5 Domains for Threshold Learning Outcomes

[Developed from stakeholder consultations (industry, academe, students) and draft standards of Engineers Australia and the Australian Computer Society.]

Outcome	Rationale	Elements (Finer detail of Outcomes)
Needs, Context and Systems	Recognizing, understanding and interpreting the socio-technical, economic and sustainability needs and the context of engineering and ICT challenges are vital aspects in the development of graduates. This capability of recognizing and contextualizing issues is also accompanied by the application of systems thinking which enables graduates to appreciate the individual components, interactions and functionality of a system within its environment.	• **Identify, interpret and analyse** stakeholder *needs* and *establish priorities* within those needs. • **Identify, interpret and analyse** the *goals* of designed systems as well as the *interactions* within and between these designed systems and their contexts (social, cultural, environmental, business etc.), recognising inherent *uncertainties* – systems thinking. • **Identify, interpret and analyse** ethical *implications and accountabilities* of professional practice.
Problem Solving and Design	Engineering and ICT practice focuses on problem solving and design, whereby artefacts are conceived, created, modified, maintained and retired. Graduates must have capabilities to apply theory and norms of practice to efficient, effective and sustainable problem solution.	• **Apply** *problem solving, design and decision making methodologies* to develop components, systems and/or processes to meet specified requirements. • **Apply** *creative approaches* to identify and develop alternative solutions, concepts and procedures. • **Locate, evaluate, use and organise** *information* for both individual and group use. • **Practical skills** in operating equipment and devices in the laboratory and the field

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Abstraction and Modelling	Decision making within engineering and ICT is informed by abstraction, modelling, simulation and visualization, underpinned by mathematics, basic and engineering sciences. Graduates must be able to model the structure and behaviour of real or virtual systems, components and processes.	• **Apply** *abstraction, mathematics and discipline fundamentals* to analysis, design and operation, using appropriate *computer software*, whilst ensuring the model's *applicability, accuracy and limitations*. • **Conduct** investigations of complex problems using *research methods*
Coordination and Communication	Engineering and ICT practice involves the co-ordination of a range of disciplinary and interdisciplinary activities and the exercise of effective communication to arrive at problem and design solutions.	• **Apply** basic tools and practices of formal *project management* to the planning and execution of a complex project. • **Function** as an *effective member* or *leader* of diverse teams, including those with *multi-disciplinary* and *multi-cultural* dimensions. • **Communicate** proficiently in listening, speaking, reading and writing English for professional practice.
Self	Engineering and ICT graduates must have capabilities for self-review, personal development and lifelong learning.	• **Review** personal *performance* and *capabilities* as a primary means of *planning* and *managing professional development – lifelong learning*. • **Manage** time and processes effectively: *prioritise competing demands* to achieve *personal* and *team goals and objectives.*

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