Academic Leadership for Excellent Curriculum

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Introduction

Hello and welcome to Academic Leadership for Excellent Curriculum

In this module you will consider the elements required to ensure high quality course experiences through excellent curriculum. These are created by a combination of excellent curriculum and learning experiences, and services and facilities which meet reasonable student expectations. It will give you an understanding of a range of tools to create and monitor excellent curriculum such as a Needs Analysis, a Curriculum Map and an Assessment Matrix. With this information you have the tools to ensure: an aligned curriculum in which graduates demonstrate University attributes and professional competencies to ensure graduate employability; a triple-i curriculum; and develop strategies for improving the quality of the curriculum.

Learning Outcomes

On successful completion participants will be able to:

- analyse a curriculum map to ensure that graduate attributes are achieved through collective experience of units in a course
- analyse the alignment of unit learning outcomes, engaging learning experiences and appropriate assessment
- evaluate the quality of teaching and learning within a course utilising a range of monitoring tools.

Module Topics

This module looks at what Course Coordinators need to ensure they have an aligned curriculum which is of a high quality. Understanding alignment between learning outcomes, assessment and their role in allowing students to demonstrate achievement of graduate attributes and professional requirements is essential. Ensuring high quality teaching and learning and assessment is an important component in determining the effectiveness of a curriculum. A detailed examination of these concepts is beyond the scope of this program. However, there are several useful tools that can be of great benefit to Course Coordinators to help them determine whether their course and curriculum design is effective in achieving the desired outcomes. These tools are:

- Needs Analysis
- Curriculum Map
- Assessment Matrix
- Quality Assessment Cycle

Let's look at each one in detail.

Needs Analysis

Curtin aims to produce highly employable global citizens with an education beyond their first discipline. These are the three main aspects of the curriculum which Curtin emphasises through its triple-i curriculum.
Academic Leadership for Course Coordinators Program

Curtin’s Triple-i curriculum

| i | Industry (graduate employability) | achievement of all Curtin’s graduate attributes, ensuring assessments throughout the course provide students with comprehensive and coordinated opportunities for work-integrated and career development learning, scenario-based problem-solving, and critical reflection on real or simulated work-based experiences related to their course and aspirations |
| j | Indigenous Intercultural International (global citizenship) | achievement of Curtin’s graduate attributes 7 (international perspective) and 8 (intercultural understanding) ensuring assessments throughout the course provide students with opportunities to demonstrate Indigenous cultural competence and consider issues from a global perspective, and respect and value diversity and social justice |
| j | Interdisciplinary (rich educational choices) | providing students with rich educational choices beyond the narrow confines of a single discipline, including opportunities such as achieving interdisciplinary majors, working in cross-disciplinary or interprofessional teams to solve complex problems, and completing elective units or modules |

A Needs Analysis is a continuous improvement and benchmarking activity which seeks a 360-degree perspective on the ‘health’ of a course (Jones and Oliver 2008 p55). It includes an assessment of a course’s progress towards embedding the triple-i curriculum, draws on comprehensive data from key national and Curtin performance indicators which capture the perspectives of current students, recent graduates and employers and industry stakeholders. Perspectives on the quality of the course are provided as follows:

- Current students – in the form of number of first preferences and average Tertiary Entrance Rank (for UG courses), commencing and total headcount/EFTSL by various student categories, retention rates (commencing and course total), pass rates (unit and course total load) and eVALUate Course Summary report (including an SPSS text analysis of the qualitative comments for the course). All data capture trends over time.
- Recent graduates – CEQ and GDS data benchmarked against the national average for the Field of Education; eVALUate Graduate (captures of graduates of 1-5 years post graduation on the extent to which their course helped them achieve the graduate attributes as well as qualitative comments on best aspects and areas for improvement).
- Employers of recent graduates, and industry experts - eVALUate Employer survey asks the same quantitative and qualitative items as the eVALUate Graduate survey, based on employers’ perceptions of the work-readiness of graduates they have employed.
- Competitors in the market – benchmarking the relative performance of a course against those who offer courses in the same Field of Education.
- Current staff – discussion of data and perspectives of staff as part of Comprehensive Review.

All of these perspectives are collated and analysed before being presented to the teaching team who review the data and make decisions about future directions for the course and the curriculum.

## Curriculum Map

A curriculum map is a tool to ensure that the course has clear and understandable course learning outcomes; all units in the course contribute to the students’ achievement of the course learning outcomes; every unit contributes to the development of appropriate higher order thinking skills; each unit has a syllabus, clear and concise learning outcomes, an appropriate tuition pattern to support student learning; and manageable assessment tasks which directly measure the students’ achievement of the learning outcomes (Oliver et al. 2007). The underlying philosophy of a curriculum map is an aligned curriculum where clear learning outcomes are supported by carefully chosen learning experiences, and tested by directly linked assessment tasks (Biggs 2003b, Ramsden 2003, Huba and Freed 2000, James et al. 2002, Race 2005).

The Curriculum Mapping Tool shows all units in the course (the syllabus, learning outcomes and the graduate attributes to which they relate, assessment alignment with learning outcomes and the level of thinking they require (using Bloom’s taxonomy). The curriculum map also shows how and where the Graduate Attributes are contextualised, embedded and assessed throughout the course. See Figure 1 below for an example of one unit in a curriculum map or for a sample curriculum map see go to the Practical activity & seminar materials section of the online course and download the Curriculum Map Example document.

### Example Curriculum Map

<table>
<thead>
<tr>
<th>Year/Sem</th>
<th>Unit No.</th>
<th>Unit Title</th>
<th>Credit Value</th>
<th>Syllabus</th>
<th>Unit Learning Outcomes</th>
<th>CLO Course Learning Outcomes</th>
<th>LOT Level of thinking</th>
<th>Assessments</th>
<th>%</th>
<th>Week Assessed</th>
<th>ULO Unit Learning Outcomes</th>
<th>Tuition Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/1</td>
<td>12345</td>
<td>Animal Science 100</td>
<td>25 Credits</td>
<td>The effect of nutrition, reproduction and lactation, health and genetics on the growth and development of farm animals. Exploration of related industries national and internationally. Introduction to research methods: inferential statistics and experimental design and analysis</td>
<td>1. Explain fundamental animal husbandry techniques</td>
<td>1</td>
<td>*</td>
<td>1, Case Study</td>
<td>Week 4</td>
<td>1</td>
<td>1, 2, 4, 5</td>
<td>1,2,3,4,5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2. Apply knowledge of animal science to problems in related industries both nationally and abroad</td>
<td>2,7</td>
<td>* * *</td>
<td>2, Tutorial Presentation – Individual</td>
<td>Week 7</td>
<td>2, 4, 5</td>
<td>3, Essay</td>
<td>Week 11</td>
<td>1, 2, 3, 4, 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3. Construct a sustained logical argument based on research evidence</td>
<td>2,3</td>
<td>* * * *</td>
<td>1, Case Study</td>
<td>Week 7</td>
<td>1, 3, 4, 5</td>
<td>4, Exam</td>
<td>Week 10</td>
<td>1, 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4. Propose viable solutions to basic problems in related industries</td>
<td>2,3</td>
<td>* * * *</td>
<td>1, Case Study</td>
<td>Week 7</td>
<td>1, 2, 4, 5</td>
<td>4, Exam</td>
<td>Week 10</td>
<td>1, 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5. Find and evaluate research evidence about animal science</td>
<td>2,3</td>
<td>* * * * *</td>
<td>1, Case Study</td>
<td>Week 7</td>
<td>1, 2, 4, 5</td>
<td>4, Exam</td>
<td>Week 10</td>
<td>1, 3</td>
</tr>
</tbody>
</table>

All units must have learning outcomes which clearly articulate what a student is expected to know, understand or be able to do upon successful completion of the unit. Good learning outcomes have: clearly stated tasks of higher order thinking abilities (Levels 3-6 in Bloom’s taxonomy); important learning goals for the unit; are achievable, demonstrable and measurable; and are fair and equitable.

The Course Learning Outcomes (which are derived from the graduate attributes) should be achieved through the collective experience of the unit learning outcomes. In order to do this, the graduate attributes should be embedded and assessed within the units. Examples of unit learning outcomes and how they apply to various graduate attributes are found in the Teaching and Learning at Curtin book (http://otl.curtin.edu.au/publications/tlbookchap3.pdf) (Chapter 3 - Ensuring quality course and unit experiences). A summary of how course learning outcomes are achieved through the unit...
learning outcomes is shown at the end of the curriculum map. This allows the Course Coordinator to monitor the extent to which each course learning outcome is developed and assessed within the curriculum.

Assessment

Assessment essentially drives learning and therefore for many students, the assessment IS the curriculum! Assessments therefore need to be carefully constructed to allow students to demonstrate their achievement of the unit learning outcomes. The key elements of good assessment practice are:

- provide a balance of formative (allows students to get feedback on their performance for learning and is not for marks) and summative assessments (measurement of student learning and performance)
- there is a reasonable workload associated with assessment (consider the relationship between assessments in other units)
- assessments are authentic wherever possible (that is, they reflect real world situations or scenarios to engage students and demonstrate relevance of their learning)
- assessments are fair, reasonable and designed to avoid plagiarism
- clear marking criteria are provided to students and markers well before assessments are due.

A variety of different types of assessment tasks should be used over the duration of a course for students to demonstrate their achievement of the graduate attributes. Types of assessments include:

- short answer and multiple choice questions (there is a need to ensure they are well designed to assess higher order thinking skills)
- essays
- practical/performance tests
- written report
- practicum/professional placement (work-integrated learning)
- project
- presentation
- case studies/scenarios
- posters
- portfolio (paper and electronic)
- reflective journals and blogs
- and written examinations.

Gibbs and Simpson (2002) describe eleven (11) conditions under which assessment supports student learning:

<table>
<thead>
<tr>
<th>Quantity and distribution of student effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Assessed tasks capture sufficient study time and effort</td>
</tr>
<tr>
<td>2. These tasks are engaged with by students, orienting them to allocate appropriate amounts of time and effort to the most important aspects of the unit/course</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality and level of student effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. These tasks engage students in productive learning activity of an appropriate kind</td>
</tr>
<tr>
<td>4. Assessment communicates clear and high expectations to students</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quantity and timing of feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Sufficient feedback is provided, both often enough and in enough detail</td>
</tr>
<tr>
<td>6. The feedback is timely in that it is received by students while it still matters to them and in time for them to pay attention to further learning or receive further assistance</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality of feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Feedback focuses on learning and on actions under the students’ control rather than on marks or students themselves</td>
</tr>
<tr>
<td>8. Feedback is linked to the purpose of the assignment and to its criteria for success</td>
</tr>
</tbody>
</table>
9. Feedback is appropriate, in relation to students’ understanding of what they are supposed to be doing

**Student response to feedback**

10. Feedback is received and attended to by students

11. Feedback is acted upon by students to improve their work or their learning

A well designed curriculum ensures that the assessment supports student learning using these key principles.

**A Word about Feedback**

Succinct, meaningful feedback is essential to learning and consequently intrinsic to sound assessment practice. A well designed curriculum should ensure that students are provided with the type of feedback which supports their learning. Professor Phil Race provides many practical suggestions and detail can be found on his website ([http://phil-race.co.uk/](http://phil-race.co.uk/)). Race suggests that feedback is most effective when it is:

- timely
- personalised
- empowering, that is, designed to encourage improvement
- designed to open doors, that is, describes the behaviours or knowledge required rather than what hasn’t been done
- analytical
- constructive
- manageable.

Consideration should be given to balancing the ‘learning payoff’ or how much the student learns from the feedback relative to the amount of time taken to provide it. Feedback which helps students learn effectively whilst helping academic staff work efficiently is the most useful.

**Importance of Assessment in the First Year Experience and Transition to University**

Particular attention should be paid to the structure of the first year curriculum to ensure that the assessments support the type of learning required in higher education and that there is sufficient feedback to allow students to determine the required benchmark.

Taylor (2008) has developed a model for assessment which divides the semester into three overlapping assessment phases:

- **Transition** – this should include opportunities to engage students in study and to launch their learning activity in the unit. These assessments should have a low contribution to final grades as they are primarily designed to give students early feedback on their performance. The tasks should be designed so they have relatively short marking time frames in order that work is returned to students as soon as possible to help inform their next piece of assessment. Examples of this would include a study contract, feedback on paraphrasing and referencing, reflective activity, contribution to a blog, worksheets.

- **Development** - is a key component of the unit’s assessment and should provide feedback for improvement in the final assessments (for achievement). These assessments allow for significant feedback and low to medium contributions to the final grade. The time taken for marking of these
tasks is generally higher to enable students to receive good quality feedback in order to improve upon their performance for the final summative assessments. This might include feedback on an essay draft/portfolio/project, or a practical/laboratory assessment.

- **Achievement** - includes assessments towards the end of semester such as essays, portfolios and written and practical examinations. Feedback and marking times are usually considerably lower than for development (as students don’t typically review their end of semester assessments in great detail and therefore don’t learn a lot from any feedback given). The contribution of these assessments to the final grade is usually higher (but typically not more than 50%). These assessments are usually end of semester written and practical exams/laboratories, final reports or essays, portfolios, reflective journals etc.

The timing and value of assessments to support learning for new students is shown in Figure 2 below.

<table>
<thead>
<tr>
<th>Weeks of Semester</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessments for transition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Assessments for achievement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(low weight/low marking)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(high weight/low marking)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessments for development</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>(low weight/high marking)</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Self-assessment (formative and partially summative)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(no or minimal marking time)</td>
<td></td>
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</tr>
</tbody>
</table>

**Figure 2: Assessment strategies to support transition (Adapted from Taylor 2008)**

Prominent mentions of Bloom’s taxonomy and varied forms of assessments are observed in this context.

The model also allows for continuous assessment to regularly engage students and/or allow them to monitor their understanding and progress. (See page 24 of the Curriculum Map Example).

### Assessment Matrix

An assessment matrix provides a visual representation of the types, timing and weighting of assessments across a course and is a useful tool to provide staff with an overview of the assessment profile within a course. To facilitate effective management of student workload, it is desirable to have a spread of assessment throughout the semester, or at least to avoid many assessments being due on the same day or week. It is particularly important that the first year curriculum design ensures there are early, low stakes assessments that give students a clear indication of their performance and the benchmarks expected.

A profile of the variety assessments provides information on whether students are encouraged to demonstrate their achievement of learning outcomes in a variety of ways or whether there is an overuse of one or two dominant methods. Reviewing the weighting of assessments across the semester informs staff as to where students are likely to allocate their time. If workload (in the form of assessments) is distributed relatively evenly across the semester, then students are most likely to work continuously throughout the semester rather than cramming at the end of semester.

A further consideration in an assessment matrix is to review the development of levels of thinking (according to Bloom’s taxonomy) across each of the semesters of a course. It would be expected that as students’ levels of knowledge, skills and attributes increase, the levels of thinking which are required are at a higher level. (See page 23 of the Curriculum Map example).
Quality Assessment Cycle

Assessment is one of the most important activities undertaken during a student’s journey at university. On the basis of a student’s performance in their assessment, decisions about student progress, termination or completion and the grades with which a student completes are determined. Therefore the decisions made should be of the highest quality and academically defensible. Assessment should be subjected to both quantitative and qualitative assessment standards. Quantitative standards include determination of assessment validity and reliability, while qualitative standards include consideration of assessment credibility, dependability and validity (see the Teaching and Learning at Curtin book (http://olt.curtin.edu.au/publications/tlc.html) for further details).

Each time an assessment event is undertaken a quality cycle should be adopted. Curtin uses a six phase approach to the quality assessment cycle.

**Phase 1 - Assessment Design:** An appropriate balance of formative and summative assessment tasks.

**Phase 2 - Communication:** Unit coordinators should meet with all markers to ensure clarity of the expectations of assessment, and the application of the marking criteria. This can include markers commenting on or designing assessment criteria, discussion of the criteria, piloting the criteria with student work (past or present). Clear communication of the criteria to students is also essential to ensure they understand what is expected of them.

**Phase 3 - Ensuring Marking Reliability:** This can be achieved in a number of ways including: ensuring that all assessments (or one particular section of an assessment) are marked by the same marker; markers reviewing assessments marked earlier to ensure the standard has not changed; second (double) marking of some or all assessments; doubleblind marking (especially important where a fail grade is awarded or the result is borderline).

**Phase 4 - Analysis of results:** Post-marking analysis is conducted by the unit coordinator using a variety of methods including: randomly selecting assessments and checking for consistent application of criteria; subject all assessments which have been failed or are borderline to a second marking; conduct an analysis of results between markers. If anomalies are detected, a second marking process should be utilised rather than scaling on a spreadsheet.

**Phase 5 - Feedback:** Results and feedback on overall performance should be provided to students and markers as soon as possible (once any adjustments have been made).

**Phase 6 - Review:** An analysis of the appropriateness of the assessment task, criteria, timing of all aspects of the process and feedback provided should be undertaken in preparation for review of the next assessment event, as well as changes to be made to the assessment to prevent plagiarism.

Distribution of Scores

In addition to ensuring effective assessment and moderation processes, a systematic review of the results for each unit should be undertaken on an annual basis to determine whether the mean and standard deviation are within reasonable limits (and if not, the reasons determined and action taken). Likewise the percentage of students with fail grades and supplementary examinations should generally be fewer than 5%. Greater failure or supplementary assessment rates represent lower than optimal learning outcomes and less than efficient use of resources. They are usually indicative of a more substantial problem with the teaching and learning such as:

- learning outcomes are not clearly defined or are at an inappropriate level based on student prior knowledge
- students who may have learning problems
- students who may have personal problems
- poor teaching and learning practices
- inappropriate assessment practice
- inappropriate assessment guidelines provided to students
• inadequate feedback provided to students to improve their performance in subsequent assessments
• high weighting of final assessments which then become very high stakes from a student perspective
• final assessment is not reflective of previous assessments during the semester, and students are unfamiliar with expectations
• prior units not preparing students adequately for the unit.

**Practical Activity**

<table>
<thead>
<tr>
<th>![Icon]</th>
<th>In the Practical activity for this module you are asked to work in groups to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Icon]</td>
<td>1. Review a Needs Analysis to examine the range of data to evaluate course quality and identify the key areas needing improvement. Focus on an SPSS text analysis visualisation and comments relating to the CEQ subdomains of Assessment Standards and Expectations. Explore strategies for improving issues arising from the data.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>2. Select one unit within a curriculum map to review the alignment of ULOs, learning experiences and assessment.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>3. Using an Assessment Matrix and Distribution of Scores report, identify key units in which further investigation of the quality of assessment and moderation should be explored.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>4. Feedback to the group following each discussion.</td>
</tr>
</tbody>
</table>

Go to the Practical activity & seminar materials section of the online program to download the materials.

If you are completing the Program online, complete the activities (1-3) above and then post your findings to the Academic Leaders Café to discuss with other participants.
Suggested Reading


References


Additional Resources

Websites
The Curriculum 2010 website ([http://c2010.curtin.edu.au/task2.html](http://c2010.curtin.edu.au/task2.html)) at Curtin University of Technology has a good overview of the tools used within Comprehensive Course Review.

The Phil Race website ([http://phil-race.co.uk/](http://phil-race.co.uk/)) provides a lot of free resources to help improve the quality of teaching and learning, and more particularly, assessment.

(These links are current at the time of publication, if they fail please advise the Program Coordinator.)