

# Bachelor of Science (Electrical Engineering)

Mapping of Program Learning Outcomes with Graduate Attributes and Engineers Australia Stage-1 Competencies for Engineering Technologists

EA Stage 1 Competencies - Engineering Technologist	Program Learning Outcomes	BSc Graduate Attributes
<b>Knowledge and Skill Base</b>		
<b>EA 1.1</b> Systematic, theory-based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the technology domain.	<b>1.</b> Graduates of this program will be able to apply concepts, theories and techniques of the relevant natural and physical sciences and the engineering fundamentals applicable to electrical engineering. (EA 1.1)	<b>GA 1.1</b> Demonstrate competence in mathematics, natural sciences and engineering fundamentals.
<b>EA 1.2</b> Conceptual understanding of mathematics, numerical analysis, statistics, and computer and information sciences which underpin the technology domain.	<b>2.</b> Graduates of this program will be able to integrate a conceptual understanding of mathematics, numerical analysis, and computer and information sciences with a breadth of knowledge, skills, and in-depth understanding of the electrical engineering discipline. (EA 1.2, 1.3)	<b>GA 1.4</b> Use numerical analysis, statistics, computer and information technology to develop solutions.
<b>EA 1.3</b> In-depth understanding of specialist bodies of knowledge within the technology domain.		<b>GA 1.2</b> Possess specialized engineering knowledge appropriate to the discipline.
<b>EA 1.4</b> Discernment of knowledge development within the technology domain.	<b>3.</b> Graduates of this program will exhibit expertise and professional judgment in engineering design practice which acknowledges contextual factors impacting the engineering technology domain (EA 1.4, 1.5)	<b>GA 4.2</b> Independent self-directed learner in work and study who keeps up with advancements in their domain and professional practice.
EA 1.5 Knowledge of engineering design practice and contextual factors impacting the technology domain.		<b>GA 4.3</b> Recognise the impact of engineering within the broader public interest.
<b>EA 1.6</b> Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the technology domain.	<b>4.</b> Graduates of this program will be able to adapt theoretical knowledge applicable to the discipline and propose innovative and sustainable engineering practices. (EA 1.4, 1.6)	<b>GA 2.2</b> Apply reflective practice to social, economic, global, cultural and environmental factors to devise sustainable engineering solution

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### Engineering Application Ability

<b>EA 2.1</b> Application of established engineering methods to broadly-defined problem solving within the technology domain.	<b>5.</b> Graduates of this program will be able to apply advanced technical knowledge and appropriate tools alongside established engineering methods to solve complex engineering problems. (EA 2.1, 2.2)	<b>GA 2.1</b> Effective problem solvers, who apply creativity and critical thinking to problem solving.
<b>EA 2.2</b> Application of engineering techniques, tools and resources within the technology domain.		<b>GA 1.3</b> Use discipline-specific techniques, resources and engineering tools.
<b>EA 2.3</b> Application of systematic synthesis and design processes within the technology domain.	<b>6.</b> Graduates will be able to apply engineering design and project management tools and methodologies underpinned by technical knowledge to systematically design and synthesize assigned project activities in a team environment. (EA 2.3, 2.4)	<b>GA 3.3</b> Use systemic engineering synthesis and design processes.
<b>EA 2.4</b> Application of systematic approaches to the conduct and management of projects within the technology domain.		<b>GA 3.1</b> Identify, define, devise and execute a plan to conduct and manage projects in the technology domain.

### Professional and Personal Attributes

<b>EA 3.1</b> Ethical conduct and professional accountability.	<b>7.</b> Graduates of this program will apply professional ethics and accountabilities in their engineering practice and will commit to ongoing professional development and lifelong learning (EA 3.1)	<b>GA 4.4</b> Act ethically and demonstrate professionalism, individual accountability and social responsibility.
<b>EA 3.2</b> Effective oral and written communication in professional and lay domains.	<b>8.</b> Graduates will be able to critically evaluate both sources and the validity of information; manage information effectively through clear verbal and written communication to accomplish a set of common goals and objectives in a multi-disciplinary engineering team. (EA 3.2, 3.4, 3.6)	<b>GA 5.1</b> Identify and credibly communicate engineering and general knowledge.
<b>EA 3.4</b> Professional use and management of information.		<b>GA 5.2</b> Demonstrate professional use and management of information
<b>EA 3.3</b> Creative, innovative and proactive demeanour.	<b>9.</b> Graduates will be able to draw from established engineering concepts, methods and industry standards to develop creative, innovative solutions to complex engineering problems by completing a capstone project in electrical engineering. (EA 3.3)	<b>GA 3.2</b> Proactive, creative and innovative in defining engineering problems within a wider global context.
<b>EA 3.5</b> Orderly management of self and professional conduct.	<b>10.</b> Graduates will demonstrate pro-active demeanour, self-management, professional conduct exposure and leadership befitting Professional Engineering Technologists, individually and in teams, via professional and industry practice. (EA 3.3, 3.5, 3.6)	<b>GA 4.1</b> Resilient, flexible and self-aware individual who can develop a strategy to identify and address gaps in knowledge.
<b>EA 3.6</b> Effective team membership and team leadership		<b>GA 5.3</b> Develop effective team membership and leadership and work collaboratively in a positive manner to achieve common goals.