

Engineers Australia Stage One Competencies

Engineers Australia

Engineers Australia, the professional body for engineers in Australia, defines the competencies for graduating engineers – the Stage 1 Competency Standard (Engineers Australia 2017):



1. Knowledge and Skill Base

- 1.1. Comprehensive, theory-based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline.
- 1.2. Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline.
- 1.3. In-depth understanding of specialist bodies of knowledge within the engineering discipline.
- 1.4. Discernment of knowledge development and research directions within the engineering discipline.
- 1.5. Knowledge of contextual factors impacting the engineering discipline.
- 1.6. Understanding of the scope, principles, norms, accountabilities and bounds of contemporary engineering practice in the specific discipline.

2. Engineering Application Ability

- 2.1. Application of established engineering methods to complex engineering solving.
- 2.2. Fluent application of engineering techniques, tools and resources.
- 2.3. Application of systematic engineering synthesis and design processes.
- 2.4. Application of systematic approaches to the conduct and management of engineering projects.

3. Professional and Personal Attributes

- 3.1. Ethical conduct and professional accountability
- 3.2. Effective oral and written communication in professional and lay domains.
- 3.3. Creative, innovative and pro-active demeanour.
- 3.4. Professional use and management of information.
- 3.5. Orderly management of self, and professional conduct.
- 3.6. Effective team membership and team leadership.

For a detailed discussion of these attributes, you should see (Engineers Australia 2017). All Australian university engineering programs are re-accredited by Engineers Australia (EA) every 5 years against these requirements.

Your sequence of project courses, combined with more specialised technical courses, is designed to help you to develop these graduate capabilities during your time at university.

We are **not** expecting you to have them developed already. We **are** expecting that you will **engage enthusiastically** in the process of developing these knowledge and skills through all your subjects. This is, hopefully, why you have come to university – to learn engineering.

Student Membership of Engineers Australia

Membership of EA is **free** to students.

Australian Computer Society

Details here in the [ACS Accreditation Manual](#).

IEEE and IET

Electrical engineering students should also see the IEEE (<http://www.ieee.org>) and IET (<http://www.iet.org>).

Institution of Chemical Engineers, UK (IChemE)

Chemical Engineering programs are usually also accredited by the Institution of Chemical Engineers, UK.

You should visit <http://www.icheme.org> to find out about student membership.

International Engineering Alliance

Australia is a signatory to the *Washington Accord*, which provides cross-recognition of accreditation processes between developed nations. This means that your engineering degree will be recognised in the US, UK, Canada, NZ, Singapore, and several others, which makes it easier for you to gain international experience after you graduate.

See <http://www.ieagrements.org> for more information.