Curriculum Renewal Road Map

A compendium of resources to support curriculum review and renewal of coursework programs at the University of Adelaide

December 2013
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Curriculum Renewal at the University of Adelaide

Overview

Curriculum renewal is about making sure the courses in a program, and the programs in Schools or Disciplines, remain pedagogically sound in their design and delivery. Curriculum renewal activities examine their fitness for purpose and their value to students and the academic staff who deliver them.

Curriculum renewal

Curriculum renewal

- is a curricula response to an external or University led review; a student evaluation; a continuous improvement adjustment; and/or the introduction of new content, different pedagogic or assessment approaches.
- can be regular or in response to changing circumstances or demand.
- can refer to change at any or all of the levels at which the University has formal approval procedures, such as:
  - Course level
  - Major / Stream level
  - Program level.

This process invariably involves the concept of constructive alignment of the various elements of the curriculum.

While it is ideal for all programs to be reviewed from ‘the ground up’ at some point in their life, more often curriculum renewal will occur in response to a regular review and reflection process and will focus on addressing specific identified issues.

If needed, the process can be entered at any stage to ‘refresh’ rather than renew a program or course.

A curriculum renewal process also works for developing new programs.

Curriculum renewal refers to the planning and development phase of the learning and teaching process. Teachers and students turn these plans into actions: this is the point where learning occurs and as such this is the critical test of the effectiveness of these plans. If plans and action don’t match, then further revision is needed – either to the plans or to the practice.

The suggestions and recommendations in this guide relate specifically to coursework programs.

This guide attempts to cover all possibilities from major strategic curriculum change for a whole program to justifying making slight changes to a course. It must be noted that apparently small changes to a course may have a significant ‘knock on’ effect to related courses and potentially to the program or major or stream. Changes in the operating environment will also precipitate change. In curricula this may include, but is not limited to, introduction of a new strategic direction, decisions made at PAEC or ULC, changes in the TEQSA or AQF standards, processes and policies, or introduction of, or changes to, professional standards or Threshold Learning Outcomes.

University policy

All course and programs must comply with the University of Adelaide policies and Strategic Plan.

In particular all individuals and groups working on curriculum review, renewal, refreshing or development should refer to:

- Beacon of Enlightenment Strategic Plan 2013 to 2023
- Coursework Assessment Policy
- Program and Course Review guidelines
- Program Development & Approval guidelines
- The University’s Learning and Teaching
- Graduate Attributes

1 Username and password will be required to access this document
2 Username and password will be required to access this document

04.12.2013
In brief, from 2013 the University’s strategic priorities for curriculum, learning and teaching include:

- ensuring the alignment to the University’s graduate attributes are visible in all programs and courses,
- embedding Small Group Discovery Experiences in all years of all programs to strengthen the nexus between research and teaching,
- embedding academic and professional literacies across the life of all degrees and majors,
- embedding development of career readiness attributes and, where appropriate, work integrated learning in all programs,
- including elective options that broadening curriculum to foster graduate attributes,
- ensuring coherence in degrees and majors,
- ensuring alignment with external imperatives e.g. AQF, TEQSA, professional accreditation bodies,
- responding to student experience evaluations and community, including industry, expectations,
- supporting improved contemporary learning, teaching and assessment approaches, including effective use of technology to enhance learning and teaching practice, and
- updating Assessment for Coursework policy and Coursework Academic Programs policy.

Curriculum renewal is a change process

Curriculum change is a process guided by a number of principles (Walkington, 2002, p.134):

a. Change is a journey not a blueprint.
b. The process is non-linear and loaded with uncertainty.
c. The process requires both individualism and collectivism.
d. Requires both top down and bottom up organisational strategies.
e. Process is only sustainable if connected with a wider community (stakeholders).
f. All curriculum team members are change agents.
g. Contextual change is required for curriculum changes to take place.
h. Evaluation is a necessary component of change.

The curriculum renewal process can be summarised as is an example of the Plan-Do-Check-Act (PDCA) approach common in project management.

Curriculum

In this guide, curriculum is taken to mean the expression of educational ideas in practice, including all the students’ planned learning experiences as described in and documented as:

- Program intent (Program aims, purpose and learning outcomes),
- Program structure and rules (the order of the courses over the life of the program and which are core or electives, which contribute to majors or specialisations, etc),
- Course descriptions, summarising:
  o learning outcomes (describe what students will know and be able to do upon successful completion of a program or course)
  o learning activities (the things students do and you do with students to develop their knowledge, skills and application)
  o assessment (the way that students provide evidence that they have achieved the stated and intended learning outcomes or exceeded those expectations)
  o content (the topics that will be covered over the course)
  o inclusions, exclusions, assumed knowledge, prerequisites and co-requisites
  o pedagogy (the approach to teaching).
- The alignment of all elements above to each other and, collectively, to higher order requirements such as AQF qualification descriptors, University requirements and accreditation standards.
Authorship and Acknowledgements

Curriculum Renewal Road Map is a compendium of resources and weblinks to support the process of curriculum renewal.

The Curriculum Renewal Road Map was prepared as part of the 2013 Curriculum Renewal project initiated by the Office of the PVC Student Experience and reflects the collective work of the Curriculum Renewal Directors – Stephanie Eglinton-Warner (working with the faculties of Professions and Engineering Computer and Mathematical Sciences), Suzy McKenna (working with the faculties of Health Sciences and Science) and Rigmor George (working with the Faculty of Humanities and Social Sciences). Individual contributions are acknowledged.

Many of the resources and ideas used have been sourced from elsewhere and those sources have been acknowledged wherever known.

DISCLAIMER: This guide is not intended to replace policy or procedural guidelines but to complement them. At all times any process must adhere to University of Adelaide policy, procedures and guidelines.
PRINCIPLES AND PURPOSE OF THE CURRICULUM RENEWAL PROCESS

Principles of curriculum renewal and change
Curriculum renewal should be based on and clearly articulate a solid philosophical foundation. This includes the concepts that guide the educational approach and those that belong with the University, the discipline, profession or occupation.

Curriculum renewal needs to be informed by the context and environment in which it is happening (e.g. culture, philosophies, goals, regulation and compliance, quality assurance).

Drivers for curriculum renewal
Curriculum renewal is undertaken as a response to one or more drivers impacting on qualification design, implementation and student outcomes. Curriculum is dynamic and University quality assurance systems recognise this by ensuring qualifications are reviewed and renewed on a regular basis. In addition, faculties also lead continuous improvement processes for a variety of reasons.

The drivers for renewal generally fall into three groupings and may be internal or external or a mix. Most curriculum renewal will address more than one of these drivers.

The purpose of any curriculum renewal project needs to state clearly which of the drivers are prioritised and the design of the process should complement the purpose.

Possible drivers include:

Quality assurance, continuous improvement
- Cause and Effect Analysis
- Problem Solving
- Cyclical, iteratively asking WHY
- Compliance is a minimum, best practice is the goal
- Fit for purpose
- Understood, owned, resourced, used
- Act on feedback and review processes.

Response to context changes
- Strategic intents
- University policy and directives
- Market expectations – Students, Industry and Competitors
- Organisational restructure
- Compliance environment.

Growth and innovation
- New ideas
- New methodologies
- New markets.

Purpose of the curriculum renewal process
The purpose of the curriculum renewal process is to support and assist with:

- University of Adelaide strategic direction, policies and systems
- maintenance of TEQSA standards
- maintenance of professional/industry accreditation standards, where required.

The process outlined in this guide has been designed with learning outcomes as the foundation, and the idea of constructive alignment as its guiding principle. The intent is to design curriculum that supports the development of deep learning and meaningful application of knowledge and skills in a range of relevant contexts.

Curriculum must reflect good practice in relation to both pedagogy and compliance.

Adapted from Sylvia Rodgers ALTC Good Practice Guide 3: Principles of Curriculum Renewal and Change
The Australian Qualifications Framework (AQF), which is the basis of the TEQSA Qualification Standard, outlines broad standards for each qualification level which must be reflected in the curriculum design. Level 7 (Bachelor) and Level 8 (Bachelor (honours)) qualification types are the most relevant to undergraduate coursework programs. Level 8 (Graduate Certificate and Graduate Diploma) and Level 9 (Masters) qualification types are the most relevant for postgraduate coursework program.

The curriculum renewal process must be:

- replicable
- validated
- viable
- efficient
- fit for purpose
- effective
- flexible
- user friendly.

This guide assumes that:

- Curriculum is drafted and implemented within an environment that accepts and understands a Knowledge, Skills and Application (KSA) approach to learning and assessment, and
- Curriculum, program and course intentions are expressed in terms of learning outcome.
- It is assumed that for each project:
  - the starting point, priorities and context will be different, and
  - the methodology for working through the process will take account of the starting point, priorities and context, as well as the internal culture of the School, Discipline or Faculty.
CONSTRUCTIVE ALIGNMENT AND SOLO TAXONOMY

The curriculum renewal processes described in the Curriculum Renewal Road Map are informed by Dr John Biggs’ Constructive Alignment and is intended to develop curricula that facilitates deep learning as outlined in Bigg’s SOLO Taxonomy model.

Constructive alignment

Constructive Alignment is centred on ensuring the relationship between learning intentions (Learning Outcomes), assessment, and teaching and learning activities is explicit, direct and aligned. What is learnt, is assessed and is what was intended to be learnt.

What students will know and be able to do as a result of successfully completing the course

In constructive alignment, we start with the outcomes we intend students to learn, and align teaching and assessment to those outcomes ... Learning is constructed by what activities the students carry out; learning is about what they do, not about what we teachers do. Likewise, assessment is about how well they achieve the intended outcomes, not about how well they report back to us what we have told them.


SOLO taxonomy

The aim of higher education is to ensure students develop deep understanding. This will result in critical, reflective thinkers and highly sought after professionals. Therefore the learning activities, assessment tasks and learning outcomes for any course must be designed to develop deep understanding.

To do this, learning outcomes for courses in the latter part of a program would be expected to use verbs such as analyse, apply, argue, compare and contrast, criticise, explain causes, relate, justify, create, formulate, generate, hypothesise, reflect, theorise.

Courses in the earlier in the program may have some learning outcomes that include verbs such as identify, name, following simple procedures, combine, describe, enumerate, perform serial skills, list, as students are being introduced to foundational knowledge and skills.
SOLO Taxonomy is a framework for describing how students engage with learning activities and assessment and the impact on the depth of the learning they achieve.

As learning progresses it becomes more complex. SOLO, which stands for the Structure of the Observed Learning Outcome, is a means of classifying learning outcomes in terms of their complexity, enabling us to assess students’ work in terms of its quality not of how many bits of this and of that they got right.

THE UNIVERSITY OF ADELAIDE LEARNING AND TEACHING PRIORITIES AND
GRADUATE ATTRIBUTES

The University of Adelaide learning and teaching priorities are determined by the current strategic plan (The Beacon of Enlightenment) and the current Operational Plan (2013-2015).

In relation to curriculum renewal, these priorities include:

- Creating small-group learning experiences for all students
- Improving educational flexibility through online learning
- Delivering flexibility and efficiency
- Delivering an integrated Student eExperience
- Focussing on research in undergraduate courses
- Providing opportunities for high challenge independent learning
- Encouraging scholarship of discovery in all students
- Ensuring all graduates develop values and skills for employment
- Developing faculty-based career readiness programs.

The University of Adelaide graduate attributes are part of the University’s quality assurance framework. They play a role in outcomes for students, validity of programs and courses, and addressing stakeholder interests. They are broadly based and focus on transferable skills (such as communication, teamwork, thinking, information literacy) and contextual factors (such as personal, professional, internationalisation, citizenship, employment).

The AQF refers to graduate attributes as generic learning outcomes that are:

...transferable, non-discipline specific skills a graduate may achieve through learning that have application in study, work and life contexts.

These skills can be placed into 4 broad categories:

- fundamental skills, such as literacy and numeracy appropriate for the level and qualification type
- people skills, such as working with others and communication skills
- thinking skills, such as learning to learn, decision making and problem solving
- personal skills, such as self direction and acting with integrity.

Australian Qualifications Framework Handbook 2013 p 11

The TEQSA Qualification Standards require that the University:

...demonstrate ... that students who complete the [program] of study attain key graduate attributes, including an appropriate level of English language proficiency.

TEQSA Threshold Standards 2011, sec 5.5 p

Graduate attributes can only be effective, however, when they are:

- embedded in the curriculum (through a curriculum renewal or development process),
- given meaning by the discipline (through consultation and validation within the discipline),
- systematic and defensible (through incorporation of external standards and stakeholder views),
- intentional not aspirational (expressed as learning outcomes),
- measured (through assessment that is explicitly aligned to learning outcomes), and
- supported directly through teaching and learning (by designing learning activities which align explicitly with the learning outcomes and assessment tasks of the course, and are based on current valid pedagogic/andragogic/heutagogic approaches).
A STRATEGIC APPROACH TO CURRICULUM RENEWAL

In this section a strategic approach to large scale curriculum renewal is outlined. This approach may also inform less formal, smaller scale curriculum renewal activities.

In brief, the approach has four main stages:

1. Start by determining what’s needed, and why
2. Then determine the current state
3. Then analyse that information to identify any differences between the two
4. Then develop a plan to address any identified gaps, overlap, imbalances, less-than-optimal delivery/assessment, etc.

Adapted from Sylvia Rodgers ALTC Good Practice Guide 3: Principles of Curriculum Renewal and Change

There are 3 elements in a strategically planned approach to curriculum renewal.

Planning and initiating

Clear Faculty level objectives/case/outcomes and timeframes for curriculum renewal are determined:

- based on the University Strategic Plan, internal and external compliance, and/or other drivers,
- by a group with both authority to make and implement decisions, and representation of all key stakeholder’s, and
- taking account of risk analysis.

The imperative for change is communicated to stakeholders:

- situating the strategy in educational and disciplinary conceptual frameworks, and
- in a manner that supports and encourages development of constructive dialogue and the sharing of ideas.

A management group / steering committee is established:

- that includes representation of the interests all key stakeholders,
- with a brief to support, manage and monitor the change process.

A set of principles for curriculum renewal is agreed and communicated to all relevant stakeholders.

Champions for change are identified and supported, with:

- who they are and their role in relation to the strategies communicated to all relevant stakeholders, and
- how they will be supported included in plans.

Clear imperatives, deliverables and timeframes are established and communicated, which include strategies for:

- providing ongoing support, encouragement and development,
- dealing with conflict and resistance, and
- for responding to unforeseen challenges and changes to assumptions or the context/environment.

An evaluation plan is pre-determined and communicated:

- with relevant and appropriate performance criteria,
- with mechanisms for collecting and analysing data to determine performance against criteria, both ongoing over the life of the project and on conclusion of the project,
- with mechanisms for responding to the findings of any monitoring and evaluation process, including how adjustments will be made to the plan, and
- with mechanisms for reporting progress over the life of the project and on conclusion of the project.
Implementing

Through a curriculum mapping process, compare the alignment of high level criteria to program intent, to determine the extent to which changes need to be made to the existing program and the nature of those changes.

- This may be done by one or two individuals initially but must be validated by consultation with all relevant stakeholders.
- This process will inform the project brief for the working group (or groups).

Establish working groups.

- The people involved in implementing may or may not be those involved in the strategic planning stage.

Develop project brief for the working groups which:

- reflects the strategic plan,
- reflects areas for improvement identified through the curriculum mapping process, and
- includes milestones, deliverables, and mechanisms for consultation, monitoring and review, and reporting.

Implement the curriculum renewal process or relevant part thereof.

Utilise existing tools and resources wherever practicable and when fit for purpose.

- Many curriculum renewal templates and tools are available from reliable sources.
- The Faculty intranet and the University learning and teaching site have resources that may also be suitable.

Monitoring and reviewing

Curriculum renewal is an integral part of ongoing quality assurance processes and as such is cyclical and iterative.

Appropriate monitoring and review processes inform decisions about where to place priorities for and how to implement future quality assurance and continuous improvement activities.

Mechanisms for monitoring, reviewing and reporting progress and performance against agreed appropriate criteria must be integral to both the strategic and operational plans.

Mechanisms must also be in place to enable the findings of the monitoring, review and reporting processes to be acted upon.

The plan generated for curriculum renewal will provide the criteria against which monitoring and review can take place. It is best practice in project management to ensure the completion of any project includes an analysis of ‘lessons learnt’.
From Review to Renew

<table>
<thead>
<tr>
<th>Current State</th>
<th>Mechanics</th>
<th>Validation &amp; Consultation</th>
<th>Response</th>
<th>New Current State</th>
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<tr>
<td>- Current Curriculum</td>
<td></td>
<td>Identify items for mapping</td>
<td>Set up expert group to</td>
<td>Renewed curriculum</td>
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<td>- Current UA Graduate Attributes</td>
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<td>data in a suitable format for software program or method (or can be made to fit)</td>
<td>Evaluate</td>
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<td>- Current TLO</td>
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<td>Identify approach to systematically collect, organise and analyse data</td>
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<td>- Current UA Strategic Priorities</td>
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<td>validate</td>
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<td>- Current external Accreditation Standards (Professional Bodies, Licensing, TEQSA, Quality Assurance)</td>
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<td>Validate findings</td>
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<td>Desired state</td>
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<td>- Item response (for large scale projects)</td>
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<td>List drivers e.g. Faculty Review; new accreditation standards; AB policy, revised UGA, discipline TLO, LTICS principles, TEQSA audit, Beacon initiatives</td>
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<td>Propose areas for renewal / improvement / change</td>
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| REPORT  |  | REPORT  | REPORT  | REPORT  

Validation and Consultation within and external to the working party are critical to both the Review and Renew stages of the process. This is not a purely linear process and must be seen as cyclical and iterative to maintain quality and relevance of curriculum.

Adapted from model developed by Suzy McKenna
An overview of the relationships and interdependence of aspects of curriculum within a quality framework

**University of Adelaide outcomes**

University of Adelaide Graduate Attributes and strategic initiatives for learning and teaching are embedded in the qualification – the University’s unique proposition to students

**Program outcomes**

- align with the TEQSA Threshold Standards (AQF),
- align with discipline threshold learning outcomes, professional accreditation standards or other professional or discipline, or industry benchmarks, as relevant
- Program design meets University policy for an undergraduate degree
- Program design reflects School vision for program graduates

**Course Learning Outcomes**

Collectively allow Program outcomes to be met

*Introduce + Develop / Reinforce + Practice, Application & Reflection*

**Course learning and teaching design**

- Create opportunities for Course Learning Outcomes to be achieved
- Contribute to, scaffold and enable Program
- University Learning and Teaching priorities embedded, including academic Literacies, eLearning, work integrated learning/career readiness, research skills development, Small Group Discovery Experience, final year capstone course

**Assessment criteria and approach**

Confirm that the student has achieved, or is on the way to achieving, the Course and Program Learning Outcomes

The Graduate has achieved the Program Learning Outcomes and University requirements and has had the unique University of Adelaide experience.

*Adapted from curriculum mapping guide developed by Suzy McKenna*
THE BIG QUESTIONS

Ask Why?

- to validate decisions and actions,
- to engage stakeholders, and
- to provide a context for decision making, goal setting and evaluation.

Ask How?

- to determine the process, and
- to develop agreed criteria for success for review and evaluation.

Ask What?

- What is the intent and purpose of the program?
- What skills and knowledge do learners need to develop:
  o for the program?
  o for the major?
  o for the specialisation?
  o for the course?
- What courses will be needed (core) and which can help (electives) to achieve the intent and purpose of the program?
- What will students do to develop the expected knowledge, skills and application (learning activities)?
- What will students need to do to demonstrate they have achieved program and course learning outcomes (assessment)?

... you can’t design and build something that is ‘fit for purpose’ if you don’t know what that purpose is!

The key questions informing curriculum renewal processes

1. Where are we now? (and Why?) (Stage 1 of the Curriculum Renewal Process)

- Current program.
- Drivers.
- Constraints.
- Reviews.
- Feedback.
- Alignment of current program against key elements.

2. Where do we want to be? (and Why?) (Stage 2 of the Curriculum Renewal Process)

- Vision:
- University,
- Faculty.
- Strategic directions:
- University drivers,
- External drivers.
- External accreditation/standards.
- Graduate Attributes:
- Career readiness,
- Graduate employability.
- Program/Course learning outcomes.
- Embedded pedagogies.
3. How will we get there? (and Why?) (Stage 3 of the Curriculum Renewal Process)
   - Approach appropriate for culture and needs of the Faculty.
   - Curriculum design theory.
   - Learning intentions.
   - Constructive Alignment.
   - Tools.
   - Working groups.

4. Are we there yet? (Stage 4 of the Curriculum Renewal Process)
   - Trial.
   - Evaluation.
   - Review.
   - Validation.

4a. How do we know?
   - Monitoring and review processes and mapping tools can provide answers.

4b. What to do if we are not?
   - Curriculum renewal is an iterative process and can be picked up at any stage as required.

5. Where to next? (Make a plan)
   - Maintenance,
   - Future priorities,
   - Supporting implementation, and
   - Ongoing monitoring and review processes.
Part 1: Where are we now?

If refreshing or refining a program/course, this stage may only need brief consideration

If making major revisions, redeveloping or developing a program/course, deeper consideration will be required as this is likely to lead to a significant restructure of the order and focus of the program

☐ Context established for refreshment / revision / creation
  • What needs to be done, how and why?
    ○ Drivers ..........................................................................................................................................................
    ○ Purpose ..........................................................................................................................................................
    ○ Priorities ..........................................................................................................................................................
  • What needs to be aligned to what?
    ○ Graduate attributes ...............................................................................................................................  
    ○ Professional competencies ....................................................................................................................  
    ○ Constructive alignment ............................................................................................................................  
  • The scope of the work is decided
    Does this need to be:
    ○ Refine / refresh / fine tune? ............................................................................................................................  
    Why? ............................................................................................................................................................  
    ○ Major revision? .............................................................................................................................................  
    Why? ............................................................................................................................................................  
    ○ Clean slate redevelopment/development? .......................................................................................................  
    Why? ............................................................................................................................................................  

☐ Current program/major course review
  • all relevant sources of feedback considered
  • alignments mapped
  • mapping results analysed
  • areas for improvement identified

☐ Response to review findings validated
  Summary .............................................................................................................................................................  
...............................................................................................................................................................

Curriculum Renewal Checklist

19 Curriculum Renewal Curriculum Checklist 02.12.2013
Part 2: Where do we want to be?

☐ Preferred curriculum determined and agreed for a program/course/group of courses

- Intent, goals, aims, objectives are identified
  Summary .............................................................................................................................................................................
  ...............................................................................................................................................................................................
  ...............................................................................................................................................................................................  

- Learning outcomes are identified
  Summary .............................................................................................................................................................................
  ...............................................................................................................................................................................................
  ...............................................................................................................................................................................................  

- Priorities, themes, characteristics required are determined and agreed
  Summary .............................................................................................................................................................................
  ...............................................................................................................................................................................................
  ...............................................................................................................................................................................................  

- Structure is determined and agreed
  Summary .............................................................................................................................................................................
  ...............................................................................................................................................................................................
  ...............................................................................................................................................................................................  

Part 3: Getting there

☐ Current courses revised / redeveloped

If refreshing or refining a program/ group of courses, only some courses will be considered and no new courses developed

If making significant adjustments to or developing a program/ group of courses many courses will need to be considered in depth and at least some new or revised courses will be developed

- Adjustments made as needed to
  - Course learning outcomes
    ............................................................................................................................................................................................
  - Learning activities
    ............................................................................................................................................................................................
  - Assessment tasks and approach
    ............................................................................................................................................................................................
☐ New courses developed
  • New course(s) developed
    ○ Course learning outcomes
      ....................................................................................................................................................................................
      ....................................................................................................................................................................................
    ○ Learning activities
      ....................................................................................................................................................................................
      ....................................................................................................................................................................................
    ○ Assessment tasks and approach
      ....................................................................................................................................................................................
      ....................................................................................................................................................................................

☐ Program structure finalised
  If refreshing or refining program, this stage may only need brief consideration
  If making major revisions or development new program/courses/group of courses, this stage will require deeper consideration to ensure program intents are met and alignments are strong and relevant
  • order and relationships are logical
    Summary .............................................................................................................................................................................
    ....................................................................................................................................................................................
  • mapping of alignments checked, and adjusted as needed
    Summary .............................................................................................................................................................................
    ....................................................................................................................................................................................

Part 4: Making it happen
  If refreshing or refining program – this stage is likely to be addressed in School or in Faculty
  If making major revisions or redevelopment – this stage will require PAEC approval

☐ Course outline completed and validated

☐ Approval and implementation processes completed
  • consultations and validation completed  
  • implementation plan developed  
  • implementation plan approved  
  • forms and documentation completed  
  • forms and documentation submitted  
  • forms and documentation approved  
MAKE A PLAN

An appropriate and realistic plan will help you to manage resources, identify criteria for success against which performance and progress can be monitored, clarify who needs to do what, by when and how, as well as outline the pathway to achieve goals.

All curriculum renewal plans must be consistent with and complement University policy, particularly:

- Program and Course Review guidelines
- Program Development & Approval guidelines.

A commonly used format for an action plan is:

<table>
<thead>
<tr>
<th>What</th>
<th>How</th>
<th>When</th>
<th>By Whom</th>
<th>Required Resources</th>
<th>Milestones &amp; Deliverables</th>
<th>Monitoring, Reporting &amp; Evaluation strategies</th>
</tr>
</thead>
</table>

Who should be involved?

The list may include any or all of:

- Associate Dean Learning and Teaching
- Heads of Schools
- Heads of Disciplines
- Course Coordinators
- Individual Academics with an interest in learning and teaching
- Professional staff with responsibilities for managing curriculum.

Not everyone needs to be involved all the time.

Decide:

- who needs to be on working party (and why).
- who needs to be consulted (on what, when, how and why).
- Note you may need approvals and support from individuals or groups outside of the School / Discipline and they will be more willing to provide that support if they understand what you are doing and why, and if they feel they have been consulted in good faith and in a timely and open manner.
- who can provide useful information and specific services or support to the working party at different stages of the process – and how and when to access their services.

Resources and milestones

Resources may include:

- time and staff
- services from outside the School/Faculty if unavailable within (e.g. eLearning advisors, learning and teaching advisors, ITS)
- access to appropriate tools for analysis, if required.

Milestones and deliverables will be determined by the scope of the project and the time and other resources available.

This may include any or all of the following:

- mapping of alignment to and from program learning outcomes
- mapping of alignment of course learning outcomes to learning activities and to assessment
- revised program structure
- revised / developed program learning outcomes
- revised course outlines
- revised course learning outcomes
- revised course assessment
- revised learning and teaching strategies
- development of new courses.
Monitoring and evaluation

Monitoring and evaluation is an ongoing process and should not be left to the end of the project.

Setting SMART goals for the project plus the details in your action plan, including realistic milestones, will give you a clear and realist set of criteria against which to measure performance as you proceed.

Monitoring progress and performance as you go allows you to make adjustments as you need and before you wander too far off your chosen path. It also allows you to recognise when you have reached your goal.

Remember, plans can be changed.

If there are changes in the environment in which you are working (e.g. changes to policy) or changes in the available resources (e.g. staffing changes) you will need to adjust the plan to accommodate these.

The adjustment may be as simple as adjusting some of the time lines or as significant as adjusting your overall goals.
Curriculum Mapping and Alignment Overview

Curriculum Mapping supports and informs the Curriculum Renewal process, by analysing, interpreting and documenting the alignment of the various elements that make up the intent, structure and content of programs and courses.

In addition to the program learning outcomes and course learning outcomes, these elements include but are not limited to:

- Australian Qualification Framework (AQF) Qualification Type Specifications
- TEQSA Threshold Standards
- The University of Adelaide graduate attributes
- Professional competencies or professional accreditation standards (where they exist)
- Professional or discipline benchmarks (where they exist)
- Discipline Threshold Learning Outcomes (where they exist)

Purpose of curriculum mapping

Curriculum mapping is a tool to assist the analysis of programs and courses in terms of how well they reflect identified criteria.

At its simplest, a curriculum map is a tool which allows the framework of Learning Outcomes within the curriculum to be displayed and queried

Electronic curriculum mapping: what are they and why would we want one?, Dr J Kerslake and Dr J McKendree, Hull York Medical School, The Higher Education Academy, UK, n.d.

It is a way of comparing the design of programs and courses to relevant criteria to ensure there is visible and strong alignment with those criteria. Where there is not a visible and strong match, decisions need to be made about whether the criteria are appropriate or whether the programs or courses need revision, refining, redevelopment or deletion.

An effective mapping process will indicate where changes are needed and inform what those changes should be.

Curriculum mapping tools

Ideally, courses with appropriately constructed learning outcomes and course outlines can be readily compared using qualitative data analysis tools. Tools specifically designed for the purpose or generic qualitative data analysis and word search using Boolean Operators, such as Nvivo, may be used in these cases.

However, useful spreadsheets and tables, or even sticky-notes can be used to help collate, interrogate, and interpret data. In fact, this may be a preferable option where the volume of data is manageable and/or where the data is not in a consistent form that is easily compared by an automated process. Examples of curriculum mapping tools can be found in the appendices.

The tools used for mapping are merely an aid to generating an evidence based robust discussion.

Who should do the mapping?

Professional judgement, knowledge of the subject matter area and an understanding of educational theory that underpins effective curriculum design are required to undertake meaningful analysis. This is a job for the academics with responsibilities for the courses and program being reviewed.

Working in collaboration with other academics is desirable. Then you can integrate validation into the process and you can mitigate the effect of knowing the course too well and not being able to see any mismatch between practice and documentation.
MAPPING ALIGNMENTS

What needs to be aligned?

The alignment of key elements that influence the design of curriculum are described below, from large grain (graduate focus) to fine grain (course focus).

Note: These are not necessarily discrete stages nor is this a strictly linear process. There may be overlap between the levels of alignment shown below. Iterative adjustments throughout the process of identifying and creating alignment may need to be made.

Aligning internal and external expectations

for external accreditation and compliance and for internal quality assurance

Level 5 alignment

TEQSA Threshold Standards
AQF Qualification Type specification
The University of Adelaide Graduate Attributes

Level 4 alignment

Professional competencies / Professional accreditation standards
Threshold Learning Outcomes (where they exist)
Discipline competencies

Level 3 alignment

Program / degree level learning outcomes
Major / stream level learning outcomes
Course / topic level learning outcomes
Learning activities and assessment criteria

Level 2 alignment

Learning activities and assessment criteria

Level 1 alignment

Course / topic level learning outcomes

Large grained Fine grained

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The relationships of the connections

- AQF qualification type specifications
- The University of Adelaide graduate attributes

Program level learning outcomes
*May be described as Degree and/or Major*

- Course learning activities
- Course learning outcomes
- Course assessment activities

- Where they exist and as appropriate to the School or Discipline
  - Professional competencies
    - Professional accreditation standards

- The University of Adelaide strategic priorities for learning and teaching

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Mapping Alignments

- Steps for mapping alignment of PLOs to Course Learning Outcomes (CLOs)
- Steps for mapping alignment of CLOs to Learning Activities and Assessment

Collating the data

When you’ve decided what needs to be mapped to what, the data for a set of courses in a program needs to be presented in a format that can be interrogated efficiently.

Below is an example of a basic spreadsheet or table format suitable for this purpose, using the University’s graduate attributes on the vertical Y axis (columns) and core courses of a 4 year Bachelor (honours) degree on the horizontal X axis (rows).

In this example the core courses in a program have been used because, in most instances it is only the core courses that can be relied on to carry the responsibility for developing graduate attributes, program learning outcomes and other high order indicators. However, where a program has significant choice available to students it might be more practical to use the courses in commonly selected pathways.

<table>
<thead>
<tr>
<th>Bachelor of XXX Core Courses</th>
<th>Graduate Attribute 1</th>
<th>Graduate Attribute 2</th>
<th>Graduate Attribute 3</th>
<th>Graduate Attribute 4</th>
<th>Graduate Attribute 5</th>
<th>Graduate Attribute 6</th>
<th>Graduate Attribute 7</th>
<th>Graduate Attribute 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course 10X0</td>
<td>♦</td>
<td>♦</td>
<td>♦</td>
<td>♦</td>
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<tr>
<td>Course 10X1</td>
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<td>Course 10X2</td>
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<tr>
<td>Course 10X3</td>
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<tr>
<td>Course 10X4</td>
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<tr>
<td>Course 20X0</td>
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<tr>
<td>Course 20X1</td>
<td>♦</td>
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<td>Course 20X2</td>
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<td>Course 20X3</td>
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<td>Course 20X4</td>
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<tr>
<td>Course 30X0</td>
<td>♦</td>
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<td>Course 30X1</td>
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<td>Course 30X2</td>
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<td>Course 30X3</td>
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<tr>
<td>Course 30X4</td>
<td>♦</td>
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<tr>
<td>Course 40X0</td>
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<tr>
<td>Course 40X1</td>
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<tr>
<td>Course 40X2</td>
<td>♦</td>
<td>♦</td>
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<tr>
<td>Course 40X3</td>
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<tr>
<td>Course 40X4</td>
<td>♦</td>
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</tbody>
</table>


If this format was used in a spreadsheet a graph could then be produced to represent the data.

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3 In some Schools a program is defined by the major, in others the major is a subset of the program, while in still others degree or stream may be more commonly used. While the term program is used throughout, users can take this to mean whichever term (program, major, stream, degree) is more meaningful in their context.
In this example

- Graduate Attribute 1 (knowledge and understanding) is represented in every core course within the program.
- Graduate Attributes 2 (information location, critical analysis and synthesise) and 3 (application of knowledge for problem solving) appear often together and in all core courses in years 2, 3 & 4.
- Graduate Attribute 4 (interpersonal skills, communication and teamwork) interspersed fairly evenly throughout the program.
- Graduate Attribute 6 (development of intellectual curiosity and lifelong learning skills) doesn’t appear at all.
- Graduate Attributes 5 (use of appropriate technology), 7 (excellence in professional practice) and 8 (ethics, social and cultural issues) are only represented in a few courses, and for Attributes 7 and 8 only late in the program.

Interpreting the data

Once mapped the data provided needs to be interpreted to show how well and where the graduate attributes or other indicators are addressed across a program. For example the following categories have been identified to guide the interpretation and suggest actions.

No/few courses addressing a graduate attribute within a program.

This attribute may be considered under-represented within a program. This suggests a need to choose some (or some more) courses in which to embed this attribute development.

No/few graduate attributes being addressed within a course.

No or only a limited number of the graduate attributes in any single course might prompt a course review to identify if it is possible or relevant to integrate any further graduate attributes into the course’s learning outcomes.

All courses within a program addressing a graduate attribute.

An attribute could be considered over-represented in a program because all of the courses address the attribute. This might encourage a shift in focus for some courses or influence the future design/ redesign of courses within the program. However, in some cases it may be appropriate to have every course address a particular graduate attribute e.g. ‘comprehensive knowledge and skills relating to their discipline’.

Too many graduate attributes being addressed within a course.

Where all of the graduate attributes are being addressed in a single course a review of this course is recommended to identify if it is possible to focus more specifically on some rather than all of the graduate attributes. It is typically not necessary to address all the graduates attributes in any single course, except possibly in a capstone course designed for consolidating and assessing the full range of professional or disciplinary skills.

Sequencing the development of graduate attributes across a program.

A series of related courses across year levels, addressing the same graduate attribute may provide an opportunity for sequencing the incremental development of the graduate attributes across the life of the program.

No sequencing of the development of graduate attributes across a program.

An attribute only being addressed in the first years of the program and not the final years of a program (or the reverse) suggests that there may be gaps in the support for the development of this attribute and it may require a review of course content to address these gaps.


This method can also be used for interpreting the alignment of:

- program learning outcomes to other high order indicators such as threshold learning outcomes or professional competencies, and
- course learning outcomes to program learning outcomes.

Using this method in conjunction with the risk analysis model will allow further analysis.
Validation

While the work of mapping alignment may initially be done by one or two people, the results must be validated by others.

Validation is a quality review process ... It includes reviewing and making recommendations for future improvements to the assessment tool, process and/or outcomes.

*National Quality Council, 2009, Implementation Guide: Validation and Moderation*

Validation considerations:

- **VALID:** Does the process or product do what it claims to do?
- **RELIABLE:** Do the methods and procedures used in producing or using the product ensure consistent interpretation and application from person to person and from context to context?
- **FLEXIBLE:** Is there scope for variety in the way individuals participate in the process or with the product?
- **FAIR:** Does the process or product ensure that there is no disadvantage or discrimination inherent in the way participants can engage with it?

Curriculum renewal and curriculum mapping

The curriculum mapping process is Stage 1 of the curriculum renewal process. With the information gained through the mapping, documentation, and the interpretation and analysis of the alignment of curriculum elements, curriculum renewal can occur from an informed place.
This model considers risk to the University in relation to student outcomes if course or program curricula are not up to standard or robust.

**Current program**
Map, interpret and analyse core courses in the program.*

Make decisions about the quality and alignment of the courses via risk analysis.

**SUBSTANTIAL RISK (high / medium risk)**
No clear alignment with program learning outcomes.
Course learning outcomes not aligned to:
- Internal design of course not logical,
- Replicates another course to some degree,
- Contribution to program at required level questionable.

**Possible Action:**
- Delete course.
- Reconsider structure and relevance and alignment.
- Reconfigure substantially.
- Develop new replacement course.
- Consider in relation to other courses in major, combine with another course.

**RISK UNCLEAR**
More, different or clearer information is needed to inform renewal and determine actions.

**Possible Action:**
- Revise.
- Use learning outcomes format and relate clearly to content, assessment and learning activities.
- Clarify course learning outcomes vis a vis program learning outcomes learning activities and/or assessment.
- Make alignment more explicit, clearer or logical.

**SMALL RISK (low risk)**
Minor changes required.

**Possible Action:**
- Refine course learning outcomes vis a vis program learning outcomes.
- Align learning and assessment tasks more directly.
- Review assessment design/weighting.
- Refine number of course learning outcomes and/or relationships with learning and assessment tasks.

**CONFIDENT (no risk)**
Alignment between program learning outcomes, course learning outcomes, learning activities and assessment is clear and appropriate for the level.

**ACTION**
Arrange courses to create coherent program structure to meet agreed intent and outcomes.

Adapted from curriculum mapping guide developed by Suzy McKenna

* In some Schools a program is defined by the major, in others the major is a subset of the program, while in still others degree or stream may be more commonly used. While the term program is used throughout, users can take this to mean whichever term (program, major, stream, degree) is more meaningful in their context.
<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Details</th>
</tr>
</thead>
</table>
| No risk    | • The program learning outcomes are explicitly evident in the course learning outcome,  
            • Those course learning outcomes are clearly expressed,  
            • The assessment of the learning outcomes is explicit and clearly expressed,  
            • The proportion of assessment is appropriately balanced across the learning outcomes for that course and in relation to the overall program, and  
            • There is an explicit, clear and constructive relationship between the learning outcomes, the learning activities and the assessment. |
| Low risk   | • The program learning outcomes are evident in the course learning outcomes and in the assessment of them but require some interpretation to see the relationship,  
            • The proportion of the assessment of the particular course learning outcome is evident and sufficient to confirm that the learning outcome can be achieved,  
            • The language used to express the course learning outcomes and/or assessment and/or learning activities requires some interpretation to see the relationship, or  
            • Language used to express learning outcomes and/or assessment is not clear. |
| Medium risk| • Significant guess work is needed to see the relationship between the program learning outcomes and the course learning outcomes,  
            • Significant interpretation is needed to see the relationship between the course learning outcomes, the assessment and/or the learning activities,  
            • The weighting of the assessment task(s) is not in proportion to the contribution the course learning outcomes make to the course as a whole and/or the program as a whole, or  
            • There is no alignment between one or more (but not all) of the following:  
              ○ program learning outcomes and course learning outcomes,  
              ○ course learning outcomes and assessment,  
              ○ course learning outcomes and learning activities,  
              ○ assessment and learning activities. |
| High risk  | • The relationship between the course learning outcomes, the assessment and/or the learning activities are not present in some or all cases,  
            • The weighting of the assessment task(s) is not in proportion to the contribution the course learning outcomes make to the course as a whole and/or the program as a whole, and  
            • There is no or little alignment between any or all of the following:  
              ○ program learning outcomes and course learning outcomes,  
              ○ course learning outcomes and assessment,  
              ○ course learning outcomes and learning activities,  
              ○ assessment and learning activities. |

Adapted from curriculum mapping guide developed by Suzy McKenna
MAPPING ALIGNMENT OF PROGRAM LEARNING OUTCOMES (PLOS) TO COURSE LEARNING OUTCOMES (CLOS)

The process of mapping alignment between Learning Outcomes (PLO) and Course Learning Outcomes (CLO) is significantly easier when all courses and the program have well written learning outcomes.

Consult the University’s Guide for Writing Learning Outcomes to review and revise the PLOs and CLOs.

The following relates to Stage 1 of the curriculum renewal process and should be revisited in Stage 3 as changes are made to courses, to ensure alignments remain explicit, strong and relevant.

Document relationships

Select a format to document the relationships between the course learning outcomes and the program learning outcomes in an aggregated form.

Tables and spreadsheets are useful for this task.

There are a range of tools and ways in which alignments can be documented. Examples of a range of tools that can be used for mapping are provided in the appendices.

The tool you select should allow you to:

- demonstrate the extent and nature of the relationship between the PLOs and the CLOs.
- clearly identify gaps, unnecessary repetition and poor alignment in a way that is meaningful to you consider:
  - depth, breadth and volume of learning,
  - whether the connection is explicit or implicit, and
  - whether the knowledge or skill is being introduced, developed and/or assessed.

Consider all the CLOs for all the core courses. Then you can see how they reflect and are aligned to the PLOs as a whole.

- In most instances it is only the core courses that can be relied on to carry the responsibility for developing program learning outcomes. However, where a program has significant choice available to students it might be more practical to use the courses in commonly selected pathways.

Elective courses should also be considered separately to ensure they appropriately reflect relevant program learning outcomes. However, it is not expected that they will contribute to achieving all the program learning outcomes or contribute to achieving program learning outcomes not adequately addressed by core courses.

Interpret the data

Once mapped the data provided needs to be interpreted to show how well and where the program learning outcomes are addressed in the course learning outcomes. For example, the following categories have been identified to guide interpretation and suggest action.

**No/few courses addressing a program learning outcome within a program.**

This PLO may be considered under-represented within a program. This suggests a need to choose some (or some more) courses in which to embed this PLO development.

**No/few program learning outcomes being addressed within a course.**

No or only a small number of the PLO in any single course. This might prompt a course review to identify if it is possible or relevant to integrate any further PLO into the course’s learning outcomes. It may be appropriate to only address one or two PLOs in a course, particularly courses early in a program but it is important to consider whether the number represented in any one course is sufficient and appropriate.

**All courses within a program addressing a program learning outcome.**

A PLO could be considered over-represented in a program because all of the courses address the attribute. This might encourage a shift in focus for some courses or influence the future design/redesign of courses within the program. However, in some cases it may be appropriate to have every course address a particular PLO e.g. PLOs relating to discipline knowledge and understanding.
Too many program learning outcomes being addressed within a course.

Where all of the PLOs are being addressed in a single course a review of this course is recommended to identify if it is possible to focus more specifically on some rather than all of the PLOs. It is typically not necessary to address all the PLOs in any single course, except possibly in a capstone course designed for applying and assessing the full range of professional or disciplinary skills.

Sequencing the development of program learning outcomes across a program.

A series of related courses across year levels, addressing the same PLO may provide an opportunity for sequencing the incremental development of the PLO across the life of the program.

No sequencing of the development of program learning outcomes across a program.

A PLO only being addressed in the first years of the program and not the final years of a program (or the reverse) suggests that there may be gaps in the support for the development of this PLO and it may require a review of course content to address these gaps.

adapted from Griffith University Program level mapping tool http://www.griffith.edu.au/learning-teaching/student-success/graduate-attributes/mapping-graduate-attributes

The risk analysis model may also be helpful as a guide for analysis.

Undertake any revision and/or course development.

- The analysis will identify what needs to be addressed and will inform what changes may be needed.

Validate decisions

While the work of mapping alignment may initially be done by one or two people, the results must be validated by others.

Validation is a quality review process ... It includes reviewing and making recommendations for future improvements to the assessment tool, process and/or outcomes.


Validation considerations:

VALID: Does the process or product do what it claims to do?

RELIABLE: Do the methods and procedures used in producing or using the product ensure consistent interpretation and application from person to person and from context to context?

FLEXIBLE: Is there scope for variety in the way individuals participate in the process or with the product?

FAIR: Does the process or product ensure that there is no disadvantage or discrimination inherent in the way participants can engage with it?

Further examples and resources


Macquarie University http://staff.mq.edu.au/teaching/curriculum_development/curriculum_mapping-aron_downie/
MAPPING CLOS TO LEARNING AND TEACHING ACTIVITIES AND ASSESSMENT

The following steps assume that the CLOs are appropriate, well written and allow all the PLOs to be appropriately introduced, reinforced and completed across the life of the program.

The following relates to Stage 1 of the curriculum renewal process and should be revisited in Stage 3 as changes are made to courses, to ensure alignments remain explicit, strong and relevant.

Document alignment

Course outline templates, course review and course proposal templates available through the Faculty may provide sufficient documentation about the alignments.

If these forms do not require explicit reference to how the course learning outcomes are reflected in the learning activities and assessment tasks this level of detail can be supplied separately.

An example of a basic format to demonstrate alignment is given below:

<table>
<thead>
<tr>
<th>Teaching and Learning Activities:</th>
<th>Assessment of developing knowledge, skills and competence (knows, knows how, shows how)</th>
<th>Assessment of competence (does)</th>
<th>Course Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures – classroom (8)</td>
<td>Quizzes – in class (2); scenario-based quiz, experience-based quiz (35%)</td>
<td>Individual assignment (1): business and professional ethics (15%)</td>
<td>LO1, LO2</td>
</tr>
<tr>
<td>Lectures – on line (4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tutorials – Q&amp;A based (1 hour per week)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual BMS search and review</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervised team work (1 hour per week)</td>
<td></td>
<td></td>
<td>LO1, LO2</td>
</tr>
</tbody>
</table>

See further examples of documenting alignment in Appendices.

Interpret the data

Consider the alignment of CLOs to learning and teaching activities and assessment tasks in the course.

Ask how well, overall, the learning and teaching activities explicitly and appropriately enable students to achieve the CLOs:

- by creating opportunities for students to develop the skills and knowledge and to practice applying that knowledge and those skills?
- by creating opportunities for students to develop and apply their knowledge and skills with increasing depth, breadth, complexity and sophistication over the life of the program?
- by creating opportunities for students to develop academic and, where relevant, professional, literacies?
- by using a variety of learning technologies?
- by encouraging and supporting the development of research skills?
- by encouraging and supporting the development of the University’s graduate attributes?

Do the teaching and learning activities adequately and appropriately prepare students to successfully complete all of the assessment tasks to demonstrate they have achieved the CLOs?

- How well do the teaching and learning arrangements explicitly and coherently develop:
  - academic processes and skills such as working in groups and online learning capability?
  - academic literacies and research skills such as academic writing, accessing and using appropriate resources/information sources?
  - critical thinking, reflection, analysis and synthesis skills?
  - professional literacies such as the language of the discipline, negotiation and consultation, and report writing?
  - Do the assessment tasks contribute to the learning for this course as well as to the grades?
Are all the learning outcomes assessed?

- If not, why not?
- Learning outcomes are the things students understand and can do at the end of the course. To know whether students have achieved these outcomes, they need to be assessed.
- Learning outcomes are the expression of the minimum that students need to be able to do and know to pass the course.
- Does the weighting given to the assessment task reflect the value of the learning outcome to the course as a whole?
  - For example, if an assessment task relates to one of 3 learning outcomes, does it carry 1/3 of the total possible marks for that course? If not, why not? (There may be valid reason for this but the weighting must be justified).
- Are any skills or knowledge assessed but not taught?
- Are any skills or knowledge taught but not assessed? Why? (This may be valid but the reason must be identified.)

Are the assessment tasks valid?

- Is the method of assessment and the task being assessed an appropriate way to judge achievement of the learning outcome(s) it is measuring?
- Are the assessment tasks and the types of assessment appropriate to the academic level of the course?

Are the assessment tasks balanced?

- Is there a variety of assessment types and tasks?
- Is there a suitable variety of group work and individual effort?
- Is a suitable mix of media (e.g. oral presentations, written reports, essays, project briefs, exams, test and quizzes, discussion boards, wikis) used to communicate and demonstrate knowledge, skills and the ability to apply them?
- Do the assessment tasks require communication skills appropriate for the discipline and the level of the course?

Validate decisions

While the work of mapping alignment may initially be done by one or two people, the results must be validated by others.

Validation is a quality review process ... It includes reviewing and making recommendations for future improvements to the assessment tool, process and/or outcomes.


Validation considerations:

**VALID:**
Does the process or product do what it claims to do?

**RELIABLE:**
Do the methods and procedures used in producing or using the product ensure consistent interpretation and application from person to person and from context to context?

**FLEXIBLE:**
Is there scope for variety in the way individuals participate in the process or with the product?

**FAIR:**
Does the process or product ensure that there is no disadvantage or discrimination inherent in the way participants can engage with it?
Curriculum Renewal Process

A strategic approach needs to underpin the curriculum renewal process. The following steps should be undertaken in the context of the Discipline / School / Faculty / University strategic plan.

This process is informed by the principles and purpose of curriculum renewal.

Before you get started make a plan.

Features of effective curriculum renewal

The curriculum renewal process is done inclusively, collaboratively, and anticipatively when:

- a shared vision is developed,
- a variety of perspectives are shared and taken into account, and
- decision making and planning are open to broad engagement.

To ensure success the process needs:

- leadership,
- effective and ongoing communication,
- to be planned,
- to be resourced and supported,
- to be monitored, and
- to be evaluated.

Curriculum renewal questions

Throughout this process 3 key questions are asked.

Why?

- to validate decisions and actions
- to engage stakeholders
- to provide a context for decision making, goal setting and evaluation.

How?

- to determine the process
- to develop agreed criteria for success for review and evaluation.

What?

- What is the intent and purpose of the program?
- What skills and knowledge do students need to develop:
  - for the program?
  - for the major?
  - for the specialisation?
  - for the course?
- What courses will be needed (core) and which can help (electives) to achieve the intent and purpose of the program?
- What will students do to develop the expected knowledge, skills and application (learning activities)?
- What will students need to do to demonstrate they have achieved program and course learning outcomes (assessment)?

Many of these questions will be answered through the curriculum mapping process.

Of these, **Why is the most important** ...

... you can’t design and build something that is ‘fit for purpose’ if you don’t know what that purpose is!
The process

Curriculum renewal is a 4 stage process.  

Stage 1: Curriculum mapping

Curriculum mapping is Stage 1 of the curriculum renewal process.

This Stage establishes the starting point by mapping and interpreting the alignment of programs and/or courses to the various elements that inform curriculum intent.

This Stage is led by Course Coordinators and Discipline Leaders.

Stage 2: Agree on preferred curriculum

This is the Stage where decisions are made about what needs to be done, based on interpretation of the information gathered through the curriculum mapping process (Stage 1).

The purpose of this stage is to determine:

- priorities
- themes
- graduate outcomes
- program purpose
- program structure.

This Stage is led by Course Coordinators and Discipline leaders.

Stage 3: Make changes

This is the Stage where any required changes, identified in Stages 1 and 2, are made. This will include writing/revising courses and course learning outcomes, assessment tasks and learning activities.

When revising or redeveloping courses/programs or developing new courses/programs ensure:

- alignment of learning outcomes, assessment, and teaching and learning activities,
- alignment with program/major intent, and
- progressive development of complexity and sophistication of application of knowledge and skills.

This Stage is led by Course Coordinators.

Stage 4: Approval and planning for implementation

This is the Stage where documentation is finalised, approval is sought and plans for implementation are finalised.

In practice this Stage may run concurrently with Stage 3. As decisions and actions are finalised, the related components of the approval process can be started. Planning for implementation does not need to wait for all components of the approval process to be finalised before it can be started.

Ensure all the documentation is:

- complete and accurately reflects practice,
- compliant with University policy, and
- submitted through University, Faculty and School approval processes.

This Stage is led by Course Coordinators and Discipline leaders, and involves professional staff.

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4 MIT Engineering department, for example, used a similar approach to develop the CDIO curriculum.

5 In this guide program is used to indicate program, degree, stream, discipline or major, whichever is more relevant to your context.
CURRICULUM RENEWAL STAGE 1: CURRICULUM MAPPING

Curriculum mapping is Stage 1 of the curriculum renewal process.

This Stage establishes the starting point by mapping and interpreting the alignment of programs and/or courses to the various elements that inform curriculum intent.

This Stage is led by Course Coordinators and Discipline Leaders.

**Step 1. Decide what needs to be aligned and to what**

What are the elements to which alignment needs to be mapped?

- AQF (always)
- TEQSA Qualification Standards (always)
- University graduate attributes (always)
- Program* learning outcomes (always)
- Course learning outcomes (always)
- Course assessment (always)
- Course learning activities (always)
- Threshold learning outcomes (where they exist)
- Professional accreditation standards (where applicable)
- Discipline / professional benchmarks (where applicable).

Refer to Mapping Alignment for more details.

Are there program or learning outcomes?

- If yes, they need to be aligned to the elements above.
- If no, do they need to be written or can any of the elements above stand in their place?
- If they need to be written refer to the Guide for Writing Learning Outcomes. Refer also to the how to determine what the agreed intent of the program in the section on concept mapping.

Do all courses across the program need to be considered, or only the courses that contribute to a major and/or core courses?

- in most cases only the core courses will need to be considered
- elective courses need to contribute meaningfully to the development of program learning outcomes and the overall aim of the program but because there is an element of choice, they cannot be relied on to carry the development of any one learning outcome alone

Do all the courses to be aligned have clearly and grammatically well-structured course learning outcomes?

- If yes, the task is made easier
- If no, the course learning outcomes need to be written, revised or refined
- If they need to be written refer to the Guide for Writing Learning Outcomes

**Step 2. Collate and document alignments**

Ideally, courses with appropriately constructed learning outcomes and course outlines can be readily compared using qualitative data analysis tools. Tools specifically designed for the purpose or generic qualitative data analysis and word search using Boolean Operators, such as Nvivo, may be used in these cases.

However, spreadsheets and tables, or even sticky-notes, can be used to help collate, interrogate, and interpret data. In fact, this may be a preferable option where the volume of data is manageable and/or where the data is not in a consistent form that is easily compared by an automated process.

Tools for documents can include:

- Concept / Mind maps
- Tables
- Flow charts

---

6 In this guide program is used to indicate program, degree, stream, discipline or major, whichever is more relevant to your context.
Seen examples of documenting mapping in Appendices:
When mapping alignments at a course level also refer to:

- mapping alignment of program learning outcomes to course learning outcomes
- mapping alignment of course learning outcomes to learning and teaching activities and assessment.

**Step 3. Interpret the data**

Interpret the strength and nature of the alignment between the relevant elements identified in Step 1, using whatever tool is fit for purpose.

- Look for and document/mark/highlight similarities and gaps.
- Look for similar words (particularly verbs, but also adverbs, adjectives and nouns), terms and phrases.
- Look for similar concepts, principles or actions.
- Is the intent of one element reflected/visible in the other elements being aligned?
- Can one element be clearly and explicitly seen to be introduced, developed or reinforced in the other element?

**Note:** *If you are careful in the use of language when designing courses and programs, this task can be made much easier.*

**Are there program learning outcomes that are clear and adequate?**

- If yes, they can be readily be aligned to the elements above.
- If no, do they need to be written or can any of the elements above stand in their place?
  - If they need to be written refer to the Guide for Writing Learning Outcomes. Refer also to how to determine the agreed intent of the program.

**Do all courses across the program need to be considered, or only the courses that contribute to a major and/or core courses?**

- In many cases only the core courses will need to be considered, depending on the structure of the program.
- Elective courses need to contribute meaningfully to the development of program learning outcomes and the overall aim of the program, but because there is an element of choice or randomly selected pathways, they cannot be relied on to carry the development of any one learning outcome alone.

**Do all the courses being aligned have sufficient, clearly and grammatically well-structured course learning outcomes?**

- If yes, the task is made easier.
- If no, the course learning outcomes need to be written, revised or refined (refer to the Guide for Writing Learning Outcomes).

**Note:** *Where Step 3 provides sufficient useful information to allow a plan for curriculum renewal to be developed, the process may skip to Step 5.*

**Step 4. Undertake a risk analysis**

This Step is particularly useful when considering a significant curriculum renewal project. This may be when a substantial revision of a program has been recommended through a review process, when a new program is being considered or when many courses which have complex relationships need to be reviewed.

- Are the alignments between program/major learning outcomes, course learning outcomes, assessments and learning activities clear, explicit, complete and strong?
- Do the course learning outcomes contribute to the overall and specific intent of the program and/or major?
- Is the assessment appropriate for the learning outcomes it is assessing?
- Is the assessment in proportion to the learning outcomes and the course?
- Is the language used to express the learning outcomes and assessment appropriate so alignments can be clearly seen?
- Does the language used to express the learning outcomes and assessment clearly focussed on what students are expected to achieve?
• Are there any course learning outcomes, assessments, learning activities or core courses that do not contribute to the program as a whole?

For more detail on how to undertake a risk analysis see the Risk Analysis section.

**Step 5. Use the information to decide if, how and what curriculum needs renewing**

Validate the decisions.

Document the decisions.

Develop a plan to take action in line with those decisions.

*Now move to Stage 2 of the Curriculum Renewal Process.*
CURRICULUM RENEWAL STAGE 2: AGREE ON PREFERRED CURRICULUM

This is the Stage where decisions are made about what needs to be done, based on interpretation of the information gathered through the curriculum mapping process (Stage 1).

The purpose of this Stage is to determine:

- priorities
- themes
- graduate outcomes
- program\(^7\) purpose
- program structure.

This Stage is led by Course Coordinators and Discipline leaders.

**Step 1. Determine desired outcomes**

**For students**

The skills, knowledge and attributes graduates will have when they successfully complete the program are described in a number of sources including:

- University graduate attributes
- Threshold learning outcomes (where they exist)
- Discipline indicators (where they exist)
- Professional competencies (where they exist)
- Professional accreditation standards (where they exist)
- Professional / discipline benchmarks (where they exist)
- Professional judgement and discipline knowledge.

At this stage in the process consider:

- How do these relate to each other?
- Are there any other knowledge, skills and attributes the School or faculty want / need to add to those described above?

**For staff**

To ensure:

- compliance
- accreditation standards are met
- University policy and strategic directions are addressed
- marketability
- competitive advantage
- logical coherent structure
- continuous improvement
- quality assurance.

---

\(^7\) Program is used here to mean program, major, stream or degree, whichever is more relevant for your School or Discipline
Step 2. Describe the skills, knowledge and attributes in terms of program learning outcomes

Where program learning outcomes exist:
- review them, and
- revise them, as necessary, against the desired outcomes determined in Step 1. above.

Where program learning outcomes don’t exist:
- create them to describe what you want graduates of the program to know and to be able to do with that knowledge on successful completion of the program, or
- use Threshold Learning Outcomes, where they exist.

Step 3. Program structure

The following questions will help guide consideration of what the program structure should be:
- What concepts, principles, knowledge and skills need to be developed to meet program learning outcomes?
- How should the development of these concepts, principles, knowledge and skills be structured over the life of the program for optimal effect, taking into account any policy constraints?
- Do the current courses develop these concepts, principles, knowledge and skills in a logical and coherent manner over the life of the program?
- Is there any overlap or repetition that is not required for reinforcement of knowledge and skills?
- Do any courses conflict with the intent and content of any others?

Remember to validate the decisions made.

Will the decisions made achieve the actions and results expected?
Has the available information been accurately interpreted?
Have all those involved had access to all relevant information?

Remember to consult with all relevant stakeholders at this point.

The input from a range of relevant stakeholders will help consideration of the impact of changes, with a deep understanding of what can and needs to be done.

Also, the more stakeholders are involved at this early analysis and decision making stage, the more likely stakeholders are to be supportive of the final product.

Now move to Stage 3 of the Curriculum Renewal Process.
CURRICULUM RENEWAL STAGE 3: MAKE CHANGES

This is the Stage where any required changes identified in Stages 1 and 2 are made. This will include writing/revising courses and course learning outcomes, assessment tasks and learning activities.

When revising or redeveloping courses/programs or developing new courses/programs ensure:

- alignment of learning outcomes, assessment, and learning and teaching activities,
- alignment with program\(^8\) intent,
- progressive development of complexity and sophistication of application of knowledge and skills, and
- creation of a coherent whole.

This Stage is led by Course Coordinators.

**Step 1. Review and, as required, revise course learning outcomes, learning activities and assessment**

Consider:

- Are they fit for purpose?
- Do the learning outcomes describe what students will be able to do on successful completion of the course?
- Are the learning outcomes reflected explicitly in the learning activities and assessment tasks for the course?
- Do the learning outcomes of all core courses collectively enable all the program learning outcomes to be introduced, developed and assessed?
- Do they reflect and align with the University’s strategic priorities for learning and teaching?

This part of the process may require writing or redrafting learning outcomes, learning activities and assessment tasks, and writing or rewriting course outlines.

- The University has a Guide to Writing Learning Outcomes.
- To practice writing learning outcomes try the template at the end of this section.

AQF Qualification Type Specification in the AQF 2013 Handbook will provide a guide to the level and generic standards appropriate for the courses in a qualification.

**Step 2. Arrange courses to make a coherent whole**

Refer to the decisions made in Step 3 of Stage 2 to ensure that the order and timing of the courses reflects the program intent and program learning outcomes.

**Step 3. Review and validation**

The purpose of this step is to:

- check that the renewed curriculum has appropriately addressed the expectations, constraints and drivers identified in Stages 1 and 2,
- ensure all program learning outcomes are aligned to University of Adelaide strategic direction, policies and systems and all relevant accreditation requirements,
- ensure all course learning outcomes are aligned to the program learning outcomes, and
- ensure all course learning outcomes are aligned to assessment and teaching and learning activities.

**Remember to validate the decisions made.**

Will the decisions made achieve the actions and results expected?

- Has the available information been accurately interpreted?
- Have all those involved had access to all relevant information?

\(^8\) Program is used here to mean program, major, stream or degree, whichever is more relevant for your School or Discipline
Remember to consult with all relevant stakeholders at this point.

The input from a range of relevant stakeholders will help consideration of the impact of changes, with a deep understanding of what can and needs to be done.

Also, the more stakeholders are involved at this early analysis and decision making stage, the more likely stakeholders are to be supportive of the final product.

*Remember:* Curriculum renewal may require moving between Stage 1, Stage 2 and Stage 3 a number of times before the curriculum is in a state where it is ready to begin the approval and implementation processes (Stage 4).

Now move to **Stage 4** of the Curriculum Renewal Process.
PRACTICE WRITING EFFECTIVE LEARNING OUTCOMES

You can use this table to practice writing effective writing learning outcomes using the correct grammatical format

Also see Guide to Writing Learning Outcomes and Publication Standards for Course Outlines

<table>
<thead>
<tr>
<th>Stem</th>
<th>Focus / Object</th>
<th>Context / Condition / Qualifier</th>
<th>Graduate Attribute(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>On successful completion of this course students will be able to:</td>
<td>indicate specifically what you want students to know, consider or do (use Blooms, AQF, TLO, Biggs as guides for the language to use)</td>
<td>indicate the process, product or outcome of the action</td>
<td>Indicate which graduate attribute(s) this learning outcome addresses. (This can be transferred to the Course Outline template)</td>
</tr>
<tr>
<td><strong>Develop</strong></td>
<td>an argument</td>
<td>to persuade decision makers to undertake a project</td>
<td>GA1, GA2, GA3, GA4 (communication), GA7, GA8</td>
</tr>
<tr>
<td><strong>Interpret</strong></td>
<td>computer output</td>
<td>to perform statistical techniques</td>
<td>GA1, GA2, GA3, GA5</td>
</tr>
<tr>
<td><strong>Prepare</strong></td>
<td>a professional, logical and coherent report</td>
<td>in the form of a marketing audit</td>
<td>GA2, GA3, GA4 (communication)</td>
</tr>
<tr>
<td><strong>Explain</strong></td>
<td>the concepts that underlie the preparation of general purpose financial reports</td>
<td>in terms of how they inform decision making</td>
<td>GA1, GA2, GA3, GA4 (communication)</td>
</tr>
<tr>
<td><strong>Critically analyse and interpret</strong></td>
<td>case studies</td>
<td>to make recommendations for improving change management processes</td>
<td>GA1, GA2, GA3, GA4 (communication), GA8</td>
</tr>
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<td><strong>Develop</strong></td>
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<td>to make recommendations for improving change management processes</td>
<td>GA1, GA2, GA3, GA4 (communication), GA8</td>
</tr>
</tbody>
</table>
Now it's your turn …

<table>
<thead>
<tr>
<th>Stem</th>
<th>Active verb</th>
<th>Focus / Object</th>
<th>Context / Condition / Qualifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>On successful completion of this course students will be able to:</td>
<td>Do what ...?</td>
<td>To what or who ....?</td>
<td>How, when, where, for what purpose/outcome, within what constraints/limits ...</td>
</tr>
</tbody>
</table>

Graduate Attribute(s)
CURRICULUM RENEWAL STAGE 4: APPROVAL AND PLANNING FOR IMPLEMENTATION

This is the Stage where documentation is finalised, approval is sought and plans for implementation are finalised. In practice this Stage may run concurrently with Stage 3. As decisions and actions are finalised, the related components of the approval process can be started. Planning for implementation does not need to wait for all components of the approval process to be finalised before it can be started.

Ensure all the documentation is:

- complete,
- accurately reflects practice,
- compliant with University policy, and
- submitted through University, Faculty and School approval processes.

This Stage is led by Course Coordinators and Discipline leaders, and involves professional staff.

Step 1. Document courses

Follow Coursework Academic Programs Policy, Assessment for Coursework Programs policy and Course Outline Standards to ensure courses and program are:

- compliant with University policy
- have been through approval processes.

Forms to be used include:

- Course Outline template
- ULC Concept Proposal form
- the PAEC Program Major Revision Proposal form
- the PAEC New Program Proposal form
- Faculty Course Approval form.

Documentation and practice

The purpose of documentation is to ensure others know your intent in relation to the course and program.

The documents will be read by:

- students for planning which courses and programs to enrol in and for managing their studies once enrolled
- decisions makers to make decisions regarding approval
- other teachers of the course so they know what needs to be done, how and when
- other teachers in the program so they know what students will be doing before and after their course
- administrators to ensure systems and processes are maintained to support the delivery of the course and program
- reviewers (both internal and external) to determine what is intended so it can be compared with what happens
- auditors as evidence of learning and teaching practice.

Therefore the documents need to:

- be in the approved form
- accurately reflect the intended practice
- clearly and explicitly state intent
- provide all the detail required by others
- be thoughtfully created, reviewed and/or revised by relevant academic staff.

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9 Program is used here to mean program, major, stream or degree, whichever is more relevant for your School or Discipline
Step 2. Manage approval and implementation processes in line with University policy and systems

University Program Development and Approval guidelines must be followed.

Processes and forms approved by the Faculty for courses will provide further guidance.

These are generally found on the Faculty intranet under Learning and Teaching, or Templates and Proformas, or the various committees that have responsibility for reviewing and approving courses and programs on behalf of the Faculty or School.

Where possible include relevant stakeholders in earlier review and development stages to ensure their views are considered and to minimise any required reworking to accommodate their feedback.

Step 3. Planning for implementation

Although this is listed as the last step, planning for implementation must be considered throughout the curriculum renewal process.

It is important that implementation in planned.

The planning must take account of, among other matters:

- marketing
- finances
- transition arrangements
- staff workloads
- staff capabilities
- timelines.

At this point the consultation and validation undertaken throughout the curriculum renewal process will reduce the likelihood of resistance or challenges to the decisions made.

Ongoing monitoring and review must be part of any implementation plans. The results of these reviews will inform future curriculum renewal activity.
CONCEPT MAPPING

This process is helpful where new programs are being created or where major ‘ground-up’ revision is required.

**Step 1**

Imagine what are the topics, principles, theories and concepts that are needed for graduates to be work ready, to be able to work as a professional in your field. For undergraduate programs, be mindful that graduates will be going to entry level positions within their field, not leadership positions. So, while you may also be laying foundations for ongoing development post graduation, graduates cannot be expected to operate at the same level as experienced practitioners.

A brainstorming session is a good way to capture this.

Involve a broad range of opinions and perspectives at this stage of the process. All input is useful. Sorting and prioritising comes later in this process.

Your list might look like this example from Electrical and Electronic Engineering:

1. Software and Programming
2. Energy processing
3. Communication Networks
4. Information Processing (discrete and continuous time)
5. Practical Electronics (solder, assemble, PCB, components)
6. Systems engineering (entire lifecycle - design, standards, requirements)
7. Antennas and Propagation (radio systems)
8. Modelling and Simulations (numerical techniques)
9. Electronics (analogue and digital, circuit analysis)
10. Transducers and actuators
11. Robotics, AI, Control
12. Nano devices and materials
13. Materials (solid state, electronics, strength, properties, mechanical and electrical)
Or this example from Electrical and Electronic Engineering:

### Step 2:
The next step is to attribute some order and priority to this list.
This can be done by considering the relative depth and breadth to which each of these ‘concepts’ needs to be addressed.

These considerations will be determined by a range of factors including, but not limited to:
- Professional judgement and knowledge of the discipline
- Employer / industry expectations
- The appropriate academic level as described in the AQF qualification descriptions.

This may lead to something that looks like this example from Electrical and Electronic Engineering, where size, shading, colour and position are used to indicate relative depth, breadth, order of introduction and time allocation across the life of the program:
Or like this example from Electrical and Electronic Engineering where order, proportion of the program and relationships between concepts are described:

### Step 3:

Once you have a sense of what needs to be addressed in the program you can then discuss how these concepts can be described in terms of program learning outcomes and how they can be clustered and arranged in course sized components. (Curriculum Renewal Process Stage 2)
PROGRAM STRUCTURE

Review considerations and the final program design.

Programs must:

- clearly reflect the University’s vision and strategic priorities and the Faculty / School / Discipline vision and strategic priorities, which includes ensuring the following are integrated and embedded:
  - effective and active use of technology to support learning, including use of MyUni,
  - small group discovery experiences for all students in each year of their study in a program,
  - development of both academic and professional literacies,
  - development of career readiness,
  - development of research skills and critical reflective thinking skills,
  - development of independent learning skills and encouragement of intellectual curiosity, and
  - a capstone research experience in the final year of all undergraduate programs.
- ensure both compliance with and alignment to external drivers and industry/professional expectations, and
- embed learning and assessment activities that reflect appropriate and current pedagogies.

Content, knowledge, skills and application

Over the life of the program the balance between technical and foundation knowledge, and the development of professional skills will vary as illustrated below.

For many programs with explicit professional outcomes, industry / employers expectations regarding knowledge and skills required of graduates are often easily identified. However, expectations about the professional skills required in these cases are often poorly defined. Professional skills largely concern professional behaviour and the ability to ‘think like a professional’. By focussing on development of these professional skills throughout the life of the program, students have a context for the acquisition of knowledge and technical skills, and are more likely to ‘see the point’.

52 04.12.2013
Over the life of the program student will move from knowing to doing through understanding.

Over the life of the program, students will move from knowing to doing through understanding.

Students start here

moving from concrete to abstract and developing their skills to process and apply new knowledge

Realisation

Students finish here

Physical / Concrete / Knowledge

Abstract / Cognitive / Processing

become aware

knows of

knows how

shows how

does

in new contexts
Whole of program integrating all drivers and requirements

University Vision and Strategic Plan for Learning and Teaching

External Drivers – e.g. Accreditation, professional competencies, national standards

Pedagogical Drivers – e.g. Purposeful learning, constructive alignment, e-learning/technology enhanced learning, small group discovery, academic and professional literacies development, research skills development, critical and reflective thinking skills development, development of ethical and cultural awareness

Expectations of employers and practitioners in the profession

Expectations of students and potential students

Level 1 alignment AQA & UA GA

Level 2 alignment Professional standards, Threshold learning outcomes

Level 3 alignment Program* learning outcomes

Level 4 alignment Course learning outcomes

Level 5 alignment Teaching and learning activities & assessments

Faculty / School / Discipline Vision and Strategic Plan for Learning and Teaching

54 04.12.2013
Whole of program approach
Learning, assessment and constructive alignment

The alignment of course learning outcomes, assessment, and teaching and learning activities is a critical aspect of course, major and program design and a key indicator of the quality of a program.

Assessment is both integral to the learning process and the way that students provide evidence that they have achieved the stated and intended learning outcomes or exceeded those expectations. … assessment reinforces learning. Assessment is the senior partner in learning and teaching. Get it wrong and the rest collapses. 

(Biggs & Tang 2001, p221)

... assessment is a way of teaching more effectively through understanding exactly what students know and do not know... It is about measuring student learning; it is about diagnosing misunderstandings in order to help students to learn more effectively. It concerns the quality of teaching as well as the quality of learning...

(Ramsden, 2003 p 177)

These ideas are encapsulated in the term Assessment FOR Learning, as opposed to Assessment OF Learning.

Students must know what is expected of them in terms of both process and product, before they begin. Assessment Rubrics are one common and useful way to provide these details.

Feedback must provide students with timely and useful detail on what they did well, what they did well, what they did not do and how they can improve, all in relation to explicit, clear and relevant expectations that are directly related to the learning outcomes.

Assessment is part of the learning process, but it can only be effective when:

• students receive timely and appropriate feedback, and
• the expectations of what they will do are made explicit and directly relate to the learning outcomes, and
• the teaching and learning activities are designed to allow students to develop the necessary knowledge and skills.

The University of Technology Sydney Assessment Futures website, based on work by David Boud and others, has many useful resources on designing and reviewing assessment, and on the role assessment plays in learning.

The Faculty of Professions Pedagogical Possibilities site also has useful discussion and resources concerning assessment.

Effective assessment:

• is described in terms that are measurable
• uses a taxonomy to describe increasing complexity and depth of knowledge, skills and application across the duration of a program
• shows a direct correlation to the stated learning outcomes at both course and program levels, and
• applies contemporary and appropriate educational theory.
LEARNING OUTCOMES

Learning outcomes describe what students will know and be able to do upon successful completion of a Program or Course.

Course Learning Outcomes are part of the University’s contract with students with respect to their achievement in a course. They are the basis for all learning activity in a course and they construct very specific expectations for students about what they will learn and what will be assessed. They are not a description of the course or a summary of the teaching activity. The focus is on specifying student outcomes and evidencing their achievement through assessment.

Specifically, Course Learning Outcomes describe the knowledge, skills and the ability to apply that knowledge and skills that students develop as a result of their participation in a particular course. Course Learning Outcomes are informed by, and contribute to, the overall Program Learning Outcomes.

As explained in the idea of Constructive Alignment (Biggs & Tang, 2007) Course Learning Outcomes, teaching and learning activities, and assessment relate to each other in the following way:

What students will know and be able to do as a result of the course

The activities and experiences that support students in succeeding in the assessment

How students demonstrate that they have acquired the desired Learning Outcomes

Writing Effective Course Learning Outcomes

Students are the primary audience for Course Learning Outcomes; they are a way to make your expectations of student learning explicit.

Effective Course Learning Outcomes are, among other things:

- **Active** – they describe what students will do
- **Appropriate** – they reflect University, Faculty and School priorities such as the University’s Graduate Attributes) and any external and professional requirements, and they contribute to the program intent
- **Attainable** – they are able to be met by most students, with reasonable effort
- **Assessable** – they describe the minimum level of achievement required to pass the course in a way that suggests how the learning will be measured
- **Visible and comprehensible** – they are stated consistently in the Course Profile, other course/program documentation, and are discussed explicitly with students
- **Sufficient** – they are detailed enough to clearly and precisely explain what is expected and will be assessed.

*Adapted from: Baume, D (2009) Writing and using good Learning Outcomes, Leeds Met Press*
Effective learning outcomes are written using the following structure:

<table>
<thead>
<tr>
<th>Stem</th>
<th>a leading statement in the future tense, highlighting that the following actions are expected to be achieved by students by the end of the period of study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active verb</td>
<td>indicating specifically what you want students to know, consider or do</td>
</tr>
<tr>
<td>Focus/Object</td>
<td>indicating the process, product or outcome of the action such as ‘theories’, ‘research plan’ and ‘principles of ethical research’</td>
</tr>
<tr>
<td>Context/Condition/Qualifier</td>
<td>indicating any conditions that may apply such as ‘…using the appropriate referencing system’, ‘…as identified in ..’, and ...relevant to...’</td>
</tr>
</tbody>
</table>

Some examples of effective Course Learning Outcomes

**On successful completion of this course students will be able to:**

- present persuasive and sustained written arguments based on the research
- design, create and use a mechanical device which can perform a routine, specified function and that meets Australian and New Zealand standards
- prepare and present a legal argument to support a defence based on available and valid evidence, with reference to contemporary common law precedents for a specified case study
- use terminology for the field of study correctly and contextually
- review and critique a performance art work, with reference to contemporary theory of artistic criticism

**Bloom’s Taxonomy**

Bloom’s taxonomy is a useful resource in writing learning outcomes. It provides a list of verbs with increasing levels of complexity in cognitive activity and function. These can be used to identify the nature of student learning activity.

<table>
<thead>
<tr>
<th>Verbs using Bloom’s Taxonomy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge</strong></td>
</tr>
<tr>
<td><strong>Comprehension</strong></td>
</tr>
<tr>
<td><strong>Application</strong></td>
</tr>
<tr>
<td><strong>Analysis</strong></td>
</tr>
<tr>
<td><strong>Synthesis</strong></td>
</tr>
<tr>
<td><strong>Evaluation</strong></td>
</tr>
</tbody>
</table>
Requirements for TEQSA Registration

The University is required to comply with the TEQSA Threshold Standards which describe quality Program design in relation to the AQF Qualification Type Descriptors. The AQF defines knowledge, skills and application as:

**Knowledge** is what a graduate knows and understands. It is described in terms of depth, breadth, kinds of knowledge and complexity, as follows:

- depth of knowledge can be general or specialised
- breadth of knowledge can range from a single topic to multi-disciplinary area of knowledge
- kinds of knowledge range from concrete to abstract, from segmented to cumulative
- complexity of knowledge refers to the combination of kinds, depth and breadth of knowledge.

**Skills** are what a graduate can do. Skills are described in terms of the kinds and complexity of skills and include:

- cognitive and creative skills involving the use of intuitive, logical and critical thinking
- technical skills involving dexterity and the use of methods, materials, tools and instruments
- communication skills involving written, oral, literacy and numeracy skills
- interpersonal skills and generic skills.

**Application of knowledge and skills** is the context in which a graduate applies knowledge and skills. Specifically:

- application is expressed in terms of autonomy, responsibility and accountability
- the context may range from the predictable to the unpredictable, and the known to the unknown, while tasks may range from routine to non-routine.

Full details of AQF Qualification Type Descriptors can be found at: [http://www.aqf.edu.au/](http://www.aqf.edu.au/)

**Discipline Standards in Australia**

Threshold Learning Outcomes have been or are being developed nationally for a range of disciplines. Details can be found at: [http://disciplinestandards.pbworks.com/w/page/52657697/FrontPage](http://disciplinestandards.pbworks.com/w/page/52657697/FrontPage)

**Useful resources**


Baume, D 2009, Writing and using good Learning Outcomes, Leeds Metropolitan University. [http://repository.intralibrary.leedsmet.ac.uk/open_virtual_file_path/3128n162822t/Writing%20and%20using%20good%20learning%20outcomes.pdf](http://repository.intralibrary.leedsmet.ac.uk/open_virtual_file_path/3128n162822t/Writing%20and%20using%20good%20learning%20outcomes.pdf)


Iowa State University Center for Excellence in Learning and Teaching, A Model of Learning Objectives based on Bloom’s Taxonomy [http://www.celt.iastate.edu/teaching/RevisedBlooms1.html](http://www.celt.iastate.edu/teaching/RevisedBlooms1.html)


Macquarie University iLearn, 2013, Writing Learning Outcomes in Units [http://mq.edu.au/iLearn/resources/units_learning_outcomes.htm](http://mq.edu.au/iLearn/resources/units_learning_outcomes.htm)

SOLO taxonomy [http://www.learningandteaching.info/learning/solo.htm](http://www.learningandteaching.info/learning/solo.htm)

DESIGNING EFFECTIVE ASSESSMENT

Reflect on the following principles to review your current assessment practices and to refine, revise or develop effective assessment tasks.

University of Adelaide principles of assessment
As stated in the University's Assessment for Coursework Programs Policy as at October 2013.

Assessment methods and types
Can an exam reliably assess whether a student has the skills to work effectively in groups? Unlikely.

Make sure the assessment method and type is consistent with and reliable for what you are assessing.

There are a plethora of assessment methods and types, and each is suitable for particular purposes.

Choose a method and type that is fit for purpose.

A few examples:

<table>
<thead>
<tr>
<th>Learning to be demonstrated</th>
<th>Assessment type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group work skills</td>
<td>Project</td>
</tr>
<tr>
<td>Application of theory</td>
<td>Practical, experiment, project</td>
</tr>
<tr>
<td>Critical thinking skills</td>
<td>Case study analysis, reflective journal</td>
</tr>
<tr>
<td>Recall of information</td>
<td>Exam, test, quiz</td>
</tr>
</tbody>
</table>

For more information on and examples of assessment types try these links:

Assessment types, University of Adelaide, 2012

University of Sydney Assessment Resources

Assessment Tasks of Increasing Complexity

Assessment Tasks of Increasing Complexity matched to learning opportunities

Blooms revised taxonomy with matched sample verbs, learning outcomes and assessment tasks

Assessing groupwork, Centre for the Study of Higher Education
http://www.cshe.unimelb.edu.au/assessinglearning/03/group.html

Assessing Group Tasks, University of Queensland, Geoff Isaacs

The 39 Steps: a checklist for assessing team and group work, Macquarie University

Teamwork skills, Griffith University toolkit
Assessment Policy

Course Coordinators need to become familiar with the guidelines in the Assessment for Coursework Programs Policy.

This site recommends the following additional links within the University of Adelaide's website:

- Assessment Resources
- Hurdle Requirements
- Assessment guidance
- Grade descriptors guide
- Plagiarism Information for Staff
- Student Grievance policy
- Replacement and Additional Assessment guide
- Reasonable Adjustments to Teaching and Assessment for Students with a Disability Policy

Balancing the assessment workload

Academic workload

Remember that the work that is set must be marked. Too many pieces of assessment potentially create an unmanageable workload for yourself, other staff and for students.

If you are giving useful feedback, even with effective timesaving rubrics, at least 30 minutes is likely to be needed per assessment piece. This adds up to a mountain of work.

As a rule of thumb 3 to 4 graded assessment pieces per course should be sufficient, if well designed, to provide all the evidence you need to confirm whether a student has achieved the expected learning.

Other opportunities to monitor student progress and provide feedback can be built into the learning activities.

Student workload

Consider the assessment for your course in relation to the assessment requirements for other courses scheduled at the same time for the program. Students will.

They will use many criteria to make their decision about where to prioritise their effort and time.

Among them are:

- How much of the marks for this course are at risk for this assessment piece?
- What is easy or interesting for me, or important for my personal goals?

Moderation and validation

This is a process where assessment instruments and processes are reviewed through a collaborative, systematic and reflective process. This is an opportunity to consult with your colleagues not only to identify improvements you can make for your courses, but also to try to address workload issues.

Ensuring a whole of program/major/discipline approach to such matters as setting due dates, weightings and assessment methods and types will help spread the load, as far as practicable and reasonable, across the semester.

Weighting

The weighting you assign to an assessment piece is an indicator of its importance to the achievement of the overall course intent (the learning outcomes). It is also seen by students as an indicator of where they should prioritise their effort and time. If there are more marks associated with a particular piece of assessment that is likely to attract more effort and time. Pieces with below 10% weighting are unlikely to be seen by students as worth the effort unless they contribute to hurdle requirements.

For example, if an exam carries 70% of the marks for a course and a project journal carries 10%, students will focus the majority of their time and effort on acquiring and recalling the knowledge needed to pass the exam rather than developing the capacity to use the knowledge in a discipline/professionally relevant context.

The University’s Academic Program Assessment Policy states that you should:

Ensure that each assessment task is given an appropriate weighting which reflects the importance of the course learning [outcomes] being tested by that task.
FEEDBACK TO STUDENTS

Feedback is a critical element of assessment and of learning. Feedback is essential for students to:

- make improvements,
- learn from practice,
- learn from mistakes,
- to develop confidence as learners,
- recognise progress,
- understand the required performance standards, and
- to understand what is expected.

Feedback comes in the form of comment, both written and spoken, and of non-verbal cues, such as body language, tone, context, timing.

Feedback can also take the form of questions. Asking the right question at the right time, in the right way encourages critical reflection and guides students’ evaluation of their performance. Strategic questioning is an integral part of the learning process.

Learning to use the feedback given both by the academic and by other students builds confidence and capability.

It is also important for students to develop the skills to critically reflect on their own performance and to be able to analyse each attempt to learn from experience.

The Assessment Futures site is a useful resource for peer feedback and critical self reflection.

Grades are a certain kind of feedback but they only give an indication of performance at a very broad level. Use of assessment rubrics in conjunction with grades provides more details against a defined set of criteria.

David Boud talks about active and purposeful feedback in the context of sustainable assessment, using the example from engineering of system feedback. This feedback is characterised by questions such as “What kind of comments would be most useful to help develop this work further?” and by an iterative approach where attempts are made, meaningful and timely feedback is sought, received and used to make improvements before seeking more feedback, and so on until there is satisfaction with the final product. This allows the assessment of performance and assessment tasks that will ultimately be marked to become an integral part of the learning process.

Feedback:

- Can be provided verbally or online during the creation of the work:
  - to allow reflection and action for future work,
  - so it will be considered while the context is still fresh in the mind.

Feedback must:

- Be timely
- Provided to as soon as possible after the work is submitted.
- Be constructive and detailed
  - Contain details on:
    - what was done well,
    - what wasn’t done as expected / to the required standard, and
    - how to improve for the future.
- Use language that is honest and encourages continued effort and improvement.
- Be relevant
- Relate directly and clearly to stated expectations, as outlined in:
  - learning outcomes,
  - rubrics, and
  - detailed assessment criteria.
- Directly and explicitly build towards achievement of program learning outcomes and graduate attributes.
Feedback can be informal or formal

Informal

- Given on the spot.
- Verbally, in emails or online.
- During learning activities as well as during the process of completing an assessment piece.

Formal

- In a designated structure and format.
- On completion of the assessment piece.

You are not on your own

Feedback is not the sole domain of the academic.

Where the expectations and standards of performance are known, explicit, relevant and detailed:

- students can provide constructive timely feedback to each other,
- students can reflect on and analyse their own performance, and
- demonstrators and tutors can also provide feedback to students and to the lecturer in charge on student performance.
LEARNING AND TEACHING ACTIVITIES

The alignment of course learning outcomes, assessment and learning and teaching activities is a critical aspect of course and major design and a key indicator of the quality of a program.

What is the purpose of learning and teaching?

Learning and teaching activities are the things STUDENTS DO and you do WITH STUDENTS to develop their knowledge, skills and application.

To be effective, students need to be critically and reflectively engaging with knowledge, investigating, taking responsibility for their own learning and working with the academic as a resource and guide.

To create, support and encourage effective learners academics need to resource and facilitate learning so students can develop knowledge and skills for themselves. This requires moving beyond transmission of knowledge to actively and collaboratively engaging with students in the learning process.

Where the intent is to create professionals in a field or discipline (and this can include being researchers), there will be a core of critical content that must be acquired by students, but more often the bulk of the skills and knowledge required to be an effective professional in any particular field or discipline requires the ability to:

- think critically and reflectively,
- undertake meaningful enquiry,
- analyse, synthesise and evaluate information and ideas, and
- meaningfully, and effectively apply knowledge and skills.

Therefore the focus of learning and teaching activities should be around creating and using learning, more than recall and reproducing models. To create and use learning there needs to be deep understanding as described in Biggs’ Solo Taxonomy.

Alignment with assessment and learning outcomes

Like assessment, learning and teaching activities are directly related to the learning outcomes and like assessment they should be fit for purpose: that is, they need to be a valid way of developing the required knowledge, skills and application.

Learning activities may include a range of direct and indirect methods that are:

- teacher controlled (lectures, seminars, practicals or labwork),
- student-led (student-managed groups, peer teaching, team assignments, fieldwork group projects),
- resource-based (text books, journals, websites), or
- technology assisted (quizzes, simulations, email, blogs, forums, webcasts, podcasts).

The MyUni course Making Teaching Easier has been developed for both new and experienced teaching staff at the University of Adelaide and includes a section on Supporting Student Learning. It can be accessed by logging in to http://myuni.adelaide.edu.au/ then selecting the course ‘Making Teaching Easier’.

What is fit for purpose?

There are a vast range of potential learning activities. The ones you choose should reflect:

- the needs of the course,
- the overall intent of the program, and
- the needs of the students.

Individual academics will have preferred activities and should use these wherever they are suitable.

When choosing a learning activity ask yourself:

- Why do I want the students to do this?
- How will this develop the learning intent of this course?
- How does this help students prepare for assessment?
- Will this help students be active learners?
- Will this help them develop the learning intent of the program?
- Is this the most suitable way to develop the intended knowledge, skills or application?
Bear in mind for any given purpose there is likely to be a range of learning activities that will suit.

Factors which determine which activities to choose include:

- What resources are available?
- How much time is available?
- What have these students done before?
- What will these students do in other courses?

**Active learning**

Active learning involves students in doing things and thinking about what they are doing. This can include discussing, critical thinking, solving problems, etc. Many studies indicate that students learn better from active rather than passive learning. Active learning strategies result in meaningful learning for the learner and thus are an important component to consider when developing a [course].


Common active learning pedagogies that you may find useful in your teaching include:

- Collaborative learning
- Case studies
- Peer learning
- Enquiry based learning
- Problem based learning
- Project based learning.


**E-learning**

The University has set a range of targets for embedding e-learning strategies in all coursework programs. These include all courses having an increased presence on MyUni and increasing the range of activities students engage with in the online/digital environment.

The e-learning team have a range of tutorials and resources to support e-learning.

**Resources and Further Information**

**Pedagogical Possibilities**

[http://www.studygs.net/activelearn.htm](http://www.studygs.net/activelearn.htm)

Joe Landsberger [http://www.studygs.net/activelearn.htm](http://www.studygs.net/activelearn.htm)


REFERENCES AND USEFUL LINKS


Biggs, John n.d., Aligning teaching for constructing learning, Higher Education Academy


Bloom’s Taxonomy of Learning Domains (Don Clark) http://www.nwlink.com/~donclark/hrd/bloom.html

Iowa State University Center for Excellence in Learning and Teaching, A Model of Learning Objectives based on Bloom’s Taxonomy http://www.celt.iastate.edu/teaching/RevisedBlooms1.html

Joe Landsberger http://www.studygs.net/activelearn.htm


SOLO taxonomy http://www.learningandteaching.info/learning/solo.htm

Griffith University, Teamwork skills toolkit http://www.griffith.edu.au/__data/assets/pdf_file/0008/290870/Teamwork-skills.pdf

University of Adelaide Graduate Attributes http://www.adelaide.edu.au/learning/strategy/gradattributes/


University of Sydney Assessment Tasks of Increasing Complexity http://www.itl.usyd.edu.au/assessmentresources/increasing_complexity_assessment.htm

University of Sydney Assessment Tasks of Increasing Complexity matched to learning opportunities http://www.itl.usyd.edu.au/assessmentresources/increasing_complexity_matching.htm

University of Sydney http://sydney.edu.au/staff/fye/during_semester/active_learning.shtml

University of Sydney Assessment Resources http://www.itl.usyd.edu.au/assessmentresources/default.htm

University of Sydney Institute of Learning and Teaching http://www.itl.usyd.edu.au/projects/curriculumrenewal/

University of Sydney Blooms revised taxonomy with matched sample verbs, learning outcomes and assessment tasks http://www.itl.usyd.edu.au/assessmentresources/Blooms_taxonomy.pdf

University of Western Australia http://www.catl.uwa.edu.au/resources/learning

University of Melbourne Assessing groupwork, Centre for the Study of Higher Education http://www.cshe.unimelb.edu.au/assessinglearning/03/group.html

Assessing Group Tasks, University of Queensland, Geoff Isaacs
Appendices: Examples of curriculum mapping tools and mapping of alignment in practice
<table>
<thead>
<tr>
<th>Bachelor of Commerce Program Learning Outcomes 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our graduates will: ...</td>
</tr>
<tr>
<td>...be critical and analytical thinkers ...</td>
</tr>
<tr>
<td>...be effective communicators ...</td>
</tr>
</tbody>
</table>
| ...apply professional ethics to business problems ... |}

<table>
<thead>
<tr>
<th>AQF 8 Bach (Hon) Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>The bachelor honours degree is a qualification that prepares graduates from the same disciplines</td>
</tr>
<tr>
<td>• for a higher level qualification involving research, or</td>
</tr>
<tr>
<td>• to advance the knowledge, skills and application gained in their Bachelor Degree, or</td>
</tr>
<tr>
<td>• for professional position for which higher level of learning outcomes are required for entry.</td>
</tr>
<tr>
<td>The defining difference between the Bachelor Honours Degree and the Bachelor Degree is the development of advanced knowledge and the requirement for research in the honours.</td>
</tr>
<tr>
<td>Research must be evident in all Bachelor Honours Degrees.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AQF Level 7 Bachelor Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduates of this level will ...</td>
</tr>
<tr>
<td>• have broad and coherent knowledge and techniques of a chosen discipline at advanced levels that are internationally recognised</td>
</tr>
<tr>
<td>• have cognitive and technical skills to demonstrate a broad understanding of knowledge with depth in some areas</td>
</tr>
<tr>
<td>• analyse and evaluate information to complete a range of activities</td>
</tr>
<tr>
<td>• develop and apply methods and technologies to:</td>
</tr>
<tr>
<td>• intellectual curiosity</td>
</tr>
<tr>
<td>• ethical, social and cultural issues</td>
</tr>
<tr>
<td>• interpersonal relations and teamwork</td>
</tr>
<tr>
<td>• analytical thinking (able to analyse and frame problems)</td>
</tr>
<tr>
<td>• demonstrate the application of knowledge and skills:</td>
</tr>
<tr>
<td>• within broad parameters to provide specialist advice</td>
</tr>
<tr>
<td>• in contexts that require intellectual curiosity, analytical, communicative and collaborative knowledge</td>
</tr>
<tr>
<td>• autonomy, initiative and judgement</td>
</tr>
<tr>
<td>• self-directed work and professional practice</td>
</tr>
<tr>
<td>• excellent core business skills</td>
</tr>
<tr>
<td>• in identifying and providing solutions to complex problems with depth in one or more disciplines or areas of practice</td>
</tr>
<tr>
<td>• relevant knowledge and skills (able to translate knowledge of business and management into practice)</td>
</tr>
<tr>
<td>• have developed cognitive, technical and communication skills to:</td>
</tr>
<tr>
<td>• intellectual curiosity</td>
</tr>
<tr>
<td>• ethical, social and cultural issues</td>
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</tr>
<tr>
<td>• relevant knowledge and skills (able to translate knowledge of business and management into practice)</td>
</tr>
<tr>
<td>• have advanced theoretical and technical knowledge in one or more disciplines or areas of practice</td>
</tr>
<tr>
<td>• have coherent and advanced knowledge of the underlying principles and concepts in one or more disciplines and knowledge of research principles and methods</td>
</tr>
<tr>
<td>• have cognitive and technical skills to demonstrate a broad understanding of a body of knowledge and theoretical concepts with advanced understanding in some areas</td>
</tr>
<tr>
<td>• have advanced cognitive, technical and communication skills to:</td>
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<td>• intellectual curiosity</td>
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<td>• demonstrates the application of knowledge and skills:</td>
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<tr>
<td>• in a project</td>
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<table>
<thead>
<tr>
<th>University of Adelaide Graduate Attributes</th>
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</thead>
<tbody>
<tr>
<td>University of Adelaide graduates will have ...</td>
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<tr>
<td>• knowledge and understanding of the content and techniques of a chosen discipline at advanced levels that are internationally recognised</td>
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<tr>
<td>• application of knowledge (able to translate knowledge of business and management into practice)</td>
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<td>• intellectual curiosity</td>
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<tr>
<td>• ethical, social and cultural issues</td>
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<tr>
<td>• analytical thinking (able to analyse and frame problems)</td>
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<tr>
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<tr>
<td>• within broad parameters to provide specialist advice</td>
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<tr>
<td>• in contexts that require intellectual curiosity, analytical, communicative and collaborative knowledge</td>
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<tr>
<td>• autonomy, initiative and judgement</td>
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<tr>
<td>• self-directed work and professional practice</td>
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<tr>
<td>• excellent core business skills</td>
</tr>
<tr>
<td>• in identifying and providing solutions to complex problems with depth in one or more disciplines or areas of practice</td>
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<tr>
<td>• relevant knowledge and skills (able to translate knowledge of business and management into practice)</td>
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<td>• have coherent and advanced knowledge of the underlying principles and concepts in one or more disciplines and knowledge of research principles and methods</td>
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Integrate theoretical and technical knowledge to propose solutions to problems in specific functional contexts.

Graduates at this level will have broad and coherent theoretical and technical knowledge with depth in one or more disciplines or areas of practice.

An awareness of ethical, social, and cultural issues within a global context and their importance in the exercise of professional skills and responsibilities.

Graduates at this level will have well-developed cognitive, technical and communication skills to select and apply methods and technologies to:

- Analyse and evaluate information to complete a range of activities
- Analyse, generate and transmit solutions to unpredictable and sometimes complex problems
- Within broad parameters to provide specialist advice and functions
- In contexts that require self-directed work and learning

A proficiency in the appropriate use of contemporary technologies.

The ability to locate, analyse, evaluate, and synthesise information from a wide variety of sources in a planned and timely manner.

A commitment to the highest standards of professional endeavour and the ability to take a leadership role in the community.

Graduates at this level will apply knowledge and skills to demonstrate autonomy, well-developed judgement, and responsibility:

- In contexts that require self-directed work and learning
- Communication of critical thinking and apply judgement when interpreting professional issues/problems
- Undertake an evidence-based approach to decision making
- Apply a relevant ethical framework for decision making in a professional context

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.

Skills of a high order in interpersonal understanding, teamwork and communication.

Communication effectively in writing using professional formats appropriate to the context and audience.

Display effective oral communication skills.

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Graduates at this level will apply knowledge and skills to demonstrate autonomy, well-developed judgement, and responsibility:
Instructions - Program Mapping Graduate Attributes - Undergraduate Programs - Sequencing Spreadsheet (adapted from Griffith University)

**Program Mapping - University of Adelaide Graduate Attributes - Sequencing Spreadsheet**

The columns in this spreadsheet represent the University of Adelaide Graduate Attributes. Each attribute has been divided into Introduced or Developed or Assessed to map out how and where each attribute is addressed in the program.

- Introduced = course learning outcomes do not focus on this attribute – but aspects of course delivery and student experience may contribute. Certain attributes may be tacitly addressed but not actively taught or assessed.
- Developed = course learning outcomes and learning and teaching activities focus on preparing students to achieve the GA in a subsequent or related course – there may be formative assessment, which sits with development.
- Assessed = a summative assessment task assesses student learning outcomes in relation to the Graduate Attribute.
- Empty = this Graduate Attribute is not addressed in the course.

The rows in this spreadsheet are for the list of courses in a program organised by year levels.

**Completing the template**

**Interpreting the spreadsheet**

Once the template is complete you will see that the cells with numbers entered will change colour.

This will help to show the pattern of Graduate attribute development and determine the areas where there are gaps in the support for the development of a graduate attribute. Across the years within a program you generally would generally see an appropriate pattern of the Graduate Attribute occurring in the appropriate years (e.g. introduced in early years, developed in middle years and assessed in later years). The tallies for each year block of courses gives a snapshot of the distribution of attributes within each year. A key to interpreting the table is available.

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### Instructions - mapping TLS across a program - sequencing spreadsheet

**Program Mapping - Engineers Australia Professional Competencies - Sequencing Spreadsheet**

This column in the spreadsheet represents the Engineers Australia Professional Competencies.

Each Competency has been divided into Introduced, Developed and Assessed segments.

### Completing the Template

1. Enter the course codes of your program into Column A (organised by 1st Yr, 2nd Yr etc)
2. Enter the course codes of your program into Column A (organised by 1st Yr, 2nd Yr etc)
3. Enter the appropriate number into the corresponding cell:
   - 1 for Introduced
   - 2 for Developed
   - 3 for Assessed

### Interpreting the Spreadsheet

- For the first course in the list identify whether it is Introduced, Developed or Assessed in each course by entering the number 1 into the corresponding cell.
- Enter the course codes of your program into Column A (organised by 1st Yr, 2nd Yr etc)

### Completing the Template

The rows in this spreadsheet are for the list of courses in a program organised by year levels. Add more sheet rows, as needed.

### Professional Competencies

1. **1.1 Comprehensive, theory:**
   - Understanding of the engineering discipline
   - Knowledge of the basic sciences which underpin the engineering discipline
   - Understanding of the impact of engineering practice in the engineering discipline
   - Knowledge of the engineering discipline

2. **1.2 Conceptual:**
   - Understanding of the engineering discipline
   - Knowledge of the basic sciences which underpin the engineering discipline
   - Knowledge of the engineering discipline

3. **1.3 In depth understanding:**
   - Understanding of the impact of engineering practice in the engineering discipline
   - Knowledge of the engineering discipline
   - Knowledge of the engineering discipline

4. **1.4 Discernment:**
   - Understanding of the impact of engineering practice in the engineering discipline
   - Knowledge of the engineering discipline
   - Knowledge of the engineering discipline

5. **1.5 Professional:**
   - Understanding of the impact of engineering practice in the engineering discipline
   - Knowledge of the engineering discipline
   - Knowledge of the engineering discipline

6. **1.6 Understanding:**
   - Understanding of the impact of engineering practice in the engineering discipline
   - Knowledge of the engineering discipline
   - Knowledge of the engineering discipline

### Engineering Foundation

1. **2.1 Application:**
   - Application of tools and resources
   - Application of management of engineering techniques
   - Application of management of engineering techniques

2. **2.2 Fluent application:**
   - Application of tools and resources
   - Application of management of engineering techniques
   - Application of management of engineering techniques

3. **2.3 Application:**
   - Application of tools and resources
   - Application of management of engineering techniques
   - Application of management of engineering techniques

4. **2.4 Application:**
   - Application of tools and resources
   - Application of management of engineering techniques
   - Application of management of engineering techniques

### Professional and Ethical Conduct

1. **3.1 Ethical:**
   - Ethical conduct and professional accountability
   - Ethical conduct and professional accountability
   - Ethical conduct and professional accountability

2. **3.2 Effective oral and written communication:**
   - Effective oral and written communication
   - Effective oral and written communication
   - Effective oral and written communication

3. **3.3 Professional:**
   - Effective oral and written communication
   - Effective oral and written communication
   - Effective oral and written communication

4. **3.4 Professional:**
   - Effective oral and written communication
   - Effective oral and written communication
   - Effective oral and written communication

5. **3.5 Orderly:**
   - Effective oral and written communication
   - Effective oral and written communication
   - Effective oral and written communication

### Leadership

1. **4.1 Leadership:**
   - Leadership
   - Leadership
   - Leadership

2. **4.2 Leadership:**
   - Leadership
   - Leadership
   - Leadership

3. **4.3 Leadership:**
   - Leadership
   - Leadership
   - Leadership

4. **4.4 Leadership:**
   - Leadership
   - Leadership
   - Leadership

### Information Management

1. **5.1 Information:**
   - Information management of information
   - Information management of information
   - Information management of information

2. **5.2 Information:**
   - Information management of information
   - Information management of information
   - Information management of information

3. **5.3 Information:**
   - Information management of information
   - Information management of information
   - Information management of information

4. **5.4 Information:**
   - Information management of information
   - Information management of information
   - Information management of information

### Creative, Innovative

1. **6.1 Creative:**
   - Creative, innovative
   - Creative, innovative
   - Creative, innovative

2. **6.2 Creative:**
   - Creative, innovative
   - Creative, innovative
   - Creative, innovative

3. **6.3 Creative:**
   - Creative, innovative
   - Creative, innovative
   - Creative, innovative

4. **6.4 Creative:**
   - Creative, innovative
   - Creative, innovative
   - Creative, innovative
<table>
<thead>
<tr>
<th>Knowledge Area</th>
<th>Topic</th>
<th>Outcomes</th>
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<td>5. Identify and explain the regulatory environment for companies in Australia, including the significance of the concept of separate legal entity.</td>
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<td>1. Demonstrate an awareness of ethical principles and perform basic taxation calculations.</td>
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<td>2. Explain the role and purpose of taxation in organisations, including the concept of taxation entities.</td>
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<td>3. Identify various types of taxation including income tax, capital gains tax, goods and services tax, and fringe benefits tax.</td>
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<td>4. Understand the role and purpose of taxation in organisations.</td>
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### Ethics across the Curriculum

Ethics is an important element in the development of new accounting and business professionals. It is expected that ethical concepts and principles and their applicability to the accounting profession will be covered throughout the curriculum.

#### Knowledge area 1: Accounting Information Systems

1. Explain the role and purpose of management accounting
2. Explain the regulatory environment for financial reporting in Australia
3. Prepare basic general purpose financial statements
4. Demonstrate the practical use of accounting systems to capture and manage information.

#### Knowledge area 2: Managerial Accounting

1. Explain the role and purpose of management accounting
2. Identify and apply commonly used techniques for data collection and analysis
3. Use costing information for business planning and control
4. Demonstrate the practical use of accounting systems to capture and manage information.

#### Knowledge area 3: Accounting Theory

1. Explain and apply the conceptual framework of accounting
2. Explain the national corporate law framework as legislated and its commercial application to the business organisation
3. Explain the procedures for starting, operating, and for winding up a company
4. Explain the key features and purpose of contract law.

#### Knowledge area 4: Audit and Assurance

1. Explain and apply the conceptual framework of accounting
2. Identify and explain the nature and purpose of auditing
3. Explain the procedures for starting, operating, and for winding up a company
4. Explain the key features and purpose of contract law.

#### Knowledge area 5: Commercial Law

1. Explain the regulatory environment for financial reporting in Australia
2. Identify and explain the nature and purpose of auditing
3. Explain the procedures for starting, operating, and for winding up a company
4. Explain the key features and purpose of contract law.

#### Knowledge area 6: Corporations Law

1. Explain the regulatory environment for financial reporting in Australia
2. Identify and explain the nature and purpose of auditing
3. Explain the procedures for starting, operating, and for winding up a company
4. Explain the key features and purpose of contract law.

#### Knowledge area 7: Financial Management

1. Identify and explain economic systems and the concept of resource allocation
2. Recognise regulatory and political environments and how they impact on business
3. Discuss the implementation and impact of economic policy

#### Knowledge area 8: Financial Accounting

1. Identify and explain economic systems and the concept of resource allocation
2. Recognise regulatory and political environments and how they impact on business
3. Discuss the implementation and impact of economic policy
4. Identify and explain basic financial risks and risk management concepts
5. Discuss how organisations make investment and distribution decisions

#### Knowledge area 9: Financial Accounting

1. Identify and explain economic systems and the concept of resource allocation
2. Recognise regulatory and political environments and how they impact on business
3. Discuss the implementation and impact of economic policy
4. Identify and explain basic financial risks and risk management concepts
5. Discuss how organisations make investment and distribution decisions

#### Knowledge area 10: Financial Markets and Institutions

1. Identify and explain economic systems and the concept of resource allocation
2. Recognise regulatory and political environments and how they impact on business
3. Discuss the implementation and impact of economic policy
4. Identify and explain basic financial risks and risk management concepts
5. Discuss how organisations make investment and distribution decisions

#### Knowledge area 11: Financial Statistics

1. Identify and explain economic systems and the concept of resource allocation
2. Recognise regulatory and political environments and how they impact on business
3. Discuss the implementation and impact of economic policy
4. Identify and explain basic financial risks and risk management concepts
5. Discuss how organisations make investment and distribution decisions

#### Knowledge area 12: Taxation

1. Identify and explain economic systems and the concept of resource allocation
2. Recognise regulatory and political environments and how they impact on business
3. Discuss the implementation and impact of economic policy
4. Identify and explain basic financial risks and risk management concepts
5. Discuss how organisations make investment and distribution decisions

### Learning Outcomes

- Display critical thinking and apply approach to decision making in a professional business context
- Undertake an evidence based approach to decision making in a professional business context
- Apply a relevant ethical framework
- Display effective oral
- Gather relevant  environmental and
### University of Adelaide Graduate Attributes

| GA1 | Knowledge and understanding of the content and techniques of a chosen discipline at advanced levels that are internationally recognised (Knowledge and understanding) | HIGH |
| GA2 | The ability to locate, analyse, evaluate and synthesise information from a wide variety of sources in a planned and timely manner (Information gathering and analysis) | HIGH |
| GA3 | An ability to apply effective, creative and innovative solutions, both independently and cooperatively, to current and future problems (Application and problem solving) | HIGH |
| GA4 | A proficiency in the appropriate use of contemporary technologies (Technology) | LOW |
| GA5 | A commitment to continuous learning and the capacity to maintain intellectual curiosity throughout life (Lifelong learning) | LOW |
| GA6 | A commitment to the highest standards of professional endeavour and the ability to take a leadership role in the community (Professional practice) | LOW |
| GA7 | An awareness of ethical, social and cultural issues within a global context and their importance in the exercise of professional skills and responsibilities (Ethics & social and cultural issues) | HIGH |

### Bachelor of Commerce Program Learning Outcomes

|  | Integrate theoretical and technical knowledge to propose solutions to business problems in specific functional contexts within the organisation | HIGH |
|  | Analyse business issues/problems using relevant theories, concepts, and models | MEDIUM |
|  | Display critical thinking and apply judgement when interpreting business issues/problems | MEDIUM |
|  | Gather relevant environmental and organisational information to diagnose problems | MEDIUM |
|  | Undertake an evidence-based approach to decision making | MEDIUM |
|  | Apply a relevant ethical framework for decision-making in a professional business context | MEDIUM |
|  | Communicate effectively in writing using professional business formats appropriate to the context and audience | MEDIUM |
|  | Display effective oral communication skills | MEDIUM |
For the purpose of this example, there are 6 core courses in this 3 year program C\textsuperscript{1}, C\textsuperscript{2}, C\textsuperscript{3}, C\textsuperscript{4}, C\textsuperscript{5}, C\textsuperscript{6}.

Each course has 3 learning outcomes.

The 3 year program has 8 learning outcomes.

H = covered in significant depth and significant detail; M = covered with some depth and some detail; L = limited depth and limited detail

I = Introduced; R = Reinforced; C = Completed (this is generally the course in which achievement of the PLO will be assessed)

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLO1</td>
<td>MI</td>
<td>MI</td>
</tr>
<tr>
<td>PLO2</td>
<td>MI</td>
<td>HI</td>
</tr>
<tr>
<td>PLO4</td>
<td>HI</td>
<td>HI</td>
</tr>
<tr>
<td>PLO5</td>
<td>MI</td>
<td>HI</td>
</tr>
<tr>
<td>PLO6</td>
<td>HI</td>
<td>HI</td>
</tr>
<tr>
<td>PLO8</td>
<td>HI</td>
<td>HI</td>
</tr>
</tbody>
</table>

What this means:

In this example, no single course is aligned to all PLOs, however, all PLOs are addressed across the 3 year program. The PLOs are introduced primarily in Year 1, reinforced primarily in Year 2 and completed (and)

What to do about it?

To rectify this - review and revise the CLOs to:

cover PLO2 in more depth and detail

ensure at least one of the CLOs carries the completion and assessment for each of PLO1 and PLO2

You may also consider revising the CLOs to:

introduce PLO6 earlier in the program and reinforcing it in another course

reinforcing PLO5 in another course
Teaching and Learning Activities:
e.g. Lecture, Tutorial, Practical, Demonstration, Online quiz, Computer suite practice, Online discussion, Mini lecture, Individual literature search and review, Wiki based development of collaborative documents

Assessment of developing knowledge, skills and competence (knows, knows how, shows how) Assessment of competence (does)

<table>
<thead>
<tr>
<th>Assessment task a</th>
<th>Assessment task b</th>
<th>Assessment task c</th>
<th>Assessment task d</th>
</tr>
</thead>
</table>

Course Learning Outcomes:
On successful completion of this course students will be able to:

CLO1
CLO2
CLO3
CLO4
CLO5...
Example from Medicine of how the mapping tool template (in Excel) can be set up or adapted for a range of purposes at course and/or program level

<table>
<thead>
<tr>
<th>COURSE or PROGRAM title and code and other relevant information e.g. assessment period, year level</th>
<th>Threshold learning outcome</th>
<th>AOF qualification type (level) of competence required</th>
<th>University of Adelaide Graduate Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upon completion of their program of study, healthcare graduates at professional entry-level will be able to:</strong></td>
<td>Demonstrate professional behaviours</td>
<td><strong>Assessment of developing knowledge, skills and competence (knows, knows how, shows how)</strong></td>
<td><strong>Assessment of competence (does)</strong></td>
</tr>
<tr>
<td>Discipline accreditation standard - Medicine</td>
<td>Course Learning Outcomes</td>
<td>Assessment task(s) a</td>
<td>Assessment task(s) b</td>
</tr>
<tr>
<td>Describe the principles and practice of professionalism and leadership in health care</td>
<td>E.g. CLO 1,2,6</td>
<td>describe Exam</td>
<td>Exam</td>
</tr>
<tr>
<td>Explain the main principles of ethical practice and apply these to learning scenarios in clinical practice. Communicate effectively about ethical issues with patients, family and other health care professionals</td>
<td></td>
<td>explain AQF 7</td>
<td>Exam</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify the boundaries that define professional and therapeutic relationships and demonstrate respect for these in clinical practice</td>
<td></td>
<td>identify AQF 7</td>
<td>Exam</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hyperlink to Adelaide University MBBS Assessment Blueprint document, which identifies where, when and how clinical and non-clinical assessments are organised within the Program as a whole.

Hyperlink to Course Learning Outcomes in the course documentation or enter them directly into this document.

Hyperlink to AQF website to review AQF level.

The active verbs in the TLO inform the kind of assessment task and identify an AQF level.

Hyperlink to University of Adelaide Graduate Attributes. Could also link to any other mapping instrument for graduate attributes.

Add or delete assessment task columns as required.

Add or delete CLO and/or UAGA columns depending on purpose of the mapping.

Hyperlink to University of Adelaide Graduate Attributes. Could also link to any other mapping instrument for graduate attributes.

Hyperlink to CLO Learning Outcomes in the course documentation or enter them directly into this document.

Hyperlink to AQF website to review AQF level.

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Health and Society: the medical graduate as a health advocate

1 Demonstrate professional behaviours

1 Understand and describe the factors that contribute to the health and wellbeing of Aboriginal and Torres Strait Islander peoples and/or Māori, including history, spirituality and relationship to land, diversity of cultures and communities, epidemiology, social and political determinants of health and health experiences. Demonstrate effective and culturally competent communication and care for Aboriginal and Torres Strait Islander peoples and/or Māori.

2 Undergraduate education in professional and responsible ethical and social practice, and the importance of ethical, social and cultural issues within a global context and their importance for professional practice.

3 Undergraduate education in professional and responsible ethical and social practice, and the importance of ethical, social and cultural issues within a global context and their importance for professional practice.

4 Undergraduate education in professional and responsible ethical and social practice, and the importance of ethical, social and cultural issues within a global context and their importance for professional practice.

5 Demonstrate an understanding of established and evolving biological, clinical, epidemiological, social and behavioural sciences.

6 Demonstrate awareness of factors that affect doctors' health and wellbeing, including fatigue, stress management and infection control, to mitigate health risks of professional practice.

7 Select and perform safely a range of common procedural skills.

8 Negotiate the roles and relationships between health agencies and services, and explain the principles of efficient and equitable allocation of finite resources, to meet individual, community and national health needs.

9 Determine the risk and relationships between health agencies and services, and explain the principles of efficient and equitable allocation of finite resources, to meet individual, community and national health needs.

10 Identify their own health needs, when to consult and follow advice of a health practitioner and when to refer to another practitioner.

11 Communicate effectively in written and oral forms, to facilitate accurate, effective and culturally competent communication within the health professions, and to promote effective collaborative health care teams and inter-professional teamwork.

12 Demonstrate an understanding of established and evolving biological, clinical, epidemiological, social and behavioural sciences.

13 Recognise and assess deteriorating and critically unwell patients who require immediate care. Perform common emergency and life-saving procedures.

14 Integrate and interpret findings from the history and examination, to arrive at an initial assessment including a relevant differential diagnosis. Discriminate between possible differential diagnoses, justify the decisions taken and describe the processes for investigation and management.

15 Describe the principles of clinical practice at the end of their formal training, including mandatory investigations or treatment, and ensuring physical comfort including pain relief, psychological support and other components of palliative care.

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**University of Adelaide Graduate Attributes (UAGA)**

1. Knowledge and understanding of the basic biological, medical, technical and clinical sciences in order to recognise the difference between normal and pathological conditions relevant to clinical dental practice.

2. A commitment to continuous learning and the capacity to maintain intellectual curiosity throughout life.

3. A proficiency in the appropriate use of contemporary technologies.

4. Skills of a high order in interpersonal understanding, teamwork and communication.

5. An ability to apply effective, creative and innovative solutions, both independently and cooperatively to current and future problems.

6. The ability to locate, analyse, evaluate and synthesise information from a wide variety of sources in a planned and timely manner.

7. A commitment to the highest standards of professional endeavour and the ability to take a leadership role in the community.

8. An awareness of ethical, social and cultural issues within a global context and their implications for practice.

9. A commitment to the generation of knowledge, to engage in mentoring processes and to contribute to the learning and professional development of others.

10. A sense of social responsibility to contribute to and benefit from the processes of technological change and to exercise the personal responsibility to contribute to the generation of knowledge, to engage in mentoring processes and to contribute to the learning and professional development of others.

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### Threshold Learning Outcomes - Health

**Domain**

<table>
<thead>
<tr>
<th>UAGA Domain</th>
<th>Threshold Learning Outcomes</th>
</tr>
</thead>
<tbody>
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</tr>
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<td></td>
</tr>
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<td></td>
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<tr>
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**Threshold Learning Outcomes - Health**

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<tr>
<th>Domain</th>
<th>ADC Domain</th>
<th>UAGA*</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Promote and optimise the health and welfare of individuals and/or populations</td>
<td>All</td>
<td>1, 2, 3, 5, 6, 7</td>
</tr>
<tr>
<td>Achieve optimal patient care with an awareness of the need for cost-effectiveness to allow maximum benefit from the available resources</td>
<td>1</td>
<td>3, 8</td>
</tr>
<tr>
<td>Understand systems of health care provision in a culturally diverse society including their advantages and limitations, the principles of efficient and equitable allocation and use of finite resources, and recognition of local and national needs in health care and how they are met</td>
<td>1</td>
<td>1, 8</td>
</tr>
<tr>
<td>Apply prehospital and behavioural principles in patient-centred health care</td>
<td>2</td>
<td>1, 3, 5</td>
</tr>
<tr>
<td>Join the community in private or public practice settings, promote health and prevent disease through activities such as educating individuals and groups; interacting with others to promote activities that protect, restore and improve oral health and the quality of life; organised community efforts</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Appreciate the determinants of health and health behaviours</td>
<td>4</td>
<td>1, 7</td>
</tr>
<tr>
<td>Promote and improve the oral health of individuals and the community by understanding and applying the principles of health promotion and disease prevention</td>
<td>4</td>
<td>1, 7</td>
</tr>
<tr>
<td>Recognise and appreciate the need to contribute to the improvement of oral health beyond those served in traditional practice settings</td>
<td>4</td>
<td>1, 3, 7, 8</td>
</tr>
<tr>
<td>Apply a thorough knowledge of the complex interactions between oral health, nutrition, general health, drugs and systemic diseases that can have an impact on oral health care and oral diseases</td>
<td>4</td>
<td>1, 7</td>
</tr>
<tr>
<td>Encourage and support patients to take interest in, and responsibility for, the management of their health</td>
<td>4</td>
<td>1, 8</td>
</tr>
<tr>
<td>Diagnose patients at all stages in their life, or patients’ family, carers or guardians, about the aetiology and prevention of oral disease using effective and evidence-based education and communication strategies</td>
<td>4</td>
<td>1, 7, 8</td>
</tr>
<tr>
<td>Understand and apply the principles of prevention for reducing behavioural changes which benefit oral health and/or general health</td>
<td>4</td>
<td>1, 7</td>
</tr>
<tr>
<td>Understand the causes and factors that lead to dental diseases or disorders</td>
<td>6</td>
<td>1, 7</td>
</tr>
<tr>
<td>II Retain, critically evaluate, and apply evidence in the performance of health-related activities</td>
<td>1, 2, 3, 9</td>
<td></td>
</tr>
<tr>
<td>Practice evidence-based dentistry</td>
<td>1</td>
<td>All</td>
</tr>
<tr>
<td>Use contemporary information technology for documentation, continuing education, communication, management of information and applications related to health care</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Evaluate and integrate emerging trends in health care as appropriate</td>
<td>3</td>
<td>1, 2, 5</td>
</tr>
<tr>
<td>Formulate treatment plans which integrate research outcomes with clinical expertise and patient preferences</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Select and evaluate evidence in a critical and scientific manner to support professional practice and use information technology appropriately as an essential resource for modern dental practice</td>
<td>3</td>
<td>1, 2, 5</td>
</tr>
<tr>
<td>Evaluate the validity of claims related to the risks/benefits of products and techniques</td>
<td>3</td>
<td>1, 2, 8</td>
</tr>
<tr>
<td>Understand and apply knowledge of the scientific basis of dentistry, including the relevant biomedical and psychosocial sciences, the mechanisms of knowledge acquisition, scientific method and evaluation of evidence</td>
<td>5</td>
<td>1, 2, 8</td>
</tr>
<tr>
<td>Evaluate systematically all treatment outcomes, including information on a patient’s and/or patient’s family/carer’s satisfaction/disatisfaction with treatment and providing and/or recommending additional action and planning for the maintenance of oral health</td>
<td>5</td>
<td>All</td>
</tr>
<tr>
<td>III Deliver safe and effective collaborative healthcare</td>
<td>1, 4, 5, 6, 7</td>
<td></td>
</tr>
<tr>
<td>Recognise personal limitations and know when to refer or seek advice appropriately</td>
<td>1</td>
<td>1, 7</td>
</tr>
<tr>
<td>Manage and maintain a safe working environment; have an appreciation of the systems approach to quality health care and safety, and the need to adapt and practice health care that maximises patient safety</td>
<td>1</td>
<td>1, 8</td>
</tr>
<tr>
<td>Understand how to manage a dental practice including planning, organising and leading clinical teams in public or private practice</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Understand基本原则 of practice administration, financial and personnel management in a dental practice</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Communicate effectively with other health professionals involved in patients’ care and convey written and spoken information clearly</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Communicate effectively and responsibly in all communication media</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Work productively in his or her role in the dental team and display appropriate professional behaviour towards other team members</td>
<td>2</td>
<td>4, 7</td>
</tr>
<tr>
<td>Contribute to teams of health care practitioners in delivering health care in a cooperative, collaborative and integrative manner</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Promote health maintenance of colleagues</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Apply the scientific principles of sterilisation, disinfection and antisepsis, and cross infection control</td>
<td>5</td>
<td>1, 5</td>
</tr>
<tr>
<td>Work safely with sensitive radiation with consideration for their effects on biological tissues and understand and apply the regulations relating to their use, including radiation protection and dose reduction</td>
<td>5</td>
<td>1, 5, 8</td>
</tr>
<tr>
<td>Apply the principles of pharmacology in using therapeutics relevant to clinical dental practice</td>
<td>5</td>
<td>1, 3</td>
</tr>
<tr>
<td>Appreciate medical conditions and medications which can impact on oral health or make the provision of dental treatment unsafe or inappropriate as an essential resource for modern dental practice</td>
<td>5</td>
<td>1, 8</td>
</tr>
<tr>
<td>Understand his or her limitations and know when and how to refer a patient for an appropriate opinion and/or treatment, where the diagnosis and/or treatment is beyond his or her skills or to conform prescribed treatment</td>
<td>6</td>
<td>1, 2, 3</td>
</tr>
<tr>
<td>Propose, discuss and agree treatment options that are sensitive to each patient’s individual needs, goals and values, compatible with contemporary methods of treatment, and congruent with an appropriate oral health care philosophy</td>
<td>6</td>
<td>All</td>
</tr>
<tr>
<td>IV Reflect on current skills, knowledge and attitudes, and plan ongoing personal and professional development</td>
<td>1, 2, 3</td>
<td></td>
</tr>
<tr>
<td>Employ a critically reflective approach to practice which involves learning from experience and participating in and contributing to peer review</td>
<td>1</td>
<td>1, 6</td>
</tr>
<tr>
<td>Demonstrate an ethos of lifelong professional growth and development, and support continuing professional development for all members of the dental team</td>
<td>1</td>
<td>6, 7</td>
</tr>
<tr>
<td>Zike critical thinking, problem-solving skills and emotional intelligence</td>
<td>3</td>
<td>2, 3, 8</td>
</tr>
<tr>
<td>Maintain their own health and understand its importance in relation to occupational hazards and its impact on the ability to practise as a dentist</td>
<td>3</td>
<td>4, 6, 7</td>
</tr>
</tbody>
</table>
Threshold learning outcomes - Health

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Knowledge and understanding of the context and techniques of a chosen discipline at advanced levels that are internationally recognised.

The ability to transfer, analyse, evaluate and synthesise information from a wide variety of sources in a planned and timely manner.

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Knowledge and understanding of the context and techniques of a chosen discipline at advanced levels that are internationally recognised.

The ability to transfer, analyse, evaluate and synthesise information from a wide variety of sources in a planned and timely manner.

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Threshold learning outcomes - Health

<table>
<thead>
<tr>
<th>Domain</th>
<th>Number</th>
<th>Threshold Learning Outcomes - Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.1.1</td>
<td>1</td>
<td>Communicate effectively with other health professionals involved in patients' care and convey written and spoken information clearly</td>
</tr>
<tr>
<td>1.1.1.2</td>
<td>2</td>
<td>Participate in the development of oral health strategies that maximise patient safety</td>
</tr>
<tr>
<td>1.1.1.3</td>
<td>3</td>
<td>Implement appropriate health promotion strategies and interventions for individuals and communities</td>
</tr>
<tr>
<td>1.1.1.4</td>
<td>4</td>
<td>Advocate appropriate for oral and general health in public policy</td>
</tr>
<tr>
<td>1.1.2.1</td>
<td>1</td>
<td>Recognise the oral health of individuals and the community, by understanding and applying the principles of primary health care, health promotion and disease prevention</td>
</tr>
<tr>
<td>1.1.2.2</td>
<td>2</td>
<td>Contibute to the improvement of the oral health of people beyond those served in traditional practice settings to advance the oral health of the community</td>
</tr>
<tr>
<td>1.1.2.3</td>
<td>3</td>
<td>Delivers postgraduate learning opportunities, to engage in mentoring processes and to build the image of the profession</td>
</tr>
<tr>
<td>1.1.2.4</td>
<td>4</td>
<td>Demonstrate an ethos of lifelong professional growth and development</td>
</tr>
<tr>
<td>1.1.3.1</td>
<td>1</td>
<td>Understand how to manage the provision of oral health care including planning, organising and delivering oral health care in public or private practice</td>
</tr>
<tr>
<td>1.1.3.2</td>
<td>2</td>
<td>Administer, use and manage drugs (including local anaesthetics) which support oral health therapy</td>
</tr>
<tr>
<td>1.1.3.3</td>
<td>3</td>
<td>Prevent and manage where necessary medical and dental emergency situations encountered in practice</td>
</tr>
<tr>
<td>1.1.3.4</td>
<td>4</td>
<td>Know when to refer patients to the appropriate health professional for consultation or treatment, confirm prescribed treatment</td>
</tr>
<tr>
<td>1.1.3.5</td>
<td>5</td>
<td>Evaluate systematically all treatment outcomes, including information on a patient's and/or patient's family/carer's satisfaction/dissatisfaction with treatment and providing and/or recommending additional action and planning for the maintenance of oral health</td>
</tr>
<tr>
<td>1.1.3.6</td>
<td>6</td>
<td>Evaluate the validity of claims related to the risks/benefits of products and techniques</td>
</tr>
<tr>
<td>1.1.3.7</td>
<td>7</td>
<td>Be able to provide information about the oral health of an individual patient, including information on a patient's and/or patient's family/carer's satisfaction/dissatisfaction with treatment and providing and/or recommending additional action and planning for the maintenance of oral health</td>
</tr>
<tr>
<td>1.1.3.8</td>
<td>8</td>
<td>Evaluate the validity of claims related to the risks/benefits of products and techniques</td>
</tr>
<tr>
<td>1.1.4.1</td>
<td>1</td>
<td>Promote health and prevent disease through: implementing effective consultation and education strategies with individuals, groups and communities; developing and contributing to strategies to promote, protect, maintain and improve oral and general health and the quality of life; supporting and participating in organised community efforts to promote oral health</td>
</tr>
<tr>
<td>1.1.4.2</td>
<td>2</td>
<td>Understand and apply the theories and evidence for inducing behavioural changes which benefit oral health and/or general health</td>
</tr>
<tr>
<td>1.1.4.3</td>
<td>3</td>
<td>Educate patients at all stages in their life, or their family, carers or guardians, about the aetiology and prevention of oral disease using effective and evidence-based education and communication</td>
</tr>
<tr>
<td>1.1.4.4</td>
<td>4</td>
<td>Evaluate and integrate emerging trends in health care as an opportunity to improve and maintain health and implement strategies to positively influence these interactions</td>
</tr>
<tr>
<td>1.1.4.5</td>
<td>5</td>
<td>Use information technology for documentation, continuing education, communication, management of information and applications related to health care</td>
</tr>
<tr>
<td>1.1.4.6</td>
<td>6</td>
<td>Use critical thinking, problem-solving skills and emotional intelligence</td>
</tr>
<tr>
<td>1.1.4.7</td>
<td>7</td>
<td>Apply knowledge and understanding of the basic biological, medical, technical and clinical sciences in oral health practice</td>
</tr>
<tr>
<td>1.1.4.8</td>
<td>8</td>
<td>Evaluate the scientific principles of sterilisation, disinfection and antisepsis, and cross infection control</td>
</tr>
<tr>
<td>1.1.5.1</td>
<td>1</td>
<td>Evaluate how to prevent, diagnose and treat anomalies and diseases of the teeth, mouth, jaws and related structures</td>
</tr>
<tr>
<td>1.1.5.2</td>
<td>2</td>
<td>Understand and apply the theories and evidence for inducing behavioural changes which benefit oral health and/or general health</td>
</tr>
<tr>
<td>1.1.5.3</td>
<td>3</td>
<td>Advocate for oral health in public policy</td>
</tr>
<tr>
<td>1.1.5.4</td>
<td>4</td>
<td>Employ a critically reflective approach to practice which involves learning from experience and participating in and contributing to peer review</td>
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Source: Professional Attributes and Competencies of the Newly Qualified Oral Health Therapist, 2011
<table>
<thead>
<tr>
<th>Threshold Learning Outcomes - Health</th>
<th>ANMAC Domain**</th>
<th>NCAS***</th>
<th>UAGA***</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Demonstrate professional behaviours</td>
<td>6</td>
<td>1.1, 1.1.2</td>
<td>1.7</td>
</tr>
<tr>
<td>Practices in accordance with legislation affecting nursing practice and health care</td>
<td>2</td>
<td>2.2, 2.3</td>
<td>1.8</td>
</tr>
<tr>
<td>Practices in a way that acknowledges the dignity, culture, values, beliefs and rights of individuals/groups</td>
<td>2</td>
<td>2.4</td>
<td>1</td>
</tr>
<tr>
<td>Advocates for individuals/groups and their rights for nursing and health care within professional and management structures</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Recognises and responds appropriately to unsafe or unprofessional practice</td>
<td>1</td>
<td>1.3</td>
<td>1.7, 8</td>
</tr>
<tr>
<td>fulfil the duty of care</td>
<td>1</td>
<td>1.2</td>
<td>1</td>
</tr>
<tr>
<td>Integrates organisational policies with professional standards</td>
<td>2</td>
<td>2.2</td>
<td>7</td>
</tr>
<tr>
<td>2. Assess individual and/or population health status and, where necessary, formulate, implement and monitor management plans in consultation with patients, caregivers and occupational owners/communities</td>
<td>7.1</td>
<td>C</td>
<td>All</td>
</tr>
<tr>
<td>Integrates nursing and health care knowledge, skills and attitudes to provide safe and effective nursing care</td>
<td>2</td>
<td>2.6</td>
<td>1.2, 3</td>
</tr>
<tr>
<td>Practises workload based on the individual/group's needs, acuity and optimal time for intervention</td>
<td>7</td>
<td>7.3</td>
<td>1</td>
</tr>
<tr>
<td>Uses a range of assessment techniques to collect relevant and accurate data</td>
<td>5</td>
<td>5.2</td>
<td>2</td>
</tr>
<tr>
<td>Analyzes and interprets assessment data accurately</td>
<td>5</td>
<td>5.3</td>
<td>2.3</td>
</tr>
<tr>
<td>Determines agreed priorities for resolving health needs of individuals/groups</td>
<td>6</td>
<td>6.1</td>
<td>2.3</td>
</tr>
<tr>
<td>Identifies expected and agreed individual/group health outcomes including a time frame for achievement</td>
<td>6</td>
<td>6.2</td>
<td>2.3</td>
</tr>
<tr>
<td>Documents a plan of care to achieve expected outcomes</td>
<td>6</td>
<td>6.3</td>
<td>3</td>
</tr>
<tr>
<td>Effectively manages the nursing care of individuals/groups</td>
<td>7</td>
<td>7.1</td>
<td>3</td>
</tr>
<tr>
<td>Provides nursing care according to the documented care or treatment plan</td>
<td>7</td>
<td>7.2</td>
<td>1.4, 7</td>
</tr>
<tr>
<td>Responds effectively to unexpected or rapidly changing situations</td>
<td>7</td>
<td>7.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Determines progress of individuals/groups toward planned outcomes</td>
<td>8</td>
<td>8.1</td>
<td>1.2, 3.4</td>
</tr>
<tr>
<td>Reviews the plan of care and determines further outcomes in accordance with evaluation data</td>
<td>8</td>
<td>8.2</td>
<td>1.2, 3</td>
</tr>
<tr>
<td>Plans for continuity of care to achieve expected outcomes</td>
<td>6</td>
<td>6.4</td>
<td>1</td>
</tr>
<tr>
<td>Establishes therapeutic relationships that are goal directed and recognizes professional boundaries</td>
<td>9</td>
<td>9.1</td>
<td>1.4, 7</td>
</tr>
<tr>
<td>Promote and organise the health and welfare of individuals and/ or populations</td>
<td>D</td>
<td>All</td>
<td></td>
</tr>
<tr>
<td>Advocates and supports individuals/groups to make informed health care decisions</td>
<td>9</td>
<td>9.4</td>
<td>1.2, 3, 4</td>
</tr>
<tr>
<td>Educates individuals/groups to promote independence and control over their health</td>
<td>7</td>
<td>7.7</td>
<td>1.2, 3, 8</td>
</tr>
<tr>
<td>Uses appropriate strategies to promote an individual/group's self esteem, integrity and comfort</td>
<td>9</td>
<td>9.3</td>
<td>1.2, 3, 8</td>
</tr>
<tr>
<td>Facilitates a physical, psychosocial, cultural and spiritual environment that promotes individual/group safety and security</td>
<td>9</td>
<td>9.5</td>
<td>4.8</td>
</tr>
<tr>
<td>Assists health care resources effectively and efficiently to promote optimal nursing and health care</td>
<td>7</td>
<td>7.8</td>
<td>1.2, 3</td>
</tr>
<tr>
<td>Refrains, critically evaluate, and apply evidence in the performance of health-related activities</td>
<td>R</td>
<td>All</td>
<td></td>
</tr>
<tr>
<td>Demonstrates analytical skills in assessing and evaluating health information and data</td>
<td>3</td>
<td>3.3</td>
<td>1.1</td>
</tr>
<tr>
<td>Uses a relevant evidence-based assessment framework to collect data about the physical, socio-cultural and mental health of the individual/group</td>
<td>5</td>
<td>5.1</td>
<td>1.2</td>
</tr>
<tr>
<td>Uses best available evidence, nursing expertise and respect for the values and beliefs of individuals/groups in the provision of nursing care</td>
<td>3</td>
<td>3.2</td>
<td>1.2, 3, 8</td>
</tr>
<tr>
<td>Identifies the relevance of research to improving individual/group health</td>
<td>3</td>
<td>3.1</td>
<td>1.2, 3</td>
</tr>
<tr>
<td>Uses best available evidence, standards and guidelines to evaluate nursing performance</td>
<td>4</td>
<td>4.1</td>
<td>1.2, 3, 7</td>
</tr>
<tr>
<td>Assists and contributes to nursing and health care research</td>
<td>3</td>
<td>3.4</td>
<td>1</td>
</tr>
<tr>
<td>Deliver safe and effective collaborative healthcare</td>
<td>D</td>
<td>All</td>
<td></td>
</tr>
<tr>
<td>Recognises the differences in accountability and responsibility between registered nurses, enrolled nurses and unlicensed care workers</td>
<td>2</td>
<td>2.7</td>
<td>3</td>
</tr>
<tr>
<td>Understands and practices within scope of practice</td>
<td>2</td>
<td>2.7</td>
<td>3</td>
</tr>
<tr>
<td>Recognises that the membership and roles of health care teams and service providers will vary depending on an individual's group's needs and health care setting</td>
<td>10</td>
<td>10.1</td>
<td>1</td>
</tr>
<tr>
<td>Communicates nursing assessments and decisions to the interdisciplinary health care team and other relevant service providers</td>
<td>10</td>
<td>10.3</td>
<td>2</td>
</tr>
<tr>
<td>Facilitates coordination of care to achieve agreed health outcomes</td>
<td>9</td>
<td>10.9</td>
<td>1.4</td>
</tr>
<tr>
<td>Collaborates with the health care team to inform policy and guideline development</td>
<td>10</td>
<td>10.4</td>
<td>4.7</td>
</tr>
<tr>
<td>Communicates effectively with individuals/groups to facilitate provision of care</td>
<td>9</td>
<td>9.2</td>
<td>4</td>
</tr>
<tr>
<td>Allocates aspects of care to others according to their competence and scope of practice</td>
<td>7</td>
<td>7.5</td>
<td>1.2, 3, 4</td>
</tr>
<tr>
<td>Provides effective and timely direction and supervision to ensure that delegated care is provided safely and accurately</td>
<td>7</td>
<td>7.6</td>
<td>1.2, 3, 1, 7</td>
</tr>
<tr>
<td>Reflect on current skills, knowledge and attitudes, and plan ongoing personal and professional development</td>
<td>A</td>
<td>All</td>
<td></td>
</tr>
<tr>
<td>Participates in professional development to enhance nursing practice</td>
<td>4</td>
<td>4.2</td>
<td>5</td>
</tr>
<tr>
<td>Uses appropriate strategies to manage own responses to the professional work environment</td>
<td>4</td>
<td>4.4</td>
<td>6</td>
</tr>
<tr>
<td>Participates in quality improvement activities</td>
<td>4</td>
<td>4.3</td>
<td>7</td>
</tr>
<tr>
<td>Contributes to the professional development of others</td>
<td>3</td>
<td>3.4</td>
<td>4</td>
</tr>
</tbody>
</table>