

Background paper for the AQF Council on generic skills

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The author is solely responsible for the content of this paper.

Contents

Introduction	3
Background research overview	5
Recommendations based on the research	10
Background research details	12
<i>Generic skills in Australian education and training</i>	12
Schools	12
VET sector	16
Australian Core Skills Framework (ACSF)	17
Higher education sector	18
<i>Generic skills in the international context</i>	21
OECD: Assessment of Higher Education Learning Outcomes project (AHELO)	21
OECD: Definition and Selection of Competencies framework (DeSeCo)	22
21st-century skills (ACTS project)	23
<i>Generic skills in three other countries</i>	26
Scotland	26
New Zealand	27
Ireland	28
References	29
Attachment 1: Graduate attributes in Australian universities	33

Introduction

The issue

During development of the strengthened Australian Qualifications Framework (AQF) consideration was given to a range of 'generic' learning outcomes that are not specific to a particular qualification type or education program. Among the examples given were problem-solving and interpersonal skills. They were referred to as 'generic skills, the key transferable skills a graduate may achieve through learning that may have application in study, work and life contexts'.

It was agreed during the consultation process that generic skills were important outcomes to be acquired through an education process, but views differed on how they should be included in the new AQF taxonomy: as a separate dimension of learning outcomes or embedded in the other three dimensions.

In the end it was decided to embed generic skills in the taxonomy of learning outcomes, with its three interrelated dimensions of knowledge, skills and application (of knowledge and skills), since generic skills are best taught and learnt in the context of particular qualifications.

In this embedded approach, however, only those generic skills pertinent to distinguishing between levels in the AQF are specified, such as the degree of personal autonomy and accountability that would be expected in a particular context. These specified skills are only a subset of a wider set of generic skills. A fuller range of generic skills should result from every education experience.

The brief

The brief from the AQF Council requested research to identify and describe different conceptualisations of generic skills across the education landscape in Australia and in three other countries. Information on three prominent international frameworks was also sought. Consideration was also to be given to identifying a term for use in referring to these skills in AQF documents.

This report

This report presents the background research. It includes an overview section and a recommendations section, which is followed by a detailed account of the understandings of generic skills across Australia's education and training system and internationally and the level of attention they are receiving.

Background research overview

The research undertaken

Examples of conceptualisations of generic skills identified in this research have been identified in:

- each of the three education sectors of Australia
- three international frameworks (the OECD AHELO project; the OECD DeSeCo framework; and the 21st-century skills framework of a consortium based at the University of Melbourne¹)
- the education and training sectors in Scotland, Ireland and New Zealand.

Each researched conceptualisation of generic skills is described in terms of its:

- origin
- rationale
- definitions
- the 'learning outcomes/skills' included
- the teaching, learning assessment and reporting processes in place
- links to other conceptualisations

The National Centre for Vocational Education and Research's publication, *Defining generic skills: At a glance* (NCVER 2003), was also consulted.

A synthesis of the research, in which all key issues relating to generic skills are comprehensively covered, follows.

Key findings

Origins

Conceptions of generic skills have been central to education for many years and have been reflected in education goal statements. They have been inherent to good educational practice.

Rationale for their increased prominence

It is only relatively recently that generic skills have received explicit attention in all forms of education and on an international scale. This greater prominence is in response to economic, social and technological change and high demand for these skills by industry.

New demands are being placed on education. The world is changing in ways that require education to ensure that students achieve a range of generic learning outcomes as well as discipline-specific learning outcomes. For example:

¹ The Organisation for Economic Co-operation and Development's Assessment of Higher Education Learning Outcomes; DeSeCo = **D**efinition and **S**election of **C**ompetencies; the consortium comprises the University of Melbourne and technology companies Microsoft, Cisco and Intel.

- Globalisation and increased competition are intensifying the need for workers able to: engage with the organisation's goals; share information; work in teams; make appropriate decisions; and be enterprising – all with the ultimate goal of improving productivity.
- The shift to advanced knowledge economies has meant that the requirements for the information and knowledge management and communication skills integral to information and communication technology are changing.
- The complexity of economic, social and technical issues is heightening the need for critical thinking and problem-solving skills.
- The pace of change is intensifying the need for greater individual adaptive capacity and lifelong learning.
- Globalisation and international mobility are highlighting the need to nurture appreciation and respect for social, cultural and religious diversity.

Definitions

Terminology becomes an issue when discussing generic skills. Generic skills are referred to by a variety of different terms.

The different terms in current use include:

- key competencies and general capabilities in Australian schools
- employability skills and associated attributes in the Australian vocational education and training (VET) sector
- graduate attributes or capabilities in the Australian higher education sector
- several other terms in other countries and international frameworks, including core skills, essential skills, generic skills, transferable skills, key competencies, graduate skills, graduate qualities, graduate capabilities, and 21st-century skills (see also NCVET 2003).

Whatever the terminology, the central notions are that:

- All students need a solid grounding in generic skills, in addition to discipline-specific skills, which will equip them for their various roles in the 21st century, both in the world of work and in society generally.
- These skills enable an individual's potential to be realised in all aspects of life.
- The skills are required to perform all kinds of tasks.
- The skills are applied and performed in different combinations and at various levels, depending on the task.
- The skills are transferable from context to context.
- The skills are developed over a lifetime.
- Generic skills development is the collective responsibility of schools, vocational education and training providers and universities, as well as businesses and the broader community and governments.

Conceptualisations

There is no one definitive set of generic skills. There are many sets. Some sets are more limited than others. For example:

- Key, core, basic or fundamental skills can refer to literacy and numeracy skills only.

- The employability skills defined in the VET sector do not include literacy and numeracy skills. They include: communication skills; teamwork skills; problem-solving skills; self-management; planning and organising; technology skills; lifelong learning skills; and initiative and enterprise skills.
- The employability skills of the VET sector, with their focus on work, have been viewed as a subset of the generic attributes of the university sector, which also focus on citizenship, values and ethics and having a world view. This claim could also be made about the general capabilities of the schools sector, which also focus on the skills and knowledge associated with citizenship, in addition to versions of the employability skills.
- The employability skills also include a number of associated personal attributes, such as honesty and integrity, which have not been a focus to date. When personal attributes are taken into account, the employability skills of the VET sector become similar to those of the other two education sectors.
- Due to industry influence, employability skills have received attention in every education sub-sector.
- In the Australian schools sector, there are two sets of general capabilities (one as described in the education goals and the other in the new curriculum for schools).
- In the higher education sector each university has its own set of generic attributes.

Some conceptualisations of generic skills are in a list format (for example, the VET employability skills and the graduate attributes of most universities). Others are grouped under a small number of overarching categories. Examples of these categories include:

- The education goals for Australian schools outline generic capabilities within a three-category framework as illustrated below.

Successful learners	Confident and creative individuals	Active and informed citizens (with an appreciation of diversity and equity)
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- The new national schools curriculum will focus on nine categories or sets of general capabilities as follows:
 1. Literacy/numeracy
 2. ICT
 3. Thinking skills
 4. Creativity
 5. Self-management
 6. Teamwork
 7. Intercultural understanding
 8. Ethical behaviour
 9. Social competence

- A few universities map their graduate attributes into overarching categories such as:

Citizenship	World view	Personal practical knowledge
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- The two international projects conceptualise generic skills into the following categories:
 - The DeSeCo framework classifies key competencies into three broad categories as follows.

Ability to use tools interactively	Ability to act in socially heterogeneous groups	Ability to act autonomously
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- The 21st-century skills project uses four categories after consideration of a number of other conceptualizations as follows.

Ways of thinking	Ways of working together	Tools for working	Living in the world
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Assessment and reporting processes of generic skills

In all education sectors assessment and reporting of generic skills has lagged behind discipline-specific systems and is an area currently receiving research and development attention in Australia and internationally. It is argued that, unless there is explicit assessment of generic skills, the teaching of these skills is unlikely to be given the required attention. A discipline-embedded approach to developing generic skills is favoured, but with explicit assessment and reporting of the outcomes.

The trend has moved from implicit to explicit identification of generic skills (1990s) and subsequently to their explicit inclusion in curriculum and assessment and graduate outcomes reporting (under current development).

The VET sector in Australia is the most advanced in terms of having a systemic approach to the assessment and reporting systems of generic skills. There are employability skills summaries for every VET qualification.

As of 2009 the schools sector has an explicit set of general capabilities to be built into the new curriculum and it is assumed that these capabilities will be reported on in future.

Australian universities have begun to integrate their various versions of graduate attributes into the curriculum. The new Australian Higher Education Graduation Statement includes a section for reporting of graduate attributes by universities. The Graduate Skills Assessment (GSA) developed by the former Department of Education, Science and Training (DEST) and the Australian Council for Educational Research (ACER) and first piloted in 2000 to assess university students' generic skills has not proved popular.

Overall, the development of common conceptual structures and performance levels standards that show progression in generic skills across the entire education landscape remains an

outstanding issue. Currently, international-level research on assessment and teaching of '21 century skills' is underway.

In the three other countries in which generic skills were explored as part of the background research, the different conceptions of generic skills in the various sub-sectors of education are similar to those in Australia and they appear to be embedded in the various national qualifications frameworks.

Recommendations based on the background research

What term to use in AQF policy

Two options are offered for consideration: 'generic skills' and 'generic learning outcomes'.

Rationale for using the term 'generic skills'

1. There is no one 'correct' term to use.
2. 'Generic skills' is the term that was used in the initial stages of the strengthening the AQF project. Continuity would be maintained if 'generic skills' became the accepted term.
3. The term 'generic' conveys the inherent nature of the skills: they are not specific to either the education sector or to a particular discipline. The alternative term 'transferable skills' is more a characteristic of generic skills, *once attained*.
4. The term implies comprehensiveness: other terms used in some conceptualisations, such as key skills, core skills, basic skills or fundamental skills, are specific subsets of a broader set of generic learning outcomes. These terms can refer to literacy and numeracy skills only. The Australian Core Skills Framework covers learning, reading, writing, oral communication and numeracy skills.
5. The term provides a contrast to current sector usage, while implying an overarching capacity: a term is needed that is not in current use by any specific education sector in Australia (i.e. 'general capabilities' in the school sector, 'employability skills and attributes' in the VET sector, and 'graduate attributes or capabilities' in the higher education sector).

Rationale for using the term 'Generic learning outcomes'

Reasons 1, 3, 4 and 5 above are also applicable here.

The term 'generic learning outcomes' covers all of the ways in which they might be and have been articulated; that is, in terms of any and all of knowledge, skills and attributes. Using 'values' as an example: they can be expressed in terms of knowledge (of codes of conduct and manners), skills (behaving in acceptable ways) and attributes (showing respect for others, having a disposition to overcome stereotypes and prejudices).

Another option is to use the terms 'generic learning outcomes' and 'generic skills' interchangeably, according to the context in which the term is used.

What conceptualisation of generic skills to use in AQF policy

There are many conceptualisations of generic skills. Some conceptualisations of generic skills are in list format, while others are grouped into a few overarching categories

The AQF requires a conceptualisation with the capacity to incorporate the various sets from each Australian education sector.

In 2002 the National Centre for Vocational Education Research (NCVER) identified six broad categories into which several sets of generic skills of various countries (including Australian VET) could be mapped.

NCVER identified common 'elements' in listings of generic skills across several countries, which were:

- | | |
|---|-------------------------------|
| 1. basic fundamental skills | e.g. literacy etc. |
| 2. people-related skills | e.g. teamwork etc. |
| 3. conceptual thinking skills | e.g. problem-solving etc. |
| 4. personal skills | e.g. acts with integrity etc. |
| 5. skills related to the business world | e.g. enterprising etc. |
| 6. skills related to the community | e.g. citizenship etc. |

It is certainly possible to map the sets of generic skills from each of the three Australian education sectors onto the six categories above. However, given that generic skills are multipurpose skills relevant to all aspects of life, the appropriateness of singling out skills related to business and citizenship needs to be considered. These skills can be understood to be incorporated in the other uncontextualised four categories.

The suggested broad-category conceptualisation of generic skills for AQF policy is:

1. basic fundamental skills
2. people skills
3. thinking skills
4. personal world view skills

When providing examples of generic learning outcomes in AQF policy, all of the employability skills and the attributes of integrity/ethical and moral behaviour should be included, since these learning outcomes have received attention in every education subsector.

Background research details

Generic skills in Australian education and training

Schools sector

Origins

For a number of years 'generic capabilities' have been contained in statements of the educational goals of schooling. The most recent are outlined below and are also to be covered in the new national curriculum.

The schools sector has been influenced by the Finn Review (Australian Education Council 1991) and the Mayer Committee, with the former recommending the 'key competencies' required by young people for effective preparation and participation in work, while the latter further refined the concept (Australian Education Council 1992).

During the mid-1990s considerable effort was expended on implementing the key competencies in schools and in the VET sector. However, attention was diverted by and to other reforms. A refocus has occurred more recently as a result of industry influence and the introduction of VET in Schools programs under the banner of 'employability' skills and attributes.

Generic capabilities as expressed in the Melbourne Declaration

The *2008 Melbourne Declaration on Education Goals for Young People* (Ministerial Council on Education, Employment, Training and Youth Affairs) has two goals relating to generic skills:

Goal 1: Australian schooling promotes equity and excellence.

Goal 2: All young Australians become: successful learners, confident and creative individuals, and active and informed citizens.

Rationale

The Melbourne Declaration acknowledges major changes in the world that are placing new demands on Australian education:

- *Global integration and international mobility*: this heightens the need to nurture an appreciation of and respect for social, cultural and religious diversity, and a sense of global citizenship.
- *Globalisation and technological change*: the nature of jobs available to young Australians is changing faster than ever, requiring continuous learning and higher achievement levels than in the past.
- *Complex environmental, social and economic pressures*: to meet these challenges, Australians must be able to engage with scientific concepts and principles, and approach problem-solving in new and creative ways.
- *Rapid and continuing advances in information and communication technologies (ICT)*: these are changing the ways people share, use, develop and process information and technology. Young people need to be highly skilled in the use of ICT.

The Melbourne Declaration states that, while literacy and numeracy and knowledge of key disciplines remain the cornerstone of schooling for young Australians, schooling should also:

- support the development of skills in areas such as social interaction, cross-disciplinary thinking and the use of digital media, which are essential in all 21st-century occupations
- include as a legacy to young people national values of democracy, equity and justice, and personal values and attributes such as honesty, resilience and respect for others.

Generic capabilities included

Goal 2 of the Melbourne Declaration aims for all young Australians to become successful learners, confident and creative individuals and active and informed citizens. The goal includes a number of generic capabilities for each of these three categories as follows.

Successful learners

- develop their capacity to learn and play an active role in their own learning
- have the essential skills in literacy and numeracy and are creative and productive users of technology, especially ICT, as a foundation for success in all learning areas
- are able to think deeply and logically, and obtain and evaluate evidence in a disciplined way as the result of studying fundamental disciplines
- are creative, innovative and resourceful, and are able to solve problems in ways that draw upon a range of learning areas and disciplines
- are able to plan activities independently, collaborate, work in teams and communicate ideas
- are able to make sense of their world and think about how things have become the way they are
- are on a pathway towards continued success in further education, training or employment, and acquire the skills to make informed learning and employment decisions throughout their lives
- are motivated to reach their full potential

Confident and creative individuals

- have a sense of self-worth, self-awareness and personal identity that enables them to manage their emotional, mental, spiritual and physical wellbeing
- have a sense of optimism about their lives and the future
- are enterprising, show initiative and use their creative abilities
- develop personal values and attributes such as honesty, resilience, empathy and respect for others
- have the confidence and capability to pursue university or post-secondary vocational qualifications leading to rewarding and productive employment
- relate well to others and form and maintain healthy relationships
- are well prepared for their potential life roles as family, community and workforce members
- embrace opportunities, make rational and informed decisions about their own lives and accept responsibility for their own actions.
- have the knowledge, skills, understanding and values to establish and maintain healthy, satisfying lives

Active and informed citizens

- act with moral and ethical integrity
- appreciate Australia's social, cultural, linguistic and religious diversity, and have an understanding of Australia's system of government, history and culture
- understand and acknowledge the value of Indigenous cultures and contribute to and benefit from reconciliation between Indigenous and non-Indigenous Australia
- are responsible global and local citizens.
- are committed to national values of democracy, equity and justice, and participate in Australia's civic life
- are able to relate to and communicate across cultures, especially the cultures and countries of Asia
- work for the common good, in particular sustaining and improving natural and social environments

Teaching, learning and assessment and reporting of general capabilities

The new national school curriculum will cover the following general capabilities as outlined in *The Shape of the Australian Curriculum* (National Curriculum Board 2009).

Literacy/numeracy - <i>knowledge, skills and understanding</i> need to be used and developed in all learning areas. Initial and major continuing development will be in English but the national curriculum will ensure that this competency is used and developed in all learning areas
ICT - <i>knowledge, skills and understanding and competence in information management through the use of technology</i> , including the ability to evaluate the source, reliability, accuracy and validity of information that abounds in cyberspace.
Thinking skills - <i>a range of kinds of applied intellectual activities that are involved in using information to achieve outcomes</i> such as solving problems, making decisions, thinking critically, developing an argument and using evidence to support it.
Creativity - <i>generating an idea which is new to the individual</i> , seeing existing situations in a new way, identifying alternative explanations, seeing links, and finding new ways to apply ideas to generate a positive outcome. Creativity is closely linked to innovation and enterprise, and requires characteristics such as intellectual flexibility, open-mindedness, adaptability and readiness to try new ways of doing.
Self-management - <i>taking responsibility for their own work and learning</i> : managing one's learning ; monitoring, reflecting on and evaluating one's learning; identifying personal characteristics which contribute to or limit effectiveness; planning and undertaking work independently; taking responsibility for one's behaviour and performance; and learning from successes and failures.
Teamwork - <i>working effectively and productively with others</i> : working in harmony with others, contributing towards common purposes, defining and accepting individual and group roles and responsibilities, respecting individual and group differences, identifying the strengths of team members, and building social relationships.

Intercultural understanding - *respect and appreciate their own and others' cultures*, and to work and communicate with those from different cultures and backgrounds. It includes appreciation of the special place of Aboriginal and Torres Strait Islander cultures; respect for Australia's multicultural composition; communicating and working in harmony with others within and across cultures and appreciation of difference and diversity.

Ethical behaviour - *understanding and acting in accordance with moral and ethical principles*, including: willingness, determination and capacity to think, make judgments and behave independently; identifying right and wrong and having the willingness, determination and capacity to argue the case for change; understanding the place of ethics and values in human life; acting with moral and ethical integrity; acting with regard for others; and having a desire and capacity to work for the common good.

Social competence - *interacting effectively with others* by: assessing and successfully operating within a range of changing, often ambiguous human situations; initiating and managing personal relationships; being self-aware and able to interpret one's own and others' emotional states, needs and perspectives; having the ability to manage or resolve conflicts and to foster inclusive and respectful interactions; and participating successfully in a range of social and communal activities.

Links to other frameworks

The Melbourne Declaration goals are highlighted in the statement as the collective responsibility of governments, school sectors and individual schools as well as of parents and carers, young Australians, families, other education and training providers, business and the broader community.

Influence of the VET sector

The schools sector has been influenced by the VET sector: in 2004 Australian and state government education ministers agreed that the eight skills identified in the VET Employability Skills Framework covered the skills required by young people for successful transition from school to other areas, including work, and were important. At least half of Australian secondary students in Years 11 and 12 are now enrolled in VET in Schools qualifications, which require the teaching, assessment and reporting of employability skills.

The concept of a 'job ready certificate' has recently been canvassed; the certificate involves the teaching, assessment and reporting of the VET sector employability skills and also the associated job-readiness attributes. The rationale was to give at least senior secondary VET in Schools students a further reference to assist in their search for employment. As many as one-third of all school leavers move directly to the labour market without undertaking any further study (Sweet 2008).

Influences of the higher education sector

Schools focus on developing young people as productive citizens as well as workers. Universities also focus on citizenship in their graduate attributes.

VET sector

Origins

In 2004 the Mayer Key Competencies mentioned above were replaced by employability skills and attributes.

Scope

The current focus is on the employability skills and not the attributes.

Rationale

Australian industry requires new graduates who are responsive to economic, social, cultural, technical and environmental change and who can work flexibly and intelligently across business contexts. They also require graduates to hold the practical skills that enable them to work effectively in their roles, while understanding the part they play in building their organisations.

This means more than having the necessary technical skills. It means engaging with the organisation and its goals, understanding the dynamics of the workplace, and taking up a job role with an informed knowledge of all of its requirements. It also means applying a broad range of employability skills learned in many contexts and through a range of experiences. Industry representatives are satisfied with the technical or discipline-specific skills of graduates, but there is a perception that, for some, their employability skills are under-developed. Consultations with industry in 2007 reinforced the view that these skills are still seen as highly relevant to their needs (Precision Consulting 2007).

Definition

'Employability skills are defined as skills required not only to gain employment, but also to progress within an enterprise so as to achieve one's potential and contribute successfully to enterprise strategic directions' (Australian Chamber of Industry and Commerce & Business Council of Australia 2002):

Generic skills included

The Employability Skills Framework has eight employability skills and 13 personal attributes.

Employability skills	Personal attributes that contribute to employability	
Communication skills	Loyalty	Honesty and integrity
Teamwork skills	Personal presentation	Positive self-esteem
Problem-solving skills	Balanced attitude to work and home life	Motivation
Self-management skills	Commitment	Enthusiasm
Planning and organising skills	Common sense	A sense of humour
Technology skills	Ability to deal with pressure	Adaptability
Lifelong learning skills		Reliability
Initiative and enterprise skills		

Teaching, learning, assessment and reporting of employability skills

For several years the VET sector has been working to integrate the employability skills into national qualifications. From July 2008 the policy on the employability skills was strengthened: an explicit approach to the development of the employability skills was to be adopted (National Quality Council 2008). The sector has subsequently taken a system-wide approach and applied the eight employability skills to all nationally recognised qualifications. *Employability Skills Summaries* record how the employability skills are covered in every nationally endorsed qualification.

The VET sector is exploring effective approaches to the teaching, learning and assessment and reporting of the employability skills. The adoption of four adult learning principles has been recommended: responsible learning; experiential learning; cooperative learning; and reflective learning (Cleary, Flynn & Thomasson 2006). However, it is up to the individual teacher as to the approach taken.

Links to other frameworks

Higher education graduate attributes

The Employability Skills Framework has many overlaps with the university-defined graduate attributes. Recent work done on integrating and developing employability skills in university undergraduates as part of the trend towards a stronger link between universities and businesses has suggested that the employability skills can reasonably be seen as a subset of the university sector's graduate attributes (Precision Consulting 2007).

Generic skills

The employability skills and attributes are a significant subset of the broad set of generic skills.

Overseas connections

The NCVET *Defining generic skills* publication of 2003 included comparisons of generic skills in Australia, and particularly the VET sector employability skills, with those of several overseas countries. Both the terms used and the skills included were found to vary, but the lists collectively were identified to have six 'common elements' as outlined below.

Common 'elements' in listings of generic skills across several countries

Basic fundamental skills	e.g. literacy etc
People-related skills	e.g. teamwork etc
Conceptual thinking skills	e.g. problem-solving etc
Personal skills and attributes	e.g. responsible, ethical etc
Skills related to the business world	e.g. enterprising etc
Skills related to the community	e.g. citizenship knowledge, respect for diversity

The Australian Core Skills Framework (ACSF)

Of note also is that the employability skills do not explicitly include the basic fundamental skills of literacy and numeracy skills, as in some other conceptions. These are the focus of the Australian Core Skills Framework (ACSF).

The ACSF is based on the National Reporting System (NRS), a mechanism for reporting outcomes of adult English language, literacy and numeracy provision used by Australian English language, literacy and numeracy (LLN) specialists since 1995.

The ACSF describes five levels of performance in the five core skills that are defined as essential for people to participate in our society: learning; reading; writing; oral communication; and numeracy.

The ACSF provides detailed insights into some aspects of each employability skills cluster. For example, a broad range of aspects of the core skills are grouped within the communication employability skill, while others are reflected in the employability skills of self-management, learning, and planning and organising and are also reflected in initiative and enterprise skills and team work skills (Department of Education, Employment and Workplace Relations 2008, pp.13–15).

While there are areas of overlap between the employability skills and the five core skills of the Australian Core Skills Framework, the ASCF cannot be used to rate an individual’s level of performance in any of the actual employability skills.

Higher education sector ²

Origins

To develop educated graduates with a broad knowledge base and a sense of social responsibility is a core value of universities. This value is encapsulated in statements on graduate attributes or capabilities.

Graduate attributes, as they are conceptualised in Australian universities, have their origins in the West Review. This review provided a framework of generic attributes that ideally every university graduate should hold (Department of Employment, Education, Training and Youth Affairs 1998, p.47). Universities have since developed their own sets of graduate attributes.

Framework of generic attributes: West Review 1988

The capacity for critical, conceptual and reflective <i>thinking</i> in all aspects of intellectual and practical activity
Technical competence and an understanding of the <i>broad conceptual and theoretical elements</i> of his or her fields of specialisation
<i>Intellectual openness and curiosity</i> , and an appreciation of the interconnectedness, and areas of uncertainty, in current human knowledge
<i>Effective communication skills</i> in all domains (reading, writing, speaking and listening)
Research, discovery, and <i>information retrieval skills and a general capacity to use information</i>
Multifaceted <i>problem-solving skills</i> and the <i>capacity for team work</i>
<i>High ethical standards</i> in personal and professional life, underpinned by a capacity for self-directed activity.

² While this section refers to the higher education sector as a whole, the examples used are from Australian universities.

Definition

Graduate attributes may be defined as ‘... the qualities, skills and understandings a university community agrees its students should develop during their time with the university’ (Bowden et al. 2002).

Each university has its own definition. Two university specific examples are:

University of Sydney	University of Adelaide
Generic attributes go beyond the disciplinary expertise or technical knowledge that has traditionally formed the core of most university courses and describe the qualities that also equip graduates for their role in society and the world of work.	Graduate attributes: encapsulate for a student, and the wider community, the defining characteristics of their university degree programs rather than a list of skills to be mastered; describe a set of characteristics that are designed to be transferable beyond the particular disciplinary context in which they have been developed.

Rationale

Three major factors are seen to have an influence on the value placed on graduate attributes: the popular perspective that education is a lifelong process; a greater focus on the relationship between education and the employment outcomes of graduates; and the development of outcomes measures as part of the quality movement (Cummings 1998).

Attributes covered

Graduate attributes are determined at a university level. There is no one set of graduate attributes in the higher education sector of Australia.

A listing of graduate attributes from 29 Australian universities was included in the Precision Consulting report of 2007. This list is reproduced in Attachment 1: Graduate attributes in Australian universities.

A few universities use a cascading approach to defining graduate attributes, beginning with a small number of overarching categories, with more detailed elements in each category. Other universities have a single (long) list of graduate attributes.

Teaching, learning, assessment and reporting of graduate attributes

Universities favour a discipline-embedded approach to developing graduate attributes, rather than using broad national frameworks.

Curriculum mapping is one means to ensure that graduate attributes are given an appropriate focus, are discipline-nuanced and aligned with course content. A number of universities have established institution-wide initiatives to undertake curriculum mapping, with a range of support systems. In some universities where no institution-wide initiatives exist, individual faculties have undertaken curriculum mapping in their own right (Business–Higher Education Roundtable in Australia 2003).

Research is currently being conducted in Australian universities on the attributes of graduates, while another study is being undertaken by the Australian Learning and Teaching Council

(ALTC) on the integration and assessment of graduate attributes in curriculum – the National Graduate Attributes Project, directed by Dr Simon Barrie.

The Graduate Skills Assessment (GSA), developed by the Department of Education, Science and Training and the Australian Council for Educational Research to assess university students' generic skills, and first piloted in 2000, has not proved to be particularly successful. The test is voluntary for students, and universities are under no obligation to use it. The uptake of the GSA in universities appears to be limited and employers are still largely unaware of it. It is a paper-based formal testing program designed to be conducted on university entry and exit and considers four specific areas – problem-solving, critical thinking, interpersonal understanding and written communication (Precision Consulting 2007).

The Australian Higher Education Graduation Statement includes a section on the graduate's academic achievement. One of the sub-sections, 'Additional course details', is elaborated as: 'Specific details of particular course related achievements of the graduate, which may include: workplace learning; institutional organised study abroad or independent overseas study credited to the award; major practicum or professional training placements; and assessed competencies or graduate employability skills' (University of Melbourne & University of New England 2008, p.12).

The inclusion of assessed competencies or graduate employability skills is a consequence of industry continuing to reinforce the idea, during the consultations on the graduation statement, that the skills defined in the 2001 Employability Skills Framework (Australian Chamber of Commerce and Industry & Business Council of Australia) are still seen by employers as being highly relevant to their needs (University of Melbourne & University of New England 2008, p.ix).

Links to other frameworks

The links to other Australian education sector frameworks have already been noted.

Also of note is that the full range of the graduate attributes listed can be fitted into the common 'elements' of various lists of generic skills identified by the NCVER.

International developments of note specifically in relation to Australian universities include work by the Organisation for Economic Co-operation and Development (OECD 2009) on assessment of higher education learning outcomes, which includes a stream on generic skills and which will have flow-on effects in Europe and Australia.

Generic skills in the international context

OECD: Assessment of Higher Education Learning Outcomes (AHELO)

The OECD is overseeing an AHELO feasibility project that includes four strands: a generic skills strand; two disciplinary strands (engineering and economics); and a research-based value-added strand. The intention of AHELO is to measure learning outcomes across the OECD's 31 member countries. Australia is among the participating countries. The feasibility project will be completed in 2011.

Rationale

The extraordinary pace of change in technological advancement is placing pressure on universities around the world to keep abreast in their learning outcomes standards. More students than ever before enter higher education and a growing number study abroad, while the job market demands new skills and adaptability. As a consequence universities, polytechnic schools and colleges struggle to maintain currency and sustain their competitiveness.

Ministers at the 2006 Athens Conference agreed that OECD countries needed to ensure that higher education was not only more freely available but of better quality, recognising also that current assessment methods were not adequate for meeting the challenges of posed by the technological changes of the 21st century . The aim of AHELO is to search for alternative approaches to assessment (OECD Feasibility Study for International Assessment of Higher Education Learning Outcomes website).

The generic skills strand

Current participants in the generic skills strand are: Finland, Korea, Mexico and Norway.

The feasibility study is adapting the Collegiate Learning Assessment (CLA), developed by the Council for Aid to Education (CAE) in the United States, to an international context, with a view to providing a proof of concept.

Generic skills included

The CLA measures students' critical thinking, analytic reasoning, problem-solving, and written communication skills with meaningful, holistic, complex tasks (Klein et al. 2007).

Nature of the assessment of generic skills

Students will complete an online assessment, using their critical skills along with data provided on each task. The questions are not specialised, which means that they can be answered by most undergraduates, whatever their field of study.

The tasks are derived from a domain of real-world jobs suggested by activities found in education, work, policy, and everyday practice. To perform the tasks, test-takers need to think critically and analytically about the information they are given, and communicate their decisions, judgments, or recommendations clearly and with appropriate justification.

OECD: Definition and Selection of Competencies framework (DeSeCo)

Origins

The DeSeCo framework of key competencies developed by the OECD (1999a) was assembled by distilling theoretical and conceptual insights derived from papers commissioned from a range of disciplines and across the broader life context.

Rationale

In 1998 the OECD inaugurated a four-year program to advance the theoretical underpinning of the 'definition and selection of competencies'.

The OECD sought to address the theory supporting the identification of key skills/key competencies, an issue which had largely been neglected in their development in countries at that time, except in Britain and Australia and to a lesser extent in the United States, though the approach had been mainly an empirical/functional one. In the initial phases of the project the methodology for DeSeCo included procuring a range of theoretical and conceptual papers from a number of disciplines (Kearns 2001).

Key competencies included

The DeSeCo conceptual framework classifies key competencies into three broad categories with nine identified key competencies, mapped as follows:

The ability to use tools interactively	The ability to act in socially heterogeneous groups	The ability to act autonomously
Ability to use language, symbols and text interactively	Ability to cooperate	Ability to defend and assist own rights, interests, needs
Ability to use knowledge and information interactively	Ability to manage and resolve conflict	Ability to form and construct life plans and personal projects
Ability to use technology interactively.	Ability to relate to others	Ability to act within the big picture

Additional points of note

DeSeCo identified four major conceptual elements in key competencies; namely, they:

- are multifunctional, as they meet a range of different and important demands of daily life. They are needed to achieve various goals in different contexts
- are relevant across many fields, for participation in school, the labour market, political processes, social networks, and interpersonal relationships, including family life and for developing a sense of social wellbeing
- are multidimensional, as they are composed of know-how, analytical, cultural and communication skills, and common sense
- they assume a mental autonomy which involves an active and reflective approach to life.

'21 century skills' (ATCS) project

Scope

In 2009 the '21 century skills' project was established by a consortium of the University of Melbourne and technology companies CISCO, INTEL and Microsoft (The Partnership for 21st Century Skills), with a remit to examine the assessment and teaching of '21 century skills' (hence, ATCS project). This initiative, which also involves international working groups, is focused on defining those skills and developing ways to measure them using information technology (ATCS website).

Definition

Twenty-first century skills are those high-priority skills, competencies and types of understanding that individuals need to be productive and creative workers and citizens of the 21st century. They are skills required by all individuals.

Rationale

Conceptions of these skills have been central to education for many years and have become more prominent with the shift to advanced knowledge economies and globalisation.

Knowledge itself is growing ever more specialised and expanding exponentially. Information and communication technology is transforming the nature of how work is conducted and the meaning of social relationships. Decentralised decision-making, information-sharing, teamwork and innovation are key in today's enterprises.

Success for the individual now lies in being able to communicate, share, and use information to solve complex problems, in being able to adapt and innovate in response to new demands and changing circumstances, and in being able to marshal and expand the power of technology to create new knowledge and expand human capacity and productivity.

These skills are often identified in the aims and goals of education and are generally specified as being taught through, within and across subjects rather than explicitly recognised as having the capacity to be generalised and transferable across domains and without the detail of how this is to be achieved or what the responsibilities of each subject might be in achieving them.

The ATCS project rationale is that, without this depth of detail, national statements of 21st-century aims and goals are unlikely to be reflected in the actual learning experiences of students or in the concomitant assessments. Without highly valued assessments of these 21st-century aims or goals – which therefore necessitate their teaching – it is difficult to see when or how education systems will change significantly for the majority of students.

21st-century skills included

The ATCS project's conceptual framework of 21st-century skills defines ten skills grouped into four categories, developed from consideration of a number of other conceptualisations:

Ways of thinking	Ways of working	Tools for working	Living in the world
Creativity and innovation	Communication	Information literacy (includes research on sources, evidence, biases etc.)	Citizenship – local and global
Critical thinking, problem-solving, decision-making	Collaboration (teamwork)	ICT literacy	Life and career
Learning to learn, metacognition			Personal and social responsibility – including cultural awareness and competence

In the development of this framework a number of conceptualisations of these skills from around the world were considered, including:

- The European Union: Key Competencies for Lifelong Learning – A European Reference Framework, November 2004
- OECD: New Millennium Learners Project: Challenging our Views on ICT and Learning USA (Partnership for 21st Century Skills)
- Japan: Center for Research on Educational Testing (CRET)
- Australia: Melbourne Declaration on Educational Goals for Young Australians
- Scotland: A Curriculum for Excellence – the Four Capabilities
- England: The Learning Journey
- England: Personal learning & thinking skills – The national curriculum for England
- Northern Ireland: Assessing the cross-curricular skills
- USA: National Academies, science for the 21st century
- USA: Department of Labor Competency models: A review of the literature
- USA: The role of the Employment and Training Administration (ETA).

The ACTS project also looked at statements of educational goals and found references to 21st century skills in them. Detailed curriculum documentation was also searched but little detail on or elaboration of these skills and their assessment was found.

Twenty-first century skills can be conceptualised in terms of knowledge, skills or attributes (K, S, A).

Of significance is the ATCS project's observation of the way in which the project's ten 21st-century skills are articulated can vary. These skills, which have also been described in other frameworks, can be considered in terms of the:

- knowledge and understandings requirements for each skill (K)
- skills they are designed to develop in students (S)

- attitudes, values and ethics or behaviours and aptitudes the students will exhibit in relation to each skill (A).

The ACTS project's *Defining 21 century skills: Draft white paper* includes grid tables of the KSAs that have been articulated for each of the ten skills in their four-category conceptual framework. The table below provides a number of examples.

Selected examples of how several of the 21st-century skills can be described:

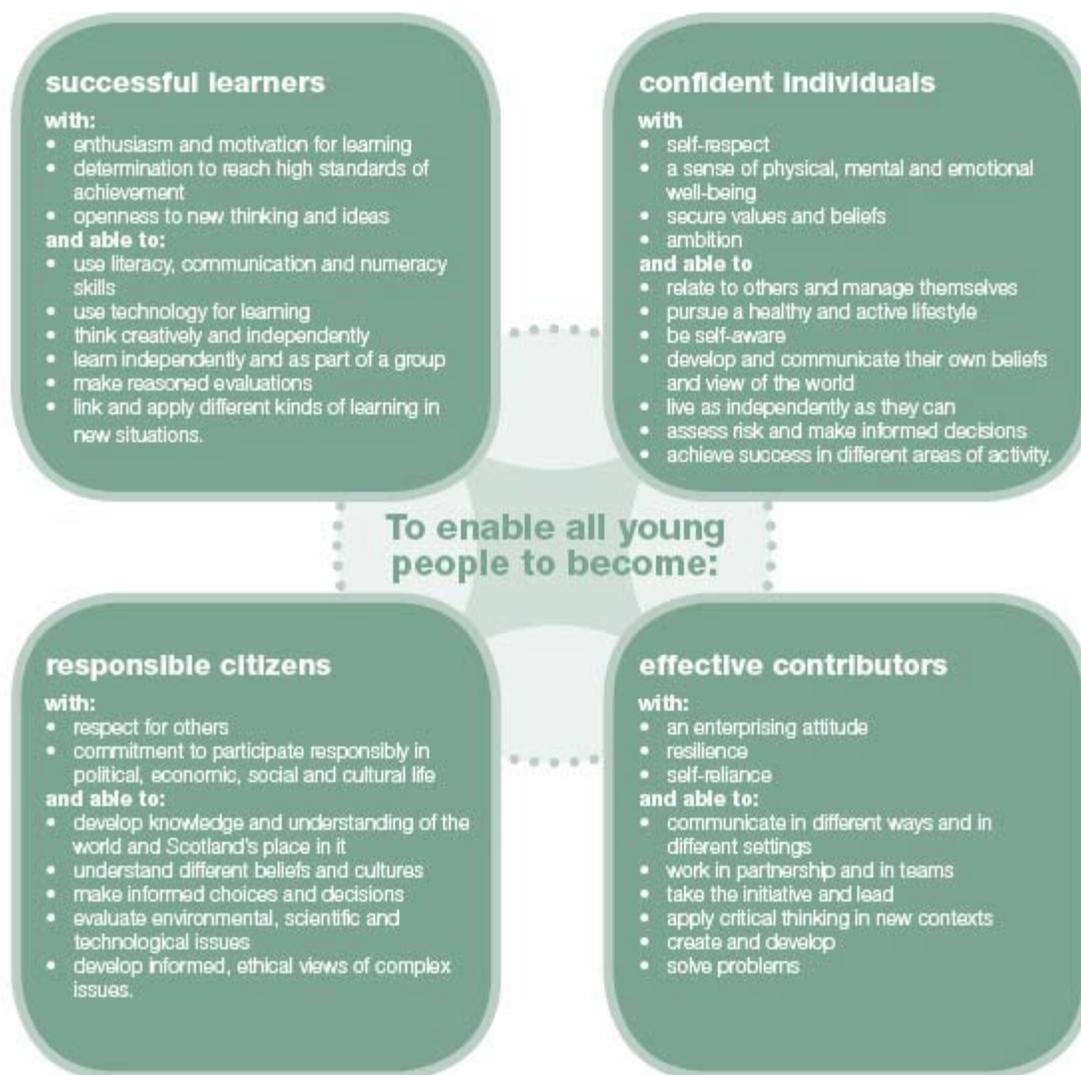
The 21st-century skill	Described in terms of Knowledge (K)	Described in terms of Skills (S)	Described in terms of Attitudes (A)
Creativity	Knowledge of a wide range of idea creation techniques	Ability to develop innovative and creative ideas	Openness and responsiveness to new ideas
Critical thinking, problem-solving, decision making	Knowledge of a wide range of idea creation techniques	Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems	Trustful of reason. Inquisitive and concerned to be well informed. Open and fair minded
Communication	Sound knowledge of basic vocabulary, functional grammar and style, functions of language	Ability to communicate, in written or oral form, and understand, or make others understand, various messages in a variety of situations and for different purposes	Disposition to approach the opinions and arguments of others with an open mind and engage in constructive and critical dialogue
Living in the world – personal and social responsibility	Know the codes of conduct and manners generally accepted or promoted in different societies	Ability to: communicate constructively in different social situations (tolerating the views and behaviour of others; awareness of individual and collective responsibility)	Showing interest in and respect for others Willingness to overcome stereotypes and prejudices Disposition to compromise

Generic skills in three other countries

Scotland

Schools

The Curriculum for Excellence defines **four capacities** for children and young people – to be a successful student, a confident individual, a responsible citizen and an effective contributor. Each of the four capacities has an expanded statement, written in behaviour /attitudes and skills terms and which, taken as a whole, embodies the full expectations of capabilities.



Source:

<http://www.ltscotland.org.uk/curriculumforexcellence/curriculumoverview/aims/fourcapacities.asp>

The research undertaken for Scotland also identified references to core skills and generic skills (HM Inspectorate of Education 2001). Core skills are the broad, transferable skills that help to

develop the main capabilities people need to be fully active and responsible members of society. The core skills are: communication; personal and interpersonal; problem solving; numeracy; and information technology.

The five core skills support the acquisition of generic skills such as thinking skills, analysis and synthesis, and creativity. These latter higher-order skills underpin knowledge and understanding and are related to employability and lifelong learning. Generic skills are broader than core skills, but both are transferable.

Since the late 1980s, the British Government and employers have articulated the need for generic, transferable skills as part of education and training, and as a key aspect of employability.

Generic skills in the qualifications framework

Levels are defined by the complexity of the following five generic skills, which may be developed during a learning experience, irrespective of the subject content. Level descriptors indicate the expected outcomes of learning, which are mapped against these five generic skills, and it is these which can be used to check how detailed and complex the learning experience should be:

1. knowledge and understanding
2. practice – applied knowledge and understanding (linking theory to practice)
3. communication, ICT and numeracy skills
4. generic cognitive skills – problem-solving, analysis, evaluation
5. autonomy, accountability and working with others.

Complexity increases as the levels increase.

New Zealand

New Zealand refers to essential skills, which include skills similar to Australia's employability skills (New Zealand Qualifications Authority 1993).

Essential skills are fundamental to students achieving their full potential and participation in society.

Skills that are included

The essential skills in the New Zealand curriculum for schools include:

- Communication
- Information
- Self-management
- Physical
- Numeracy
- Problem-solving
- Social and cooperative
- Work and study

New Zealand also refers to generic skills as those skills common to many occupations but which may not necessarily be regarded as required by all New Zealanders. They are skills generic to

the workplace, some of which are components of essential skills, others of which would not necessarily be part of a normal school program. Generic skills include skills in quality management, safety in the workplace, and negotiation.

Generic skills in the qualifications framework

Apart from appearing in the levels descriptors, no reference was found to essential skills in the New Zealand Qualifications Framework (New Zealand Qualifications Authority website, viewed 23 March 2010).

Ireland

In September 2005, the Department of Enterprise, Trade and Employment requested the Expert Group on Future Skills Needs (EGFSN 2005) to undertake research which would underpin the development of a National Skills Strategy, including the identification of the skills required for Ireland to develop over the period to 2020 as a competitive, innovation-driven, knowledge-based, participative and inclusive economy.

Rationale

All occupations are becoming more knowledge-intensive, with a corresponding rise in the requirement for qualifications and technical skills. Employees will be required to acquire a range of generic and transferable skills and attitudes. In most cases, work is becoming less routine, with a requirement for flexibility, continuous learning, and individual initiative and judgment.

It would appear that virtually all sectors of industry are becoming more knowledge-intensive, in the very broad sense of the term. This involves a change in the types of skills required, with a rise in the importance of generic skills, including the ability of individuals to work more autonomously; be self-managing; work as part of flexible teams; adapt to change; solve complex problems; think creatively; and engage with innovation as a continuous process.

There is substantial evidence to indicate that generic skills are regarded as, at least, if not more, important for employers as technical or job-specific skills for the 21st-century workplace.

Skills that are included

When broadly referring to combinations of skills and personal attributes which are deemed essential to be effective in the workplace of the 21st century, the list has been expanding in scope. For example, the 'specialist' skill of just 10–15 years ago of using information technology is now regarded as a 'basic' skill, essential for a substantial proportion of jobs and occupations

Based on the national and international academic evidence available, the Expert Group has identified the key and most widely shared elements that should be included in a generic skills portfolio as:

- Basic/fundamental skills – such as literacy, using numbers, using technology
- People-related skills – such as communication, interpersonal, team-working, customer-service skills
- Conceptual/thinking skills – such as collecting and organising information, problem-solving, planning and organising, learning-to-learn skills, innovation and creative skills

Furthermore, other skills such as scientific literacy, enterprise skills and possibly broader citizenship skills might also be included in any essential generic skills set.

The variety of levels and intensity with which any of these generic skills might be required will vary, depending on the job.

Teaching, learning, assessment and reporting of generic skills

Initiatives are already underway that will assist in developing generic skill competency. These comprise the inclusion of generic skills as a measured output at various levels in the Irish National Framework of Qualifications and the development, by the National Council for Curriculum and Assessment (NCCA), of new curricula, in which generic skills are embedded.

Irish Universities' graduate student skills statement cover:

- Research skills and awareness
- Personal effectiveness/development
- Team-working and leadership
- Communication skills
- Career management
- Entrepreneurship and innovation

Generic skills in the Qualifications Framework

The Irish National Framework of Qualifications was launched in October 2003. Apart from appearing in the levels descriptors, no reference to essential skills was found in the Ireland Qualifications Framework documentation (National Framework of Qualifications website, viewed 23 March 2010).

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Attachment 1: Graduate attributes in Australian universities

The following list provides examples of graduate attributes from 29 Australian universities

Source: Precision Consulting (for the Business, Industry and Higher Education Collaboration Council) 2007, *Graduate employability skills : An examination of the development, teaching, assessment and reporting of graduate employability skills in the higher education sector*, Canberra, DEST http://www.voced.edu.au/td/tnc_91.439 Accessed: March 2010

Australian National University	<ul style="list-style-type: none"> ○ Are competent in literary and oral communication ○ Are independent, critical and creative thinkers with analytical and problem solving skills ○ Are well acquainted with the broader contexts of higher learning ○ Have an in-depth knowledge base and comprehensive understanding of the conceptual and theoretical underpinnings of their disciplines ○ Trained in computer based technology, and relevant discipline-based technical and methodological skills ○ Understand major issues facing Australia and the wider world ○ Value intellectual rigour, creativity, curiosity, integrity and life-long learning
Central Queensland University	<ul style="list-style-type: none"> ○ Developing classroom based learning communities ○ Emphasising mastery learning ○ Integrating classrooms and instructional laboratories ○ Integrating critical thinking and content ○ Integrating study skills instruction with content instruction ○ Practicing classroom assessment techniques ○ Using active learning techniques ○ Utilising diverse methods of presenting instructional material
Charles Darwin University	<ul style="list-style-type: none"> ○ Citizenship ○ Personal practical knowledge ○ World View
Charles Sturt University	<ul style="list-style-type: none"> ○ Address unfamiliar problems ○ Communicate effectively in a manner relevant to their discipline ○ Demonstrate a broad overview of their field of knowledge ○ Demonstrate a national and international perspective ○ Demonstrate an understanding of, and commitment to, values-driven practice in their field of study that takes account of open enquiry, ethical practice, social justice, cultural diversity, reconciliation and environmental sustainability ○ Demonstrate analytical skills, including the exercise of critical and reflective judgment ○ Plan their own work ○ Work as a team member
Curtin University	<ul style="list-style-type: none"> ○ Access, evaluate and synthesise information ○ Apply discipline knowledge, principles and concepts

	<ul style="list-style-type: none"> ○ Apply professional skills ○ Communicate effectively ○ Demonstrate intercultural awareness and understanding ○ Recognise and apply international perspectives ○ Think critically, creatively and reflectively ○ Use technologies appropriately ○ Utilise life-long learning skills
Deakin University	<ul style="list-style-type: none"> ○ Ability to communicate effectively, with the engineering team and with the community at large ○ Capacity for creativity and innovation ○ Fluency in current computer-based word-processing and graphics packages ○ Manage own time and processes effectively, prioritising competing demands to achieve personal and team goals and objectives ○ Proficiency in engineering design
Edith Cowan University	<ul style="list-style-type: none"> ○ Awareness of political, social and ethical issues ○ Communication ○ Enterprise, initiative and creativity ○ Internationalisation/cross cultural awareness ○ Problem solving/decision making ○ Professional knowledge ○ Service ○ Teamwork ○ Use of technology/information literacy ○ Workplace experience or applied competencies
Flinders University	<ul style="list-style-type: none"> ○ Financial management ○ Healthcare operations management ○ Interpersonal, communication and team work skills ○ Leadership, politics and ethics ○ Patient or client and community focus
Griffith University	<ul style="list-style-type: none"> ○ Be creative and innovative ○ Be information literate ○ Be responsible and effective citizens ○ Behave ethically in social, professional and work environments ○ Communicate effectively ○ Make critical evaluations ○ Solve problems ○ Work autonomously and in teams
James Cook University	<ul style="list-style-type: none"> ○ Critical thinking ○ Interpersonal understanding and communication ○ Problem solving ○ Project management

Monash University	<ul style="list-style-type: none"> ○ An international outlook, cultural sensitivity and an inclusive approach to difference ○ Capacity for critical thought, analysis and synthesis ○ Effective oral communication skills ○ Effective problem solving skills ○ Effective written communication skills ○ Enthusiasm and capacity for enquiry and research ○ Information literacy ○ Information technology literacy ○ Socially responsible and ethical attitudes ○ The ability to articulate a sound argument ○ The ability to work collaboratively and to assume appropriate leadership roles ○ The insight to identify a problem and introduce innovative solutions
Murdoch University	<ul style="list-style-type: none"> ○ Communication ○ Critical and creative thinking ○ Ethics ○ Global perspective ○ Independent and life-long learning ○ In-depth knowledge of a field of study ○ Interdisciplinary ○ Social interaction ○ Social justice
Queensland University of Technology	<ul style="list-style-type: none"> ○ Characteristics in self-reliance and leadership ○ Critical, creative and analytical thinking, and effective problem solving ○ Effective communication in a variety of contexts and modes ○ Knowledge and skills pertinent to a particular discipline or professional area ○ Social and ethical responsibility and an understanding of indigenous and international perspectives ○ The ability to work independently and collaboratively ○ The capacity for life-long learning
Swinburne University of Technology	<ul style="list-style-type: none"> ○ Adaptable and manage change ○ Entrepreneurial in contributing to innovation and development within their business, workplace or community ○ Aware of local and international environments in which they will be contributing (e.g. socio-cultural, economic, natural) ○ Capable in their chosen professional, vocational or study areas ○ Operate effectively and ethically in work and community situations
The University of New South Wales	<ul style="list-style-type: none"> ○ A capacity to contribute to and work within the international community ○ A respect for ethical practice and social responsibility ○ An appreciation of, and a responsiveness to, change ○ An appreciation of, and respect for, diversity

	<ul style="list-style-type: none"> ○ An in-depth engagement with the relevant disciplinary knowledge in its interdisciplinary context ○ The skills to locate, evaluate and use relevant information ○ The ability to engage in independent and reflective learning ○ The capacity for analytical and critical thinking and for creative problem solving ○ The capacity for enterprise, initiative and creativity ○ The skills involved in scholarly enquiry ○ The skills of effective communication ○ The skills required for collaborative and multidisciplinary work
The University of Sydney	<ul style="list-style-type: none"> ○ Communication – graduates will recognise and value communication as a tool for negotiating and creating new understanding, interacting, and furthering their own learning ○ Ethical, social and professional understanding – graduates will hold personal values and beliefs consistent with their role as responsible members of local, national, international and professional communities ○ Information literacy – graduates will be able to use information effectively in a range of contexts ○ Personal and intellectual autonomy – graduates will be able to work independently and sustainably, in a way that is informed by openness, curiosity and a desire to meet new challenges ○ Research and inquiry – graduates will be able to create new knowledge and understanding through the process of research and inquiry
University of Adelaide	<ul style="list-style-type: none"> ○ A commitment to continuous learning and the capacity to maintain intellectual curiosity throughout life ○ A commitment to the highest standards of professional endeavour and the ability to take a leadership role in the community ○ A proficiency in the appropriate use of contemporary technologies ○ An ability to apply effective, creative and innovative solutions, both independently and cooperatively, to current and future problems ○ An awareness of ethical, social and cultural issues and their importance in the exercise of professional skills and responsibilities ○ Knowledge and understanding of the content and techniques of a chosen discipline at advanced levels that are internationally recognised ○ Skills of a high order in interpersonal understanding, teamwork and communication ○ The ability to locate, analyse, evaluate and synthesise information from a wide variety of sources in a planned and timely manner
University of Canberra	<ul style="list-style-type: none"> ○ Communication – to be able to identify, analyse, evaluate and communicate information and knowledge, using appropriate oral, visual and written mediums ○ Creativity – to use original approaches to produce works that critique and extend current forms of knowledge and understanding ○ Ethical practice – to respect, understand and apply ethical practices personally and professionally ○ Inquiry – to be able to develop advanced approaches and techniques for defining, investigating and resolving research questions

	<ul style="list-style-type: none"> ○ Knowledge – to be able to conceptualise, acquire, apply, integrate, grow and contextualise knowledge ○ Organisation – to be able to develop advanced strategies to lead the planning, management and implementation of a project
University of Melbourne	<ul style="list-style-type: none"> ○ Academically excellent ○ Active global citizens ○ Attuned to cultural diversity ○ Knowledge across disciplines ○ Leaders in communities
University of New England	<ul style="list-style-type: none"> ○ Communication skills ○ Global perspective ○ Information literacy ○ Life-long learning ○ Problem solving ○ Social responsibility ○ Teamwork
University of Notre Dame	<ul style="list-style-type: none"> ○ A commitment to community service and social justice within their future field of work ○ Excellent employment prospects ○ Highly developed intellectual skills ○ Strong practical capacities within their disciplines and professions
University of South Australia	<ul style="list-style-type: none"> ○ Can work autonomously and collaboratively as a professional ○ Communicates effectively in professional practice and as a member of the community ○ Demonstrates international perspectives as a professional and as a citizen ○ Is an effective problem solver, capable of applying logical, critical, and creative thinking to a range of problems ○ Is committed to ethical action and social responsibility as a professional and citizen ○ Is prepared for life-long learning in pursuit of personal development and excellence in professional practice ○ Operates effectively with and upon a body of knowledge of sufficient depth to begin professional practice
University of Southern Queensland	<ul style="list-style-type: none"> ○ Communication ○ Decision-making ○ Teamwork
University of Tasmania	<ul style="list-style-type: none"> ○ Communication skills – access, organise and present information, particularly through technology based activity ○ Knowledge – apply technical and information skills appropriate to their discipline or professional area ○ Problem-solving skills – find, acquire, evaluate, manage and use relevant information in a range of media
University of Technology Sydney	<ul style="list-style-type: none"> ○ Is equipped for ongoing learning in the pursuit of personal development and excellence in professional practice

	<ul style="list-style-type: none"> ○ Operates effectively with the body of knowledge that underpins professional practice ○ Is committed to the actions and responsibilities required of a professional and a citizen <p>Personal:</p> <ul style="list-style-type: none"> ○ Managing own work ○ Working with others ○ Cross cultural understanding ○ Capacity for initiative and innovation ○ Capacity for community engagement <p>Professional:</p> <ul style="list-style-type: none"> ○ Disciplinary, professional and technical knowledge ○ Application of expertise appropriate to the practice context ○ Understanding the contexts of professional work ○ Ethical understanding <p>Intellectual:</p> <ul style="list-style-type: none"> ○ Critical and independent thinking ○ Spoken and written communication ○ Information technology literacy ○ Information literacy
<p>University of the Sunshine Coast</p>	<p>To understand:</p> <ul style="list-style-type: none"> ○ To have relevant, discipline-based knowledge, skills and values ○ To be able to apply and evaluate knowledge <p>To think:</p> <ul style="list-style-type: none"> ○ To value and respect reason ○ To be able to reason competently <p>To learn:</p> <ul style="list-style-type: none"> ○ To be self-aware, independent learners ○ To be able to collect, organise, analyse, evaluate and use information in a range of contexts <p>To interact:</p> <ul style="list-style-type: none"> ○ To be able to interrelate and collaborate ○ To value and respect difference and diversity <p>To communicate:</p> <ul style="list-style-type: none"> ○ To speak, listen and write competently ○ To be competent users of information and communication technologies <p>To initiate:</p> <ul style="list-style-type: none"> ○ To be constructive and creative ○ To be enterprising <p>To value:</p> <ul style="list-style-type: none"> ○ To have self-respect and a sense of personal agency ○ To have a sense of personal and social responsibility ○ To understand and apply ethical professional practices

University of Western Sydney	<ul style="list-style-type: none"> ○ Applies knowledge through intellectual inquiry in professional or applied contexts ○ Brings knowledge to life through responsible engagement and appreciation of diversity in an evolving world ○ Commands multiple skills and literacies to enable adaptable life-long learning ○ Demonstrates comprehensive, coherent and connected knowledge
University of Wollongong	<ul style="list-style-type: none"> ○ A basic understanding of information literacy and specific skills in acquiring, organising and presenting information, particularly through computer-based activity ○ A capacity for, and understanding of, teamwork ○ A commitment to continued and independent learning, intellectual development, critical analysis and creativity ○ A desire to continually seek improved solutions and to initiate, and participate in, organisational, social and cultural change ○ An ability to logically analyse issues, evaluate different options and viewpoints, and implement decisions ○ An acknowledgement and acceptance of individual responsibilities and obligations and of the assertion of the rights of the individual and the community ○ An appreciation and valuing of cultural and intellectual diversity and the ability to function in a multi-cultural or global environment ○ Coherent and extensive knowledge in a discipline, appropriate ethical standards and, where appropriate, defined professional skills ○ Self confidence combined with oral and written skills of a high level
Victoria University	<ul style="list-style-type: none"> ○ Can locate, evaluate, manage and use information effectively (including 'critical thinking', ICT and statistical skills) ○ Can work both autonomously and collaboratively as a professional ○ Can work effectively in settings of social and cultural diversity ○ Communicates effectively as a professional and as a citizen ○ Is an effective problem solver in a range of settings, including professional practice