contextual issues and responsibilities including the need to employ principles of sustainable development;
- an understanding of the business environment;
- personal and professional attributes including communication skills, the management of information, a capacity for creation and innovation, commitment to professional and ethical responsibilities, leadership and team skills, capacity for lifelong learning and appropriate professional attitudes.

Stage 1 competency is in fact a combination of knowledge and skills as well as engineering application ability and professional attributes.

The specification of objectives and targeted graduate capabilities for an engineering education program in a particular discipline should, in a generic sense, be built upon and reflect these Stage 1 competencies. Developing graduate outcomes satisfying the Stage 1 competency definition will ensure that graduates are satisfactorily equipped with the knowledge, skills and attributes essential for entry to practice in the specified field of practice. The accreditation criteria and associated performance indicators defined in Reference 3 have been devised as a means of assessing the potential for a particular engineering education program, delivered within an appropriate educational setting, to deliver graduates equipped with the Stage 1 competencies defined in Reference 1.

2. REFERENCES

- 1 P05 Engineers Australia National Generic Competency Standards - Stage 1 Competency Standard for Professional Engineers.
- 2 P02 Engineers Australia Policy on Accreditation of Professional Engineering Programs.
- 3 S02 Accreditation Criteria Summary.