**Program and Course Mapping to Scaffold Learning
Final Report Project Stage II**
(Supplement to ProgramMap Stage I Report February 2003)

## September 2004

**Project Team**

Professor Tony Radford (Designated project leader)

Dr Susan Shannon (Project officer, evaluator and co-author of this Report)

Mr Ian Roberts (Implementation officer, system designer, software author and responsible for implementation, co-author of this Report - seconded from ITS)

**Project Aim**

The project aim was to develop a web-based map of programs and courses that connects the content and modes of learning in individual courses with desired graduate attributes and professional accreditation requirements.

## 1. Introduction

Following presentations of the results of our initial ProgramMap project in 2003, the project team sought and received a further $12,000 funding from the Deputy Vice-Chancellor (Education) and Provost's Discretionary component of the 2003 Learning and teaching Development Budget, for a second stage of work. The outcomes from the original ProgramMap project and its proposed further development were presented to and discussed with the University Learning and Teaching Committee and the Technology in Education Committee to establish any desired variations to the proposed outcomes within the constraints of the budget. Further direction was subsequently also received from Assoc Professor Geoff Crisp.

As outlined in a letter to the Deputy Vice–Chancellor dated 31 March 2003, Stage II sought to achieve the following outcomes:

1. A prototypical working implementation available over the University network. This new implementation was to have several improvements over the first version:

   - Simplification of data input processes;

   - Increase the flexibility of degrees of emphasis;

   - Enable the incorporation of data in printed reports;

   - Presentation of ProgramMap in the University's web livery.

2. Coverage of all undergraduate programs of the School of Architecture, Landscape Architecture and Urban Design;

3. An evaluation report;

4. A partial or complete mapping of the program in a selected other School or Department in the University.

This Report begins with a concise summary of the original ProgramMap project, and then describes the outcomes from Stage II in each of these four components. This is followed by a summary of investigations of intellectual property and of publications so far resulting from the work, and a statement of budget acquittal.

## 2. Summary of Original ProgramMap Project

1. The ProgramMap Project was carried out with a University Matching Funds for Information Technology Development grant to the School of Architecture, Landscape Architecture and Urban Design. The outcome of the project maps courses in the undergraduate Bachelor of Design Studies (BDesSt) program in the School.

2. The system uses a public domain, standard SQL database (Postgres), Perl script, CGI (Common Gateway Interface), and standard HTML.

3. The Maps are intended for use by individual existing students and prospective students, and by staff in presentations to program accreditation bodies and to public groups. They are also intended to be used by academic staff in their ongoing planning and review of programs and courses.

4. Information for the Maps is collected at course level and aggregated to program level representations. The courses are described at University, School/Department and instructor levels. Courses are a well-understood unit in tertiary education.

5. The information collected the intended attributes objectives of that course, typically as stated by the course coordinator(s) or other curriculum leaders.

6. The information is organised according to one or more frameworks. Multiple curriculum frameworks are supported in the system. The frameworks used so far are mandated by the School/University (*Graduate Attributes*), external bodies (the education policies of the Royal Australian Institute of Architects and the Australian Institute of Landscape Architects), or suggested in the literature on tertiary education (Bloom's taxonomy).

7. Generic course attributes such as learning locale (lecture, laboratory, computer studio etc), learning mode (group or individual work), and learning activity (writing, computing, drawing etc) have also been captured in the same way as curriculum frameworks.

8. The system:

    a. Collects and aggregates subjective estimates of the degree to which a course emphasises components of these numerous frameworks. Information collected in this way:

        i. Reduces the time required from the academic staff providing the information compared with an open text-based system;

        ii. Can be aggregated; and

        iii. Provides more information than a simple tick-the-box approach, which does not differentiate between degrees of emphasis.

    b. Collects text as appropriate including course objectives and course description.

    c. Collects Boolean (true/false) data where appropriate to a understand attributes of a course, for example whether students in a course produce essays, images, or models.

    d. Collects examples of student work.

9. The system reports at the program and course levels. At the program level it applies a unit-based weighting of course attributes to generate corresponding program attributes. It discriminates between core and elective courses and allows users, including student users, to see the effect their choices make in the overall program attributes.

10. Users can also select particular frameworks and components of those frameworks (for example the component *Attitudes and Values* within the framework *Graduate Attributes*) and identify which courses within the program emphasise that component most strongly.

11. The system was evaluated in two modes of use: in the presentation of information to potential future students, and to existing level 1 students. In both evaluations students were able to understand courses presented in this way. 87.5% of 1st year respondents and 94% of prospective respondents 'reasonably' to 'completely' understood the course and program information they were looking at presented on ProgramMap.

## 3. Outcomes from Stage II

### 3.1. Working Implementation

A prototypical working implementation is available over the University network – see http://www.arch.adelaide.edu.au/~irober02/cgi-bin/index.cgi. This prototype will need further development and integration with other University systems before it is ready for formal University-wide adoption. The Project Team is willing to work further with the University Learning and Teaching Committee and the Technology in Education Committee towards identifying how ProgramMap can best be integrated within University systems. The will include means to link ProgramMap, MyUni and Peoplesoft data to produce student portfolio information.

Stage II aimed to develop ProgramMap as a more complete basis for a University implementation. Four specific aims were set for the project and these were successfully achieved.

*Aims of Stage II*

| Aims of Stage II | Report of Achievement |
|---|---|
| 1. Simplify the process of data input. This would be addressed by designing and building a web-based data input interface with a full description of the process to be followed. | A web form was developed with associated database connections to allow course descriptions to be populated against an arbitrary number of pre-exsiting frameworks. *<br><br>Additional frameworks can be uploaded using standard database loading methods. Alternatively, web forms could readily be developed for inputting this data also.<br><br>If ProgramMap were to be deployed enterprise-wide, much of this data would, ideally, be stored Peoplesoft data tables and managed through Peoplesoft panels. |
| 2. Increase flexibility in ways to record degrees of emphasis of framework components in programs and courses. This would be addressed by adding an alternative 5-point scale and/or Boolean flags to the existing continuous scale. | Associated with the development of the web form for data input an alternative method of emphasis description was developed. This method was selected because it*:<br><br>1. Simplified the data input process;<br><br>2. Was readily implemented in HTML;<br><br>3. Provided flexibility in the precision of measurement. At its lower limit the method collapses to be equivalent to a Boolean flag while the method allows precision to any desired level (5, 7,10, (or more) scale points |
| 3. Enable the data to be better incorporated in printed reports. This would be addressed by designing and developing ways to produce concise printed reports of program and course level data in one or more appropriate formats. | ODBC support was added to and configured on the database server allowing any standard reporting tool (Crystal Reports, MS Office) to be used to extract and print the data. |

| | |
|---|---|
| 4. Present the Maps as a University rather than School system. This would be addressed by adopting the University's web livery. | Display 'Skin' technology was developed that separates presentational attributes of the system from the essential data. This enables ProgramMap to present data in one of a number of desired liveries. |
| | To demonstrate this capability, 3 skins were implemented in ProgramMap*: |
| | 1. The University of Adelaide (default) |
| | 2. School of Architecture, Landscape Architecture and Urban Design |
| | 3. Faculty of Humanities and Social Sciences |

\* See the Appendix D for examples or
visit http://www.arch.adelaide.edu.au/~irober02/cgi-bin/index.cgi

In addition to the aforementioned aims the team was directed to pursue the following outcomes for Stage II. The following table lists those outcomes and with a statement of achievement.

*Outcomes from Stage II*

| Outcomes from Stage II | Report of Achievement |
|---|---|
| 1. A prototypical working implementation, which can be made available over the University network. This prototype will need further development and integration with other University systems before it is ready for formal University-wide adoption. | Achieved* |
| 2. This new implementation operating over all undergraduate programs in the School of Architecture, Landscape Architecture and Urban Design, suitable for demonstration to the University community. | Achieved* |
| 3. A brief evaluation report. | Achieved—see this Report *Appendix C* (commencing students) and Final Report February 2003 *Appendix B* (Year 11 and 12) |
| 4. A partial or complete mapping of a program in a selected other School or Department. A 'generic' degree (for example BA or BSc) allows many possible course combinations and hence requires the collection and input of data for very many courses in order to create a complete map. Professional or 'niche' degrees tend to be more constrained in course offerings. The budget allows for advising on, but not undertaking, this data collection and input process. | Achieved* <br> – see body of this Report on B Media involvement |

\* See the Appendix D for examples or
visit http://www.arch.adelaide.edu.au/~irober02/cgi-bin/index.cgi

### 3.2. Coverage of all undergraduate programs of the School of Architecture, Landscape Architecture and Urban Design

With the cooperation of students and staff of the School of Architecture, Landscape Architecture and Urban Design, full coverage of all School undergraduate programs was completed during 2003.

In producing extensive online digital exemplars of students' work for ProgramMap, the project team collaborated with teaching staff to identify and prepare suitable work. A non-exclusive licence for

online storage and communication of student work was prepared and used to obtain authorization from students. The students' moral rights in their work were respected. See APPENDIX A.

*ProgramMap data summary (School of Architecture, Landscape Architecture and Urban Design)*

| | |
|---|---|
| Programs described and analysed | 7 analysed / 15 described[#]: |
| | Bachelor of Architecture |
| | Bachelor of Design Studies |
| | Bachelor of Landscape Architecture |
| | Graduate Diploma in Design Studies[*] |
| | Graduate Diploma in Design Studies (Landscape)[*] |
| | Master of Architecture (Coursework)[*] |
| | Master of Landscape Architecture (Coursework)[*] |
| Courses described | —39 analysed / 86 described[#] |
| Frameworks used | 6 frameworks used for course and program analysis: |
| | Bloom's Taxonomy (The Education Coalition) |
| | RAIA National Visiting Panel Categories (Royal Australian Institute of Architecture) |
| | School Graduate Attributes (School of Architecture, Landscape Architecture and Urban Design, The University of Adelaide) |
| | RAIA Education (Royal Australian Institute of Architecture) |
| | AILA Education (Australian Institute of Landscape Architecture) |
| | ProgramMap (School of Architecture, Landscape Architecture and Urban Design, The University of Adelaide) |
| Staff interviewed | 17 staff (26 interviews) |
| Student exemplars | 68 works illustrating 9 courses |

[*] Incomplete coverage of component courses

[#] All programs described using Calendar data

### 3.2.1. School Reviews

During 2003, the School's academic programs were reviewed in the regular accreditation process undertaken by the State and Territory Registration Boards and the Royal Australian Institute of Architects and the Australian Institute of Landscape Architects.

A particular challenge for the School facing the review was to be able to convince the panel that our integrated curricula did indeed met the specific professional requirements established.

ProgramMap's ability to describe academic programs within multiple frameworks allowed the School to demonstrate the way in which our programs cover the curriculum determined by the Architect's Accreditation Council of Australia, and the Landscape Accreditation requirements. In order to do this a framework for reporting against the Royal Australian Institute of Architects Course Categories (National Visiting Panel 2003) was introduced, which considered the graduate attributes of each course against a pre-determined framework of Design, Communications and Documentation, Cultural Studies, Technical and Environmental Studies and Practice and Project Management dictated by the RAIA Policy and education requirements. The flexibility of ProgramMap was revealed during this exercise – additional reporting against any framework could be introduced to suit various stakeholders at any time.

All members of the visiting panels were granted access to ProgramMap online, and received a short presentation by Ian Roberts about the interpretation of the online display. As the panel recognised that the 'integrated problem based learning pedagogy was fundamental to the architectural program' the incorporation of the NVP reporting framework enabled novice viewers of ProgramMap to be apprised of the way in which mandatory graduate attributes were integral to the Program.

### *3.2.2. Evaluation Report*

ProgramMap is designed as a tool for many stakeholders – including potential and existing students and their advisers; academic staff in the School; University administration; accreditation authorities; overseas marketing staff attracting enrolments from international students; and the Prospective Students Office of the University.

The Project Final Report February 2003 summarised the results of evaluating the efficacy of ProgramMap with potential students, and existing academic staff. In this report the outcomes of evaluating the efficacy of ProgramMap with newly enrolled students in March 2003 is reported in APPENDIX B.

### *3.2.3. Results Summary*

ProgramMap was well received at its initial in-School trial with 48 beginning Built Environments 1 Level 1 students during structured Built Environments 1 tutorials. The results are important in that they demonstrate that:

Students could easily navigate the site and gather useful information, which they could readily understand:

- They liked the 'look' of ProgramMap – which is, itself, an important 'hook' to encourage students to gather information about intended course and Programs.

- Their comments regarding the potential for links to their MyUni sites reflect the University strategic direction for Graduate mapping;

- Their request for the inclusion of exemplars reflects one of the priorities of the ProgramMap team.

- Respondents stated a strong intention to refer back to ProgramMap for information 'in their own time' which attests to the efficacy of the tool for beginning students.

### 3.3. A partial or complete mapping of the program in a selected other School or Department

The ProgramMap project Team obtained and loaded academic program information for Bachelor of Media for the University of Adelaide Calendar into ProgramMap thereby forming the framework for the full description of the core components of that program. The project team met and communicated on several occasions with Bachelor of Media coordinating staff member Dr Chika Anyanwu. As a result of discussions during these meetings, the team made minor modifications to the ProgramMap survey instrument to accommodate perceived special needs.

The project team identified B Media staff associated with each course offering to make up the current program, and completed a ProgramMap interview with Dr Denise Gamble, coordinator for the Level 2 Philosophy course *Professional Ethics*; and Dr Philip Butterss, the coordinator for the Level 1 English course *Media Studies*. Both courses are core courses for the B Media. Ultimately, we were unable to interview Dr Chika Anyanwu (Media) and Dr Patrick Crogan (English) and Ms Kathie Muir (Social Inquiry)—staff responsible for the remaining of the core courses. Thus a full mapping of the B Media Program was not possible and we were forced to limit the mapping to the two courses: *Image, Text and Representation* and *Media Studies*.

*ProgramMap data summary (Bachelor of Media)*

| | |
|---|---|
| Programs described and analysed | 1 (partially) analysed / 1 described[#]:<br><br>Bachelor of Media[*] |
| Courses described | —2 analysed / 41 described[#] |
| Frameworks used | 4 frameworks used for course and program analysis:<br><br>Bloom's Taxonomy (The Education Coalition)<br><br>ProgramMap (School of Architecture, Landscape Architecture and Urban Design, The University of Adelaide)<br><br>Graduate attributes (Media) (Faculty of Humanities and Social Sciences, The University of Adelaide)<br><br>Graduate attributes (The University of Adelaide) (The University of Adelaide, SOUTH AUSTRALIA, CRICOS Provider Code 00123M) |
| Staff interviewed | 2 staff (2 interviews) |

[*] Incomplete coverage of component courses

[#] All programs described using Calendar data

See - see http://www.arch.adelaide.edu.au/~irober02/cgi-bin/index.cgi

### 3.4. Intellectual Property

Prior to the publication of papers describing ProgramMap, the project team sought to determine whether ProgramMap embodied any intellectual property that could be protected by the University (by patent or otherwise) and whether the University was interested in taking any action to preserve such property.

The team provided a detailed brief to, and met with Adelaide Research and Innovation (ARI) Georgia Sherry and Alistair McFarlane on several occasions (in person on 7/8/04 and 25/9/03). We were advised that there was a likelihood that ProgramMap did contain patentable intellectual property and while it was not clear that the University would be interested in pursuing patent protection, we took the advice of ARI to undertake an initial patent database search for 'prior art'. This search was Step 1 in advancing the possibility of patent protection.

A brief on ProgramMap was confidentially provided to the University patent lawyers (Bill Mc Farlane) by ARI seeking professional advice. The patent lawyers provided the project team with one report of a search they had performed seeking evidence of prior art in patents or patent applications lodged in Australia or overseas. It was apparent that this report was the result of a rudimentary search strategy. Nevertheless the team felt obliged to investigate the patents indicated in the report, but, at the end of that process, it was still likely that the ProgramMap represented a sufficiently novel approach so as to be patentable. The project team carried out a further search of patent databases under the tutelage of ARI.

However, it was apparent that any patent application would require significant investment of resources from the team, School and the University—none of which was likely to be available. ARI advised that the project and the project team would have to find the necessary personnel and financial resources to pursue IP protection. ARI also advised that the lead-time before a patent could be granted would be at least 4 years, and they further advised that the typical lifespan of software was 3-4 years before being superseded.

Following these consultations in the second half of 2003, the team resolved to publish papers describing our work as we felt that the immediate benefits of scholarly communication outweighed (and indeed did not preclude) any likely benefit of patent application. A grace period extends for 12 months from the date of publication for lodging an application for a patent.

### 3.5. Adelaide Summer Research Scholarships 2003-2004

The ProgramMap team received funds from the Adelaide Graduate Centre for two Adelaide Summer Research Scholarships in 2003-2004 season. These scholarships were awarded to James Allen and Kyra Wood and they completed the work during November and December 2003.

The students were asked to prepare of a systematic literature review about curriculum mapping tools with particular reference to tools similar to ProgramMap and tools able to map curriculum components to graduate attributes.

Antony Radford and Susan Shannon were responsible for day-to-day supervision of the summer scholars. The Architecture Librarian, Kay Leverett, and Ian Roberts provided additional advice and support. In the preparation of their review, the students developed valuable research and technical skills and gained experience in report writing.

At the end of their scholarship, the student delivered a written report and a comprehensive Endnote reference database. The review will prove valuable in the preparation of a journal paper under consideration.

The students identified a body of published work on curriculum mapping but demonstrated a need for a system, such as ProgramMap that links academic programs to graduate attributes.

### 3.6. Publications

Papers were written and accepted for publication in 2003 by two refereed Australasian Conferences:

Shannon, Susan, Roberts, Ian and Radford, Antony (2003) 'The Development of Program and Course Maps for Architectural Education' in Hayman, S. (ed) Proceedings of the 37th Australian & new Zealand Architectural Science Association (ANZAScA) Conference, Faculty of Architecture, The University of Sydney, November 1-4, 2003 Vol 2, pp 551- 562.

Roberts, Ian W., Shannon, Susan J., Radford, Antony (2003) 'Mapping Academic Programs with ProgramMap' in G. Crisp, D. Thiele, I. Scholten, S. Barker, and J. Baron (eds) Interact, Integrate, Impact: Proceedings of the 20th Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education. Adelaide, 7-10 December 2003.

See *Appendix B* for copies of publications

### 3.7. Summary

While Stage II of the ProgramMap project was completed successfully, some delays were experienced. These included:

1. Difficulty in securing time from the Bachelor of Media staff to complete course interviews;

2. Unanticipated time required for patent enquiries;

3. Delays in the replacement of web and database server hardware;

4. Enforced, emergency migration of database and server tools following hardware failure. This required a data and code changes to accommodate major version upgrades of both the database and Perl/CGI software.

## 4. Budget Acquittal

The proposed budget for the project was:

Project Officer: Mr Ian Roberts (seconded from ITS) 8 weeks equivalent full-time $12,000.

Dr Susan Shannon and Professor Antony Radford would also work on the project.

The budget allowed for one week equivalent full time for Mr Roberts for advising/consulting/assisting another Department or School in implementing the Maps. Dr Shannon would advise but would not be directly engaged in this process. The funds were spent as predicted, with Mr Roberts seconded to the project from ITS on for a one day per week for 40 weeks in 2003. Some additional work has been carried out during 2004 as a part of Mr Robert's part-time contribution to the School of Architecture, Landscape Architecture and Urban Design.

Refer to *Appendix E* for a detailed budget acquittal report.

## 5. Appendix A: Licence agreement

The following pages form Appendix A: Licence agreement prepared for this project.

## Non-Exclusive Copyright Licence

**WARNING: the infringement of copyright is an offence under the Copyright Act 1968**

In relation to the following material: ...........................................................................................................

I,........................................................ of.............................................................state as follows:

1. I WARRANT that the images, text and other material referred to above, are original works in which I own the copyright AND I DECLARE that I have not previously licensed, sold or otherwise dealt with the said material.

2. I GIVE the School of Architecture, Landscape Architecture and Urban Design at the University of Adelaide (henceforth called the School) a non-exclusive licence for a period of five (5) years from this date to use these images in the following manner:

    1. To include this material in the School's ProgramMap web application and elsewhere in its web site;

    2. To publish and communicate the material in digital and hardcopy formats for teaching and promotional purposes;

    3. To adapt the material but not so as to affect its integrity or creative intent;

    4. To submit representations of this work to auto•des•sys, Inc. for inclusion in the form•Z Joint Study Program Report.

3. In consideration of the foregoing, the School AGREES:

    1. Not to use the images for a commercial purpose without my prior written consent;

    2. To acknowledge me as the creator and copyright owner in any website or publication where my work is used;

    3. Only to use this material in promotional, research, scientific or other educational-related purposes of the School where the use of my images may be appropriate.

4. These rights are exercisable by the School in any country where staff and students of the School may be resident or enrolled or in any country where the School website may be published or communicated.

Signed:.....................................................................................

Date: .....................................................................................

## 6. Appendix B: Conference publications

The following pages form Appendix B: Conference publications generated by this project.

# The Development of Program and Course Maps
# for Architectural Education

Susan Shannon, Ian Roberts and Antony Radford
School of Architecture, Landscape Architecture and Urban Design,
The University of Adelaide
susan.shannon@adelaide.edu.au; ian.w.roberts@adelaide.edu.au; antony.radford@adelaide.edu.au

## Abstract
*The new web application ProgramMap© maps intended learning outcomes and learning mode frameworks within individual courses in a way that can be aggregated to indicate the same characteristics for a whole degree program. Frameworks include the Royal Australian Institute of Architects Education Policy, the Australian Institute of Landscape Architects Education Policy, learning locale, and assessment mode. The application demonstrates through these frameworks the diversity of ways in which an education program is viewed, and how contemporary demands for accountability can be satisfied.  This paper reports the research and the educational contexts behind the development of the map concept over a period of nearly 15 years, and compares the original Macintosh HyperCard$^{TM}$ implementation (Radford, Bennetts and Coldicutt 1992) with the current web application.*

## THE MAP METAPHOR

A paper 'Locating Architectural Science in Computer-Based Maps of Architectural Education' at the 1992 ANZAScA Conference introduced the notion of mapping the content of architectural education using a computer-based multidimensional representation (Radford, Bennetts and Coldicutt 1992).  The conventional representation of a curriculum as a list of courses (or subjects) in a handbook shows none of the complex interrelationships of objectives and contents that exist in any well-considered curriculum.  The primary representation is as a set of course titles and abstracts of contents, which is only one way of looking at the curriculum.  In the modern educational context a host of stakeholders – staff, students, prospective students, University and external accreditation bodies – need a clear and accessible representation of the whole educational offering in order to make an informed contribution to teaching and learning.  Both the 'topic list' (in the handbook) and the 'examples of student work' (in an end-of-year review) fail to show connections well, and it is the way parts are connected which reveals the educational style of a particular institution as much as content lists or results.  Those connections need to be mapped.

A set of land maps provides a metaphor.  For the same area of land several land maps can be made; political, geographical and topographical maps are three examples.  Each of these maps is self-contained and useful by itself, and for different purposes different maps are appropriate.  To fully 'understand' the area of land all the maps are necessary, and a computerised 'land information system' will cross reference the information associated with all of these maps (and others) for a particular location.

For the same educational program, several 'maps' can similarly be made.  One of these might be a map of the curricula of courses and their organisation by levels and by a hierarchy of assumed knowledge and pre-requisite courses.  Another map might represent the learning objectives of courses and the relationships between skills learnt in the course and those learnt in another course.

A third map might show how these courses and skills relate to professional competency requirements.

## The First Implementation: Architecture Maps

The 'Architecture Maps' project set out to do this. The first implementation in the early 1990s used HyperCard$^{TM}$, an interactive program on Macintosh computers based on a concept of separate information 'cards' each able to be linked directly to any other card. A computer 'hypermedium' allows any sequence of such cards to be followed without the spatial relationship constraints of a two- or three-dimensional physical medium. The cards of the map (perhaps, together, more like an atlas) describe the program at different levels of detail (overall structure to individual topic) according to different views (objectives, content, relation to accreditation requirements, etc).

The maps were intended to assist both staff and students in:

(a) Understanding degree structure, particularly the relationships of the 'parts to the whole' and the 'parts to other parts';
(b) Understanding the relationship between educational objectives and program structures;
(c) Understanding the relationships between a problem-focused and a curriculum-based view of architectural education;
(d) Recognising the assumed knowledge at any stage in the educational process; and
(e) Allowing students to monitor their own education and facilitating communication with academic staff about the relationships between teaching and learning goals.

By making matters as clear and explicit as possible, they enabled a more equal provision of information about course objectives, content and context to staff and students. Because they linked explicit statements of educational objectives to specific courses, they enabled students to question their own education. The questions "Why am I doing this course?" and "Where is it leading?" are answerable by following the trail of connections between courses. The question "Why are we *not* doing this?" is answerable by tracing where the relevant material is actually located — or making it very clear to everyone that a gap in material exists that should be addressed.

The maps represented:

(a) Curriculum. The program is organised with a curriculum of courses and topics within courses.
(b) Objectives. The education program has explicit goals in terms of the knowledge and skills to be held by graduates. The objectives are hierarchical: objectives are set out for the education offered as a whole, and for each degree program, and for each course.
(c) A problem-focused view. This took a 'problem-focused' view of environmental decision-making. It discussed the active and passive participants in that process, and understandings of means, ends and contexts; it related this view to courses in the curriculum. It demonstrated the way in which the representational nature of the maps can be extended as a tool in teaching, and as a means of linking examples of student work with educational objectives.
(d) Accreditation requirements. The Education Policy of the Royal Australian Institute of Architects is a document which sets out expectations of architectural education, and is used by the Institute and the various State Boards of Architects in Australia during the periodic process of inspecting, accrediting and recognizing schools of architecture, a necessary condition for graduates to be eligible (subject to practical experience and passing a later examination in professional practice) to register as architects.
(e) Competency standards. The document *Competency Standards for Registration as an Architect in Australia* (NOOSR 1992), endorsed by the Architects Accreditation Council of Australia in September 1993 as one (but not the sole) basis for entry to the profession, set out expectations of the areas and standards of competence to be expected of practising architects in Australia.

The maps were accessible from all Macintosh computers in the Department's student computer facilities, and from the Macintosh computers in individual staff offices. Accessing them resulted in an introductory card appearing on the screen with three entry points (one of which provided basic guidance on how to use the keywords and buttons on the cards to access connected information). Choosing either the 'BArchSt' entry (*Figure 1*) or the "BArch' entry led to cards setting out the five different frames within which the degrees can be viewed.

If we take an 'objectives' view, the next card sets out the broad objectives of this degree as a whole: *knowledge* about the nature of critical thinking, creative action, and the discipline of architecture, and *skills and techniques* necessary for developing this knowledge. Both *knowledge* and *skills* can be selected; choosing them leads to cards which list areas of 'fundamental knowledge' and 'skills and techniques', respectively, in the degree. Choosing one of these areas leads in turn to an explanation of the objective for the area and a list of some of the courses where that objective is explicitly promoted. Selecting 'representing spatial objects' from the 'skills and techniques' card leads, then, to a card pointing to the three courses *Design and Form I, Building Construction I, and Energy Environment and Buildings III.* If we choose *Design and Form I,* we see a statement of the role of that course and a list of its own specific knowledge and skills objectives (*Figure 2*). We have therefore come to a course description not through a list of available courses but through investigating a particular educational objective. The course description shows how this objective is promoted in conjunction with other objectives. We can move directly at any time to a 'curriculum map' that shows how the course relates to other courses, the particular course name being highlighted.
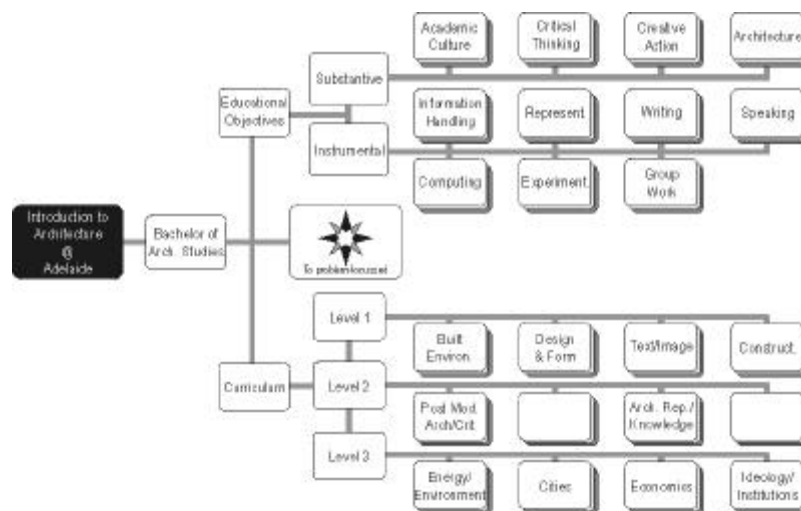
Figure 1: 'B Architectural Studies' page from 'Architecture Map'



Figure 2: 'Design and Form' page from 'B.Architectural Studies Map'

**Experience with the Architecture Maps**

The maps were used for describing the program to students, staff, potential students and visitors. They were also used during the formal program accreditation process. This 'active' use by staff in presentations was generally more effective than reliance on students and others to use them unprompted. They were never seen as the primary source of information because they did not fit within any wider University set of computer accessible information. With students, they have been used at presentations to prospective students on the University's Open Day, to new students during the University's Orientation Week, and during individual classes. At the beginning of the first year course *Design and Form I,* for example, they were used in setting out the knowledge and skills objectives for the course and showing how these relate to other first year courses that students would be taking concurrently. At the end of the same course, the maps were used as a checklist in comparing those objectives with what the students felt has been achieved in this execution, and to demonstrate how the content relates to that of courses still to be undertaken, particularly those that follow immediately in the next semester.

There were, however, three major problems with the Architecture Map implementation. The first was that updating the system in HyperCard $^{TM}$ was time consuming. Although not difficult to learn and use, it needed to be carried out by an experienced person who understood both the system and the complex connections that had been established within it. With frequent changes in the details of course offerings the course and program map became significantly out of date over about five years. The second problem was related: there was no automatic link between course description and program description, so that the introduction of an additional objective at the course level was not reflected at the program level unless the description was manually changed. The third problem was more fundamental. The School changed its student computers from Macintosh to PC hardware as a part of the increasing integration and sharing of resources with the University's various Engineering schools, and the system therefore ceased to be readily available for student use. This led to a period of several years of declining, and finally no, use.

**The Second Implementation: Programmap©**

Three factors influence the way in which the Map concept was re-thought at the beginning of the 21$^{st}$ century:

- The increasing demand for accountability in tertiary education (e.g. Nelson 2003 p11) has reinforced the need for ways to represent 'what goes on' in programs and courses.

- There are new ways in which programs and courses can and should be framed, both specific to architecture (such as the new RAIA education policy, which is oddly different to the expectations for accreditation) and generally in tertiary education (such as Bloom's taxonomy).

- The Web has become the accepted first resource for information about programs and courses.

The University of Adelaide is typical in that the Calendar and other information for students is now on-line, most courses have a web presence, and many potential students now 'check out' program offerings on the web. It is now much easier to position computer-based maps so that they can be regarded as a primary information sources.

ProgramMap© is web-based and accessible from the School's web site. It has a dynamic interface which is responsive to user requests for information on the aims, content, learning mode and assessment of courses or programs. Alternatively, it can be configured by the user to interrogate the Program to show courses which have a high proportion of whatever feature is desired – whether that be group work, examinations, model making or computer studies. Whereas the Maps of Education simply represented statements about attributes in the various frames, ProgramMap© goes much further in indicating the relevant weighting between different attributes. Moreover, the system automatically updates program representations if course representations are changed.

The first stage of implementation covered the School's Bachelor of Design Studies program. At the simplest level, prospective students can ascertain which core and elective courses comprise the program for each Semester, in each year level, and interrogate the course database to determine modes of learning, and whether their personal interests are aligned with the learning aims, the learning activities and the assessment tasks of the individual courses (*Figure 3*). This is considered particularly important for prospective students because Australia–wide there is evidence that prospective students do not receive adequate information to assist them to make good Program choices. McInnis, James and Hartley (2000,14) report "a growing body of literature has developed around the importance of students' early course choices, and the reality that initial choices are not always the "right" ones for various reasons. Some students lack enough information or accurate information on which to make informed choices."
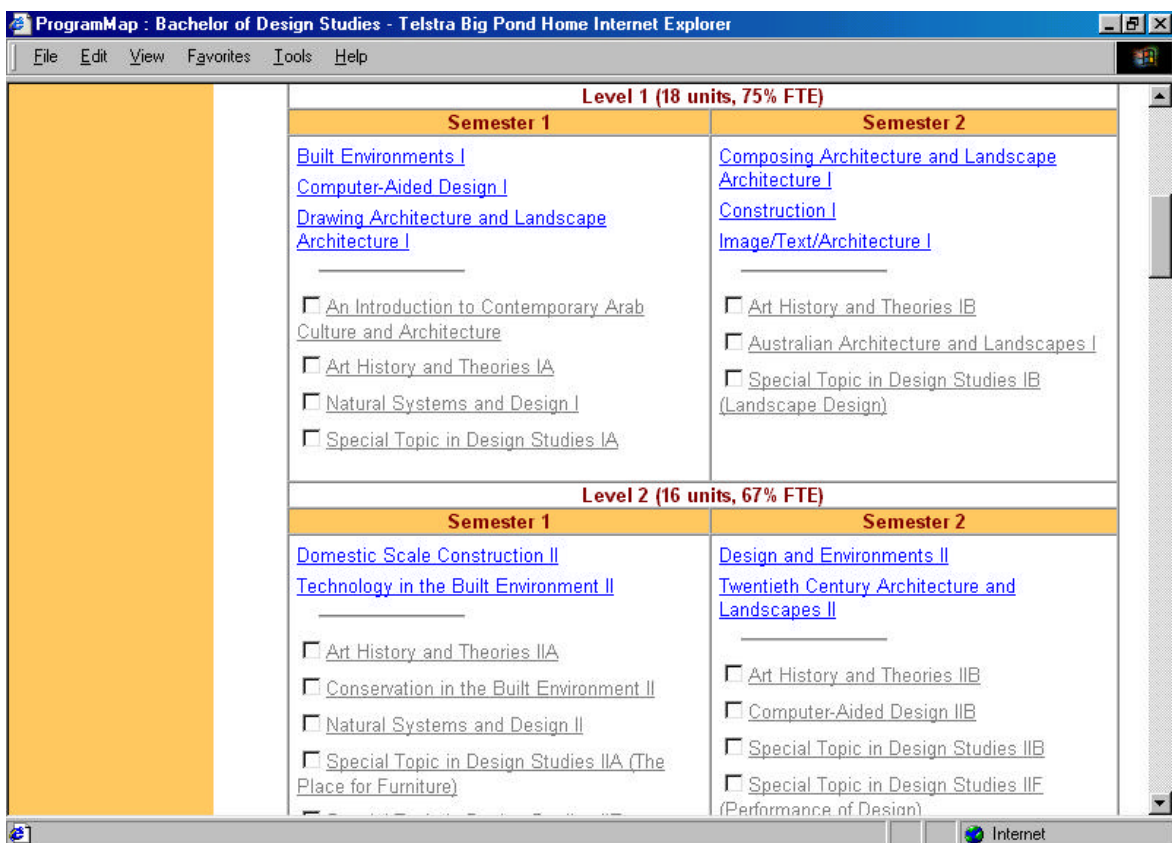


Figure 3 Program Map interface at the Program level for student to select courses for study

Enrolled students can consider in detail the content and learning goals of courses for which they are enrolled, and determine links with future, and previous courses. Furthermore they can select elective courses to suit their personal learning style and their content area interest (*Figure 4*).

Enrolled students would be particularly interested in detailed descriptive aspects of their courses, for example what learning activities they would be doing, whether individually or in groups, and where those learning activities would be taking place.

Academic staff would have an interest in the extent to which their course(s) contributed to the mandated RAIA or AILA learning outcomes (graduate attributes) (*Figure 5*). Academic Staff would also be interested in students' accretion of the School's Graduate Attributes, through the contribution of each core course to the mandated School Graduate Attributes (*Figure 6*), and if "gaps" occurred, where those "gaps" were, and how courses could be shaped to eliminate them. Alternatively, staff may wish to participate in discussions about the education policies which mandate graduate attributes.
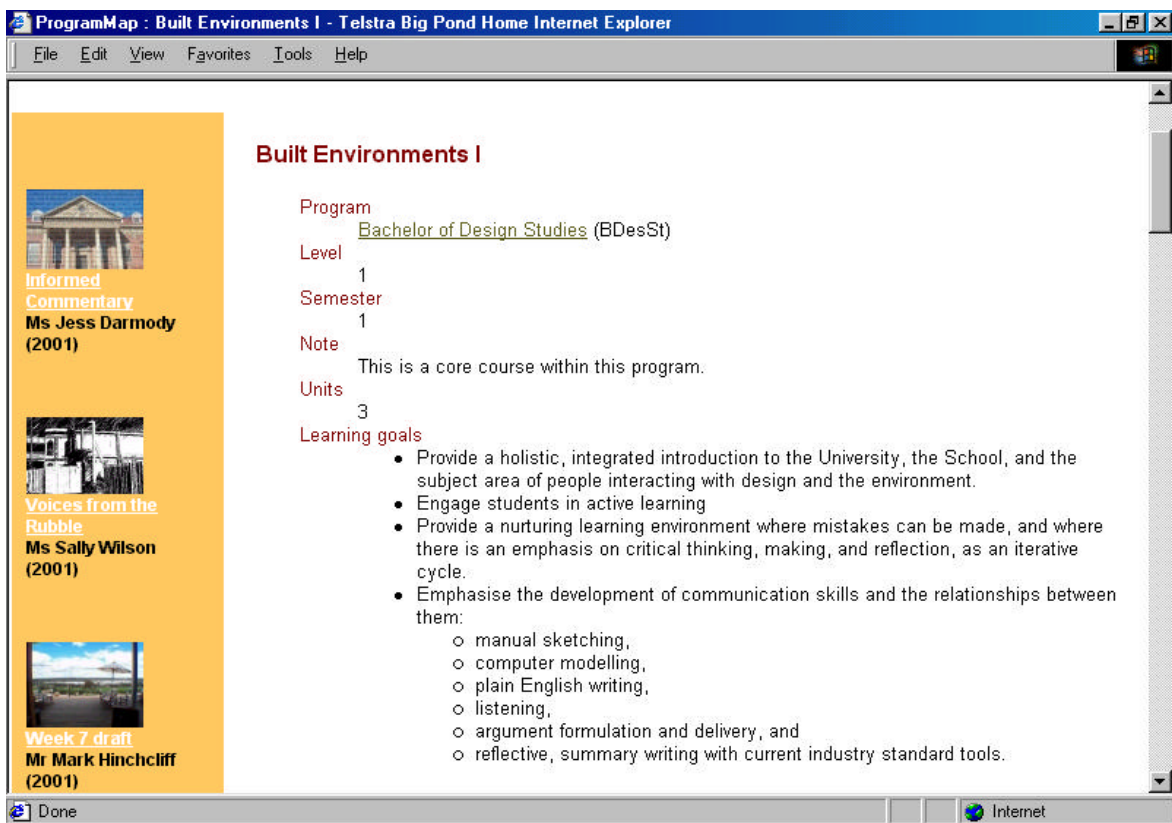


Figure 4 Built Environments 1 Course content: Learning goals and student work exemplars

**Experience with ProgramMap©**

So far we have limited experience with ProgramMap© since it has only been available for use during 2003, for much of this time with access limited to staff following a presentation for their consideration and feedback to the Program Map developers. It has been used in presentations to potential and current students and during the National Visiting Panel process as a part of program accreditation. Two structured paper-based questionnaires were developed for evaluation piloting

with prospective students and recently enrolled students at eight facilitated face-to-face trials of ProgramMap© in the Schools' computer teaching suite. The professional Bachelor of Architecture program was added to the map.
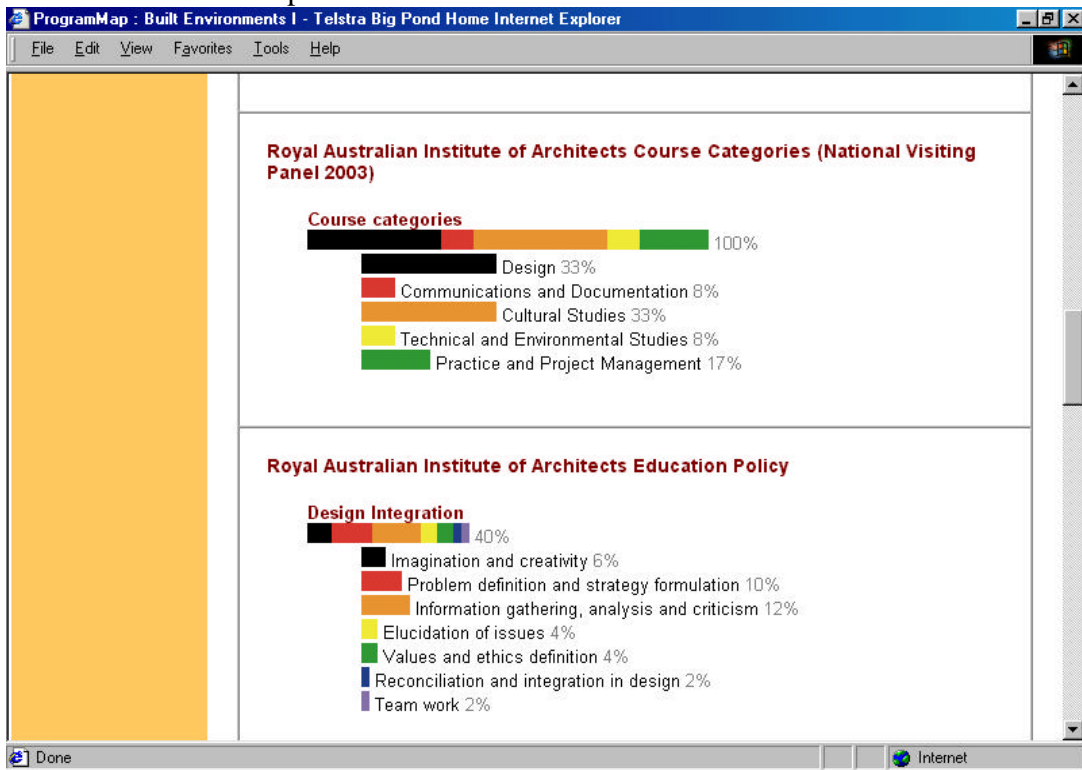


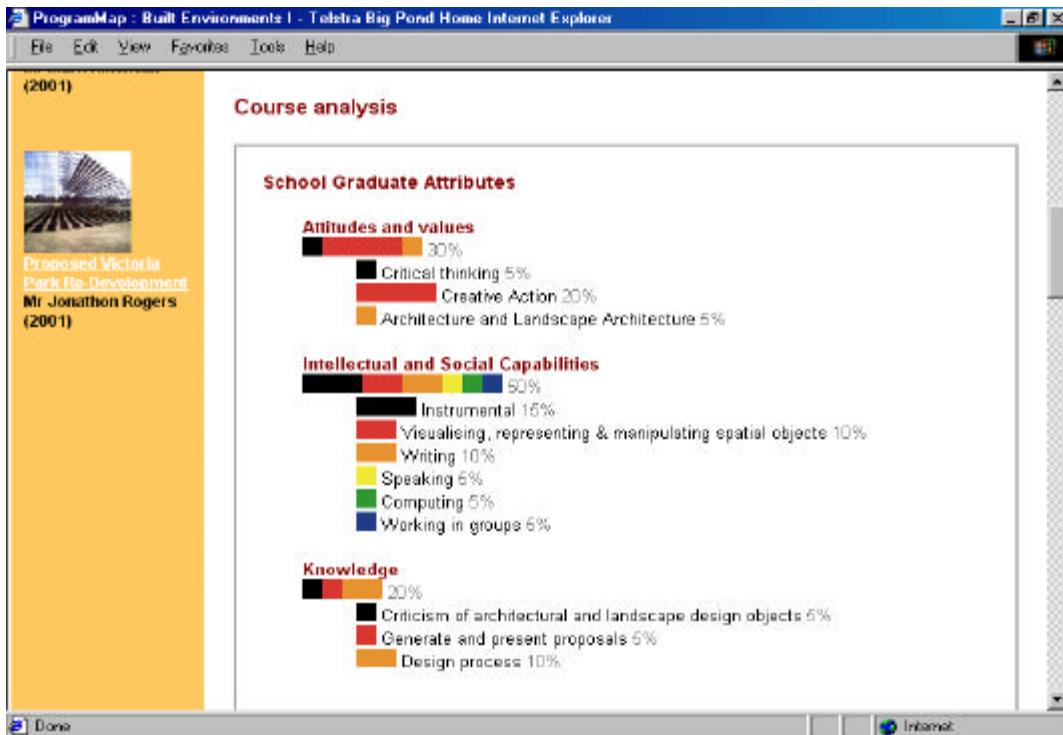Figure 5 Built Environments 1 and NVP Course Categories and Education Policy Graduate Attributes



*Figure 6 School Graduate Attributes and the contribution of Built Environments 1*

Feedback from the teaching staff was encouraging:

1. Academic staff finally understood what the whole process of data gathering, which had involved every one of them, was directed towards;
2. There was a request for the ability to revise data inputs (we have subsequently accommodated this request);
3. Amazement at the complexity and flexibility of the visual display;
4. Academic and intellectual conceptual difficulties with displaying the course coordinators' subjectivities into a quantitative framework – quality reported quantitatively. We have responded that the ProgramMap© reports are always the Course Coordinators *intent* in delivering the Course. Only in-classroom educational auditing of courses as observation by an evaluator with the enrolled cohort can produce a more detailed, accurate and quantified description of what actually happened in the Course. This style of information gathering has a different problem – that the educational observer only sees what actually happens which may (for a number of valid reasons) *not* be what the Course coordinator planned. Our response has been to invite Course Coordinators to review displayed data, (available password protected to staff only during the review process) and submit required changes.
5. Staff wanted to see a linked web page displaying definitions and context – so that for example they could at a glance see the RAIA Graduate attributes, or the School's Graduate attributes displayed; a taxonomy of order of the different frameworks for reporting; and references to pursue for further information. We have already incorporated these suggestions.
6. Staff wanted to see the visual display (reporting) modified for different user groups – so that prospective students are viewing a different (and perhaps simpler) interface compared with the School Accreditation panel, for example.

ProgramMap© is now being developed more broadly for use elsewhere in the University as a tool for mapping graduate attributes. Alternative commercially available interfaces such as the Myoporum Pty Ltd "Graduate Attributes Program" (http://www.myoporum.com/gap/Home/) (Roberts et al., 2003) are limited to single frameworks, require courses to be described in excessive detail and do not allow convenient aggregation to program level, and above all are visually unattractive to users whether teachers or students as lengthy text–based descriptions.

**Discussion**

ProgramMap© remains a *tool* – it merely enables mandated and desirable graduate attributes to be highlighted through a process of visual data display. Once this disclosure is complete, the process of re-shaping courses, through reconsidering Learning Aims, Learning activities and Assessment processes which are all aligned with creating desirable graduate attributes (Biggs, 1999) can begin in earnest. This has been one of our findings – that the process of gathering and displaying information in one place, in sequence and collated, has enabled meaningful discussion about course and program content and intent between academic staff, administration and the accreditation panel.

Teachers frequently stated during the process of describing their courses within the ProgramMap© framework that they had now been presented with a tool which allowed them to *see* what Courses to "either side" of their Course actually did, and that the reporting of Courses within the same framework allowed them to reach a point where they could negotiate more successfully to cover areas where the syllabus is under-serviced. Furthermore rather than drudgery it was a good discipline on themselves to describe what they do in their Courses against the accreditation framework reporting – it caused a re-think of what they did. Whilst not universal, the opportunity to

enhance the ProgramMap© display with examples of student work was generally welcomed as a means to disseminating examples of best practice. At the School senior management level the identification of a lack of directed teaching in landscape architecture in many B Des St Courses has been identified. It is intended that the ProgramMap© tool is utilised to draw attention to a deficit in the AILA categories for reporting, and that a Journal article is planned to show that what we do is not captured in their categories, although our landscape architecture teaching and students are Australia-wide award winners in this field.

As an example of research in education, our experience with the mapping project reveals several issues that may apply in other circumstances requiring the development of software of some kind. Where the work relies on 'teaching development' funding, the only practicable approach is one of making and immediately using prototypes so that the project has always fairly fast impact on teaching and learning.  This promotes a research methodology of 'research in practice', where the research is based on the making of prototypes, their evaluation and refinement.  With ProgramMap, the evaluation was more rigorous and formal than with the Architecture Maps.  A similar methodology was adopted for two Committee for University Teaching and Staff Development projects that involved the development of computer-based support for the teaching and learning of design and construction (Shannon 2002; Radford, Shannon and White 2002).  With the map project, the research has depended heavily on the support – or at least the non-obstructive acquiescence – of our teaching colleagues, encouraged by a highly supportive Dean.  The project explicitly seeks to represent the intentions of individual course leaders, and its credibility requires their ability and willingness to express those intentions.

The project also demonstrates the importance of perseverance in research, how changing contexts lead to changing priorities, and changing technologies lead to changing possibilities.

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# MAPPING ACADEMIC PROGRAMS WITH PROGRAMMAP

**Ian W Roberts, Susan Shannon & Antony Radford**
School of Architecture, Landscape Architecture and Urban Design
The University of Adelaide, AUSTRALIA
*Ian.W.Roberts@adelaide.edu.au, Susan.Shannon@adelaide.edu.au & Antony.Radford@adelaide.edu.au*

## Abstract

*ProgramMap is a web tool that allows curriculum leaders to describe the relationships amongst components of academic programs and between those programs and one or more curriculum frameworks. Information including examples of student work are collected at course-level and aggregated to year-level and program-level as required. Curriculum leaders are led to work within self-declared and externally imposed academic objectives. The design and delivery of integrated programs are thereby fostered and evaluation against strategic objectives enhanced. Compliance with internal and external requirements can be monitored and current and prospective students can discover valuable information about the programs they are undertaking or considering. This paper describes the design and production and implementation of ProgramMap in the School of Architecture, Landscape Architecture and Urban Design at the University of Adelaide.*
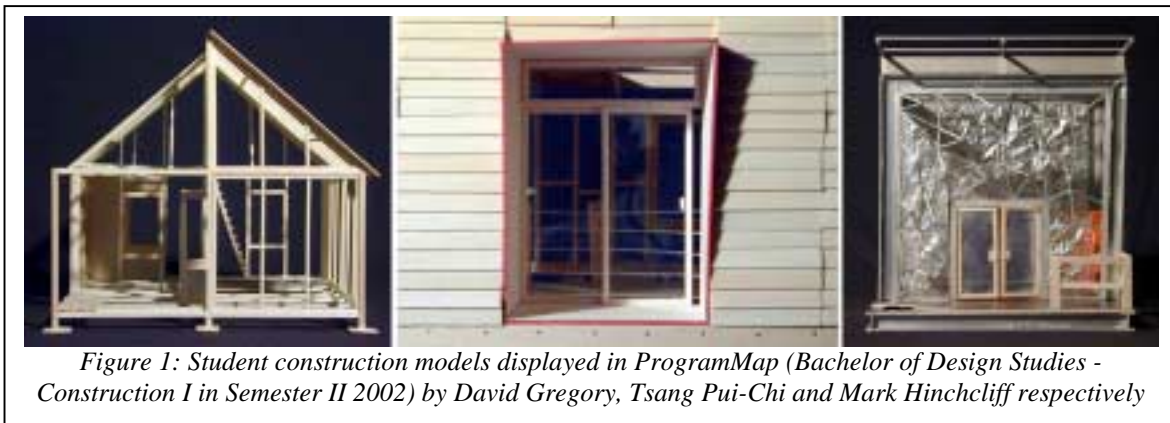
## Keywords

*curriculum design, curriculum analysis, planning, evaluation, curriculum framework, integrated curriculum, graduate attributes, course objectives*

## Introduction

A commitment to quality, a focus on learning outcomes and a continued pursuit of accountability remain major current themes in tertiary education in Australia. Recently, Minister Brendan Nelson has called for a 'renewed emphasis on teaching and learning outcomes' to ensure relevance for students in their future life and careers (Nelson 2003 p11). Further pressure is applied to curriculum leaders institutionally with the articulation of internal academic planning objectives (UofA 2001).

Particularly in professionally accredited Faculties, external expectations oblige academic programs to comply with multiple sets of requirements. For instance, in the *School of Architecture, Landscape Architecture and Urban Design*, the education policies and accreditation requirements of the *Royal Australian Institute of Architects* (RAIA 2000) and the *Australian Institute of Landscape Architects* (AILA 2002) represent separate, overlapping curriculum frameworks to which our programs must



*Figure 1: Student construction models displayed in ProgramMap (Bachelor of Design Studies - Construction I in Semester II 2002) by David Gregory, Tsang Pui-Chi and Mark Hinchcliff respectively*

comply. In addition, statements of graduate attributes endorsed by the School and University must also be accommodated (Boumelha 2001; SALAUD 2001). Although deriving from existing policies, external accreditation procedures add further complexity for the School (RAIA 1997). Finally, the reasonable expectations of students to know in advance the nature and circumstances of learning activities and work to be submitted add more demands.

The School recognised that a tool configured with necessary curriculum frameworks would facilitate the design, comprehension and evaluation of our programs with concomitant benefits for all stakeholders. An investigation of commercially available products revealed none that would meet our requirements. Recent entrants to the field, including Myoporum Pty Ltd, with their Graduate Attributes Program are limited to single frameworks, require programs to be described in excessive detail and do not allow convenient aggregation to program level.

ProgramMap was conceived as a tool that would allow academic programs to be efficiently described in one or more curriculum frameworks and to be represented in approachable and meaningful ways for a range of users (Radford, Shannon & Roberts 2001). Improved interaction between program planning, delivery and evaluation would facilitate the development of integrated programs and allow for better learning outcomes.

Support was provided from the Office of the Deputy Vice-Chancellor (Education) to develop ProgramMap—a tool that could be loaded with one or more curriculum frameworks, descriptions of academic programs within one, some or all of those frameworks and then provide attractive and comprehensible representations of that information (Radford, Shannon *et al.* 2001).

## Methodology

ProgramMap captures information from curriculum leaders about the intent of their programs and courses. As programs are developed and delivered in response to a range of existing curriculum frameworks, curriculum leaders were surveyed for information describing the extent to which their program components emphasised or focussed on the various dimensions of those frameworks.

Our three undergraduate academic programs were described: Bachelor of Design Studies (generic, entry-level program); Bachelor of Architecture; and Bachelor of Landscape Architecture.

We needed to decide at what level of detail we wished to describe these programs. The academic course was ultimately selected as an appropriate curriculum object on which to base our program descriptions. The course was considered appropriate for a number of reasons including:

1. Its clear definition across the institution (title, scheduling details, enrolment restrictions, points value, etc) and the availability in enterprise data systems of these course descriptors;

2. Its role in the enrolment of students;

3. The manageable number of courses that constitute most academic programs.

ProgramMap has been designed to preserve the option of integration of ProgramMap with our enterprise-wide online learning system and thereby improve the level of awareness of learning objectives in that system.

### Data collection

Data was collected in structured interviews using a specially designed survey instrument. The survey methodology was validated using a small number of participants. Refinements indicated during validation were implemented before general use. Fifteen staff provided course information. Interviews typically took between 30–40 minutes for the first course and 15–20 minutes for subsequent courses.

The structured interviews ensured consistency and a high level of response. For some courses where responsibility was shared, data was collected from several respondents. Under these circumstances, ProgramMap calculates an arithmetic mean of active survey responses related to the same course

instance. By associating responses to a particular course instance (offering) and to a particular respondent interview, ProgramMap allows for future changes in the program to be recorded and tracked.

Completed survey forms were converted to spreadsheets and the resulting data was loaded into ProgramMap using delimited text files and a data loading script. The original forms were retained and photocopies returned to the respondents. The data entry effort was minimal and data loading completed quickly and efficiently.

Due to the novel nature of the process and reporting style, respondents were offered an opportunity to revise their initial data. Only a relatively few, minor changes were sought and made to the original data supplied.

Survey respondents were encouraged to supply examples of student work that would help to illustrate their courses (Figure 1). The School sought a non-exclusive licence to use digital representations of their work from nominated students. The School undertook to observe the students' moral rights as creators of the material. Students were generally happy to have their work promoted and only licensed work is published within ProgramMap.

## Curriculum frameworks

For the purposes of ProgramMap, a curriculum framework is a self-contained systematic curriculum description comprising a finite number of orthogonal (independent) dimensions and associated nomenclature. ProgramMap accommodates multi-level and multi-dimensional descriptions of curriculum frameworks. These can include, but are not limited to: learning outcomes (target graduate attributes, learning objectives); lists of competencies to be achieved, learning process descriptions (learning locale, learning activity, learning mode, outputs, etc).

Framework dimensions can be numeric (proportion of effort, time, assessment fraction) or textual (enumerated course objectives). Numeric dimensions are aggregated to year and program level using unit-weighted calculations. Textual dimensions are usually only reported at course level but may be aggregated by list concatenation to program level.

ProgramMap reports strictly within framework dimensions with no attempt to indicate or imply comparative weightings or scales between dimensions. ProgramMap has the potential for two-tiered dimension descriptions to allow for frameworks that provide or seek additional detail. When representing program analyses, ProgramMap collapses detail sub-dimensions into broader categories to improve readability. Detail information remains available in course level views.

## Framework sources

Data from the following curriculum frameworks were loaded into ProgramMap:

The University of Adelaide academic programs—University of Adelaide Calendar (UofA 2003)

School of Architecture, Landscape Architecture and Urban Design Graduate attributes (SALAUD 2001)

Bloom's Taxonomy (Cognitive Domain)—as described the Education Coalition (Lane 2001)

Royal Australian Institute of Architecture Education Policy 2000 (RAIA 2000)

Royal Australian Institute of Architecture National Visiting Panel Categories 2003 (RAIA 1997)

Australian Institute of Landscape Architecture Education Policy 2002 (AILA 2002)

*ad hoc* set of program descriptors including: Course Goals, Learning activities, Learning locale, Learning mode (group | individual), Student outputs (Roberts, Shannon & Radford 2003)

In addition to applying internal and generic curriculum frameworks, respondents describing courses within our generalist introductory program (Bachelor of Design Studies) were obliged to provide data within both the RAIA and AILA Education Policy frameworks. Courses in the Bachelor of Architecture

and Bachelor of Landscape Architecture programs were only described against their corresponding frameworks.

Framework descriptions and cues terms as defined by the framework creator were supplied to respondents to assist in the completion of the survey.

## Technology

With the exception of student work examples, all ProgamMap data is stored within a relational database. Common Gateway Interface (CGI) scripts extract and render information in HTML as required. Student work examples can constitute single or collections of digital resources and can be stored within the ProgramMap system or held on external web sites. Collections of digital resources can be rendered into HTML dynamically if no index markup is supplied.

ProgramMap stores all representational information within the database allowing alternative "skins" to be applied within the application as appropriate to the provenance of the programs. Basic rights management is also incorporated to record approval (from students) for use of their work as exemplars.

No software licence fees were incurred in the development and deployment of ProgramMap as it is based exclusively on public domain software running on a Linux operating system. Standard relational database functionality is provided by PostgreSQL v6.5.3. The CGI is harnessed for data extraction and representation using the Perl5 extension for PostgreSQL (Pg). Perl scripts render all data representations in HTML v4 to ensure wide compatibility.
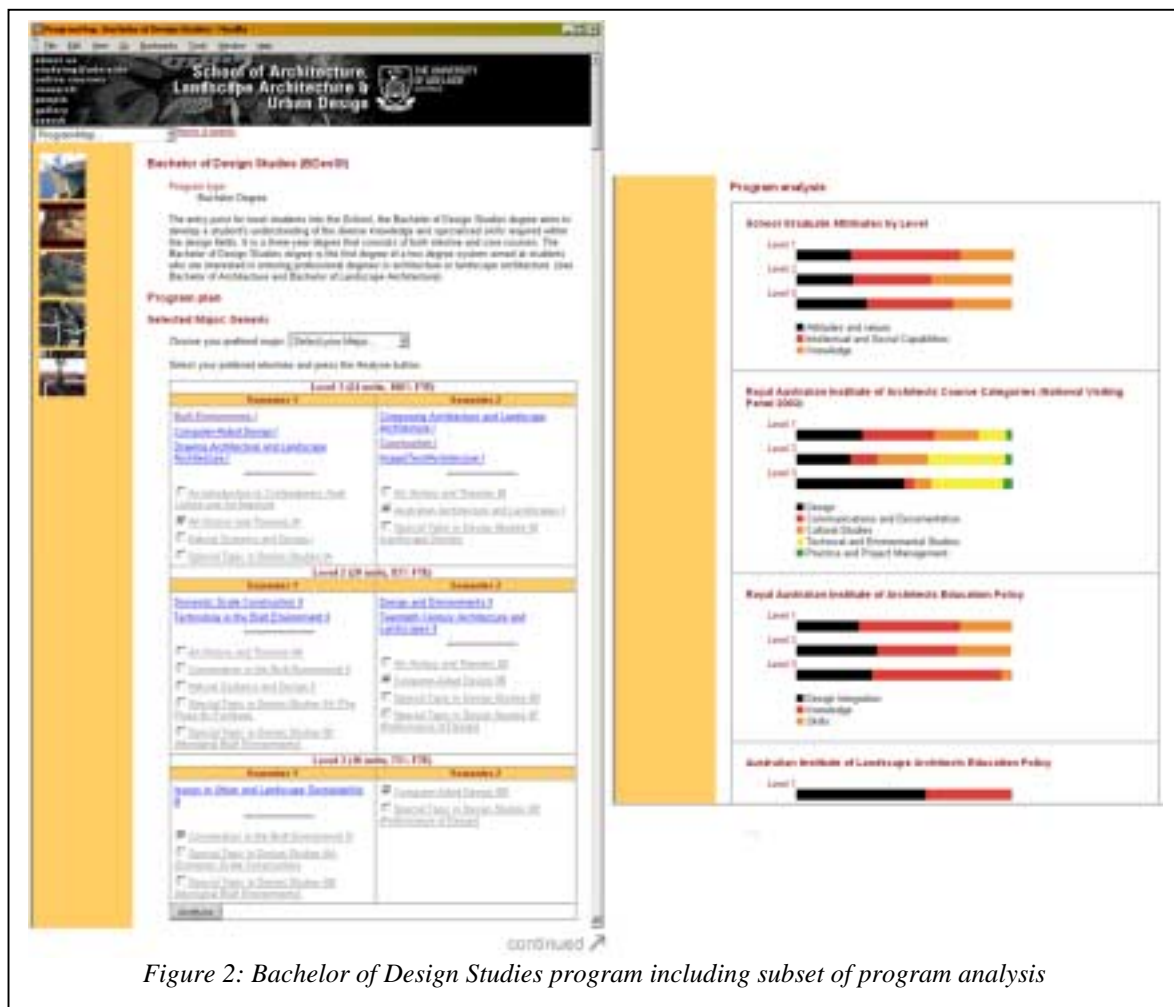


*Figure 2: Bachelor of Design Studies program including subset of program analysis*

# Results

ProgramMap was designed, developed and deployed during the first phase of the project. ProgramMap marries course and program descriptors from enterprise data systems with information from curriculum leaders about the intent of their courses. Numerical, textual and student exemplar data were collected for all courses within the academic programs selected for the project (3 undergraduate academic programs, 41 courses, 68 exemplars total across 9 courses) (Radford, Shannon, Roberts & Jones 2003).

ProgramMap allows curriculum leaders to efficiently report aspects of their courses within multiple curriculum frameworks each of which comprises a number of dimensions along which the programs are described and outcomes expected and measured.

## Mapping academic programs

ProgramMap contains information about the program plan (level and semester availability); program majors (where applicable); enrolment restrictions; study majors and core and elective courses. By default, ProgramMap presents a program-level analysis based on the core courses within the most generic major option available (Figure 2).

If necessary, users are presented with options to choose from available majors. ProgramMap responds by indicating changes in core and elective courses as appropriate. The user is then able to choose elective courses to complete a program for ProgramMap to analyse. A complete representation of a program analysis is only provided once a user has indicated a major and chosen from the available electives.

As a part of its analysis, ProgramMap indicates at each year level the proportion of a full-time load that is being included. ProgramMap's program analysis aggregates information about core and selected electives. The contribution of a course to the program analysis is proportional to the unit value of that course.

While the circumstances of the pilot ensured full description of all courses within the programs under consideration, ProgramMap has been designed to accommodate incompleteness (courses with enterprise data system information but no framework information available) by normalising the available data.

## Mapping courses

Courses listed within the program analysis appear as links to separate, detailed descriptions of each course. The same course information as used in program analysis is included in the course descriptions but more detail is provided (Figure 3). Examples of student work may be included (Figure 1). Course descriptions, learning objectives, enrolment restrictions and scheduling information are combined with representations of the relationship of the course to relevant curriculum frameworks.

Examples of student work associated with particular courses were selected by the survey respondents and permission sought from the students to publish their work. Appropriate digital representations of the work were created from the work or obtained directly from the students. Student work can be represented by single digital resources or collections of files if necessary. There is no restriction on the file formats that can be included but the ability of end-users to download and view the material must be considered.

ProgramMap will automatically render collections of digital files as simple HTML files within a consistent graphical interface if no index file is available. ProgramMap can also accommodate links to external sites containing example work.

## Visual data representations

Scripts were developed to represent proportional composition using coloured, horizontal, stacked bar charts rendered in HTML. These charts are functionally equivalent to circular pie charts but use much less space on the screen or page and can be rendered using capabilities native to all standard web browsers.

The use of colour allows for a great deal of information to be represented in a small area and at a glance. However, the project team was keen to ensure that access to the information was not denied to people with visual impairment so data labels and values, and alternative text attributes were provided to deliver equivalent information in textual form and thereby ensure accessibility (W3C 1999). An additional benefit for all users is that precise data can be read directly from the graphs.

## Discussion

ProgramMap has been developed efficiently to collect information at an appropriate and convenient level of detail and to aggregate and represent that information for our range of academic programs.

The 2003 pilot of ProgramMap within the School of Architecture, Landscape Architecture and Urban Design has been positively received by students (prospective and enrolled), staff and external accreditation authorities. While detailed evaluation will be reported elsewhere (Shannon, Roberts & Radford 2003, paper submitted), users have reported that ProgramMap provided relevant information and presented it in an attractive and accessible manner. Prospective students indicated a strong interest in information describing learning activities, group/individual work, the types of work that would need to be produced, etc. The utility of ProgramMap during a recent RAIA course accreditation was clear.

University senior learning and teaching management have also recognised the value of this project and provided additional funds to further develop the application and to trial its broader adoption within the University.
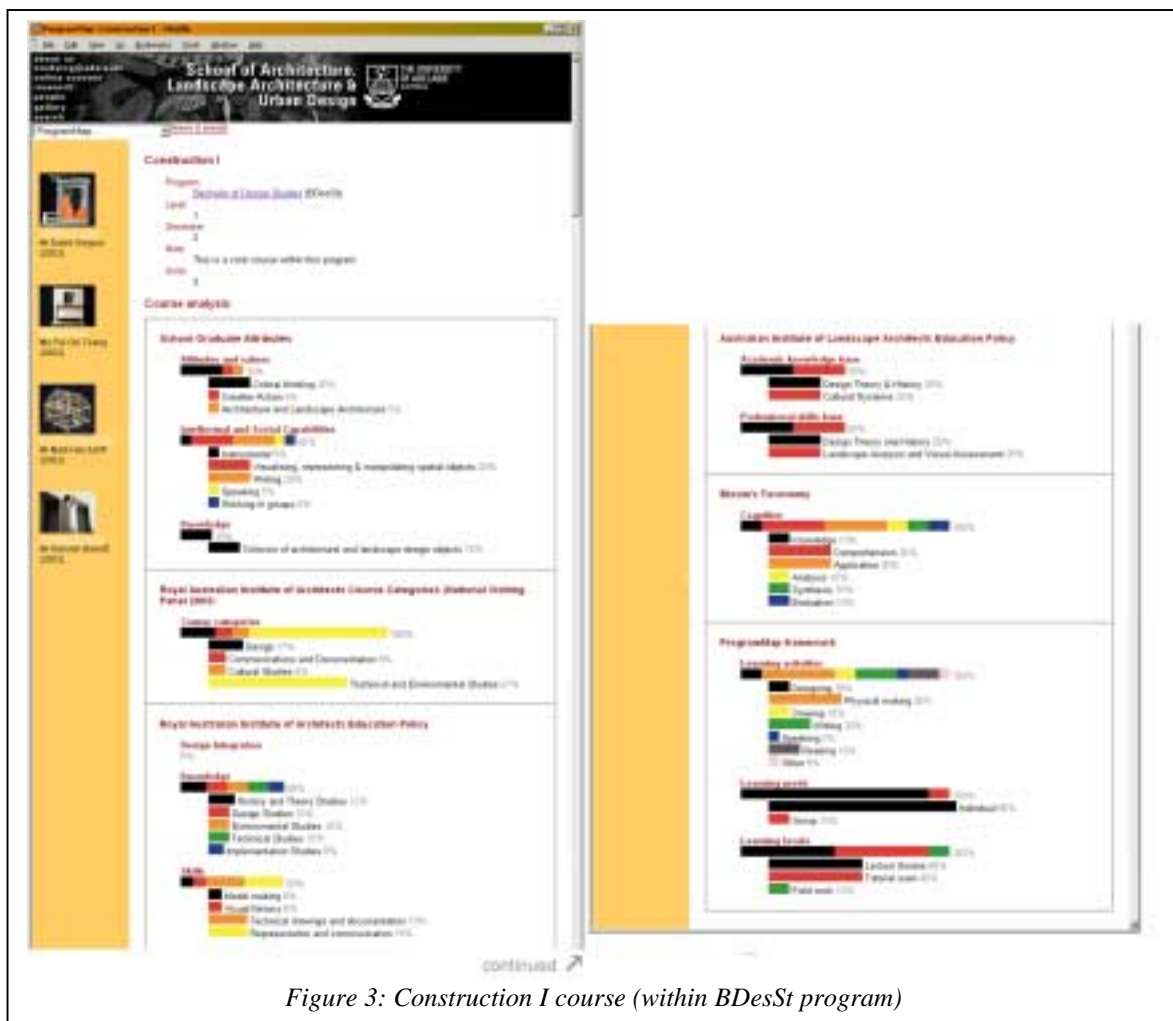
*Figure 3: Construction I course (within BDesSt program)*

**Integrated curricula**

The School remains committed to presenting an integrated curriculum because of the context and support it provides for effective and deep learning (Prosser & Trigwell 1999; Radford, Shannon *et al.* 2001). While this integration helps us support effective student learning, it leaves us with the challenge of ensuring that the diverse aspects of the curriculum (communication, design, construction, professional practice, etc) are appropriately covered to the satisfaction of ourselves, university authorities and external accreditation bodies.

ProgramMap has proved an effective, efficient and engaging way to record and report important information about our academic programs and assists us to reflect upon those programs.

In addition to meeting the needs of curriculum leaders, School management and program evaluators, ProgramMap was developed to be a tool that current and prospective students could use to understand the relationship between various program components and the roles that they play within the overall program. ProgramMap has become a curriculum knowledgebase accommodating and representing highly-dimensioned data, program descriptions and examples of student work.

**Further development**

**Data entry**: While the structured interview allowed us to accumulate a complete and highly consistent data set, current developments of ProgramMap will allow curriculum leaders to interact directly with the database and allow online data entry and updates. It is likely that curriculum frameworks will be loaded using XML or delimited text files.

**Other discipline areas**: The project team is keen to demonstrate the value of ProgramMap in other discipline areas. We are fortunate to work in an area that is visually rich providing ample scope for student work examples. We also benefit because our programs are reasonably completely described. Students complete a common set of core courses choose from a finite set of electives offered within the School. Schools delivering more generic programs such as those leading to Bachelors of Arts or Science need to deal with a much larger set of possible courses permutations with few if any core components. However, our obligation to two external accreditation bodies (in addition to internal requirements) generates substantial complexity in the design and evaluation of our programs that will not be experienced elsewhere. We have been directed and provided with resources to populate ProgramMap with information for programs from another school within the University. That work is in progress.

**Display refinement**: Feedback from users indicates that ProgramMap presents too much information at once. Work is underway to present users with the ability filter the information as required.

**Alternate voices**: While this project was explicitly focussed on collecting information from curriculum leaders on the intent of their courses it has been suggested that the tool could be used to capture student experience of the programs as well—information that is currently collected via Student Evaluation of Learning and Teaching surveys. The team is considering how this information might be collected and reported within ProgramMap.

**Challenging frameworks**: Survey participants reported various degrees of difficulty indicating the relationship of their courses within some framework. The project team considers that these areas of difficulty represent the best prospects for future investigation as conceivable sources of the problem include:

Inappropriately designed or poorly articulated curriculum frameworks—indicating a need for revision of the frameworks;

Inadequate implementation of the curriculum frameworks within ProgramMap—indicating a need for further development or redesign or the tool;

Poor alignment between academic program components and curriculum frameworks—indicating a need for revision of those components of the program.

**Handing incompleteness**: Designed to accommodate incompleteness in course descriptions, ProgramMap currently does not indicate the proportion of the program that has **not** been described. Feedback has indicated that this information ought to be provided. Alternative ways of displaying this information are under consideration.

**Student portfolios**: Integration of ProgramMap information with a student's enrolment details and examples of their work is seen as a creative and feasible approach to provide students with an informative student portfolio. The role that the University's learner management system might play in this is under investigation.
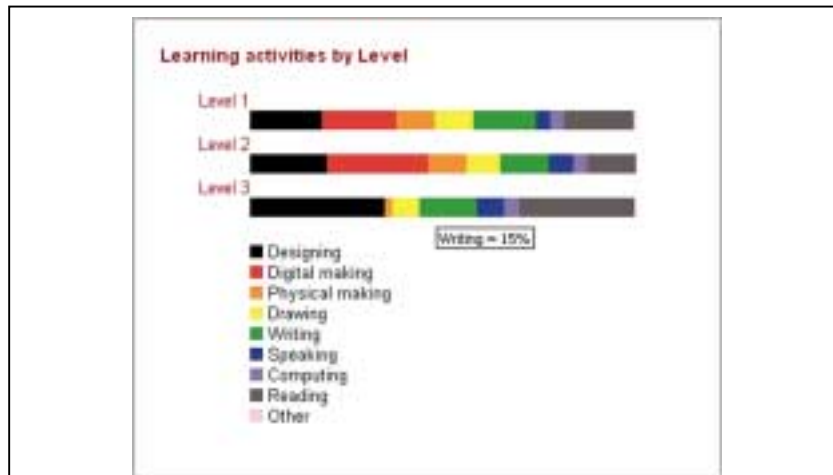


*Figure 4: Program level proportional bar charts*
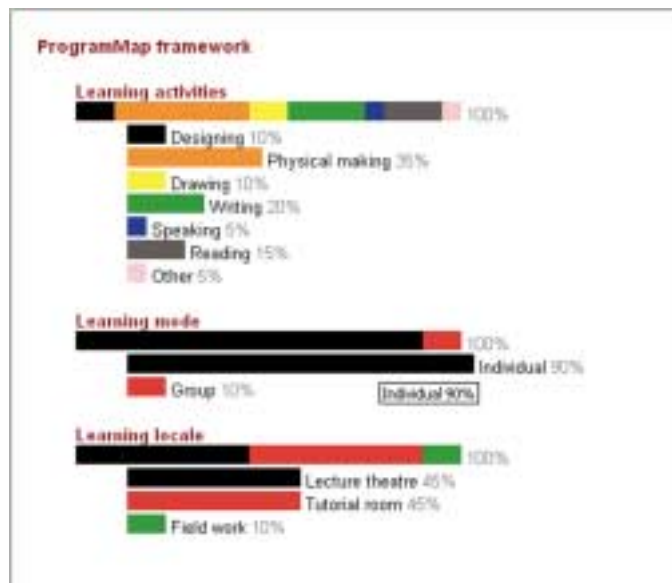


*Figure 5: Course level proportional bar charts*

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http://www.adelaide.edu.au/DVCE/quality/doc/fwork_acboard.pdf.

UofA (2003). 2003 University Calendar, The University of Adelaide. **2003**
http://www.adelaide.edu.au/calendar/.

W3C (1999). Web Content Accessibility Guidelines 1.0 -W3C Recommendation 5-May-1999, W3C
Worldwide Web Consortium. **2000** http://www.w3.org/TR/WAI-WEBCONTENT/.

## 7.  Appendix C: Evaluation report

The following pages form Appendix C: Evaluation report describing outcomes of this project.

# Evaluation of ProgramMap – a web-based tool for describing Courses and mapping them onto a Program

**Dr Susan Shannon Evaluator**
**School of Architecture, Landscape Architecture and Urban Design**

## Introduction

On 5th and 6th March 2003, a trial of ProgramMap was conducted with first year students during part of their first, scheduled, two hour Built Environments 1 Tutorial. The opportunity to view, and thereafter evaluate ProgramMap trial was conducted after ½ hour description of the School's Website, the School Programs, MyUni and the Built Environments 1 MyUni Website. The principal tutorial task was submitting an introductory Discussion Board submission to the Built Environments 1 MyUni Website. Time was available for students who had completed this task to browse the ProgramMap section of the School's Website, and complete the evaluation. This timing would tend to suggest that the more computer-able students completed the evaluation, as novices were more likely to spend the entire hour on the assessable Tutorial task (submitting an entry to the Discussion Board). Response rate 42% of the class (48/113).

## Methodology

The students were

1. set in front of a computer which they logged onto the Internet and used to open the School's Home Page in the Level 5 CAD Suite in the School

2. given a sheet of paper telling them
   a. how to move from the home page to ProgramMap,
   b. how to navigate from the full Program list to the Bachelor of Design Studies description.
   c. given a questionnaire of 13 questions to complete. The questions were either 7 point preference scale or open text box.
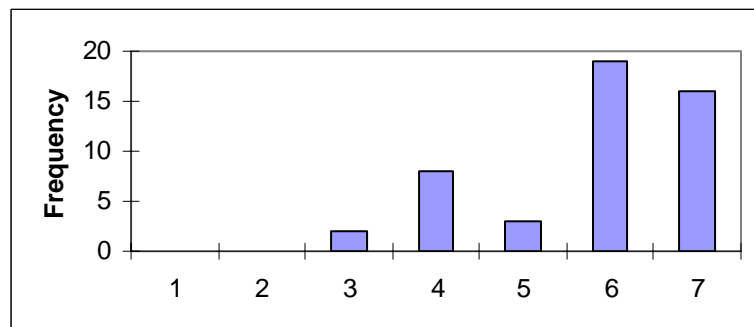   d. Questionnaires were submitted anonymously to a box after completion.

## Results
The following results represent the evaluation responses of 48 students.

### Q1. Navigation from School Home Page to ProgramMap Home Page

| Very Hard 1 | 2 | 3 | Reasonable 4 | 5 | 6 | Very easy 7 |
|---|---|---|---|---|---|---|
| | | 2 | 8 | 3 | 19 | 16 |

**summary statistics**

| | |
|---|---|
| average | 5.81 |
| stand dev | 1.20 |
| responses | 48 |
| max | 7 |
| min | 3 |



**Commentary**: No students found it very hard to navigate from the School Home Page to the ProgramMap but they did have written instructions telling them to go to the pull down Menu and that ProgramMap was at the bottom of the menu. All but two respondents (96%) found navigation reasonable to very easy.

**Q2. Gathering information on the Program (eg Bachelor of Design Studies)**

| Very Hard 1 | 2 | 3 | Reasonable 4 | 5 | 6 | Very easy 7 |
|---|---|---|---|---|---|---|
| | | | 9 | 9 | 19 | 11 |

**summary statistics**

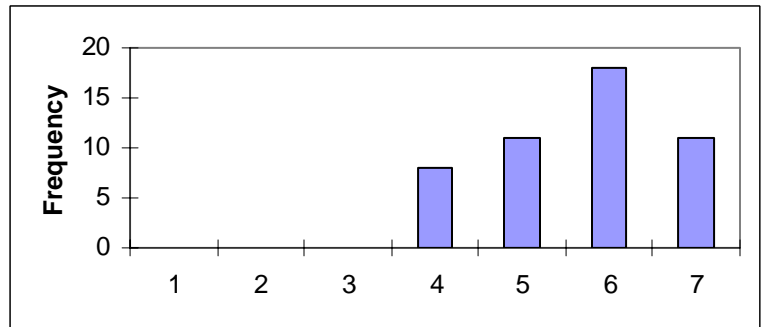| average | 5.67 |
|---|---|
| stand dev | 1.04 |
| responses | 48 |
| max | 7 |
| min | 4 |
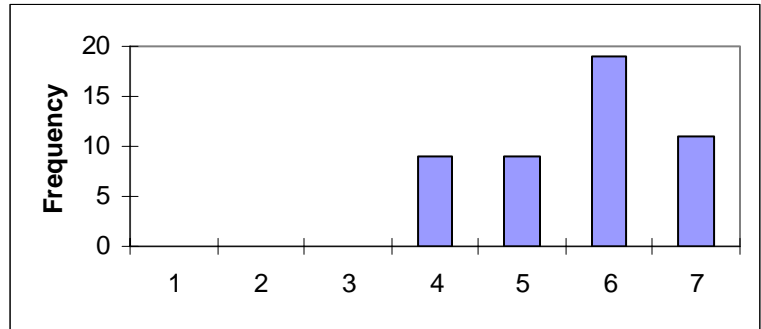


**Commentary**: All respondents found it Reasonable to Very Easy to gather information on the Program

**Q3:Gathering information on the Bachelor of Design Studies Courses**

| Very Hard 1 | 2 | 3 | Reasonable 4 | 5 | 6 | Very easy 7 |
|---|---|---|---|---|---|---|
| | | | 8 | 11 | 18 | 11 |

**summary statistics**

| average | 5.67 |
|---|---|
| stand dev | 1.02 |
| responses | 48 |
| max | 7 |
| min | 4 |



**Commentary**: This response is crucial to the success of ProgramMap as a tool to assist decision making regarding Course selection. All students found ProgramMap Reasonable to Very Easy for the task of gathering information on the Bachelor of Design Studies courses.

**Q4: How well did the links in ProgramMap work for you?**

| Very Hard 1 | 2 | 3 | Reasonably well 4 | 5 | 6 | Very well 7 |
|---|---|---|---|---|---|---|
| | | 4 | 7 | 13 | 15 | 9 |

**summary statistics**

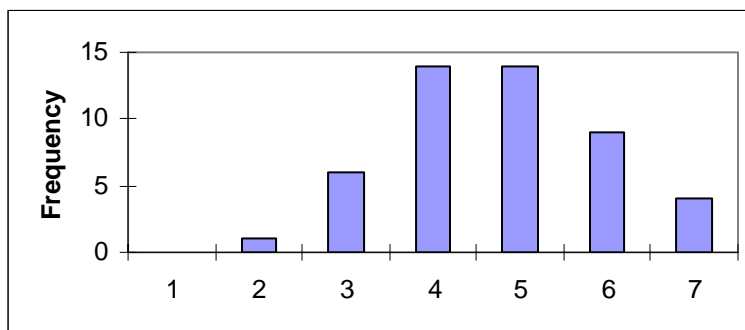| average | 5.38 |
|---|---|
| stand dev | 1.20 |
| responses | 48 |
| max | 7 |
| min | 3 |
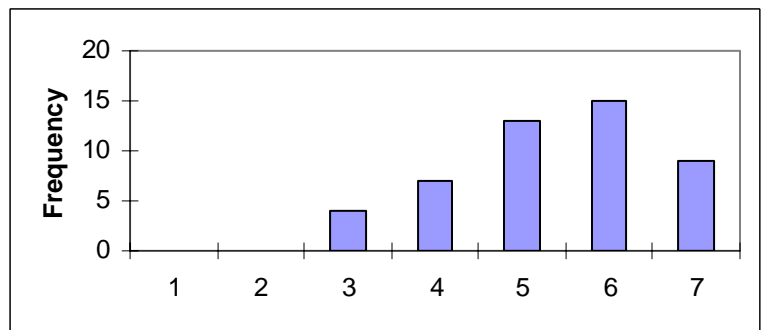


**Commentary**: Links work easily

**Q5: Did you like the look of ProgramMap?**

| Very Hard 1 | 2 | 3 | Reasonable 4 | 5 | 6 | Very appealing 7 |
|---|---|---|---|---|---|---|
| | 1 | 6 | 14 | 14 | 9 | 4 |

**summary statistics**

| | |
|---|---|
| average | 4.75 |
| stand dev | 1.21 |
| responses | 48 |
| max | 7 |
| min | 2 |



**Commentary**: The "look" of Program Map as a "hook" to investigate is important to the creator: the students find is reasonable to very visually appealing.

**Q6: Did you understand the information you were looking at?**

| Very Hard 1 | 2 | 3 | Reasonably 4 | 5 | 6 | Completely 7 |
|---|---|---|---|---|---|---|
| | 1 | 5 | 10 | 17 | 7 | 8 |

**summary statistics**

| | |
|---|---|
| average | 5.00 |
| stand dev | 1.29 |
| responses | 48 |
| max | 7 |
| min | 2 |
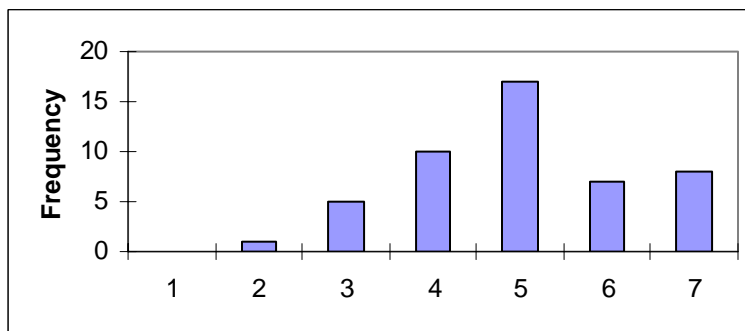


**Commentary**: Understandably with such a brief introduction to the School and no discussion of any of the Frameworks, students preferred the 4 "Reasonably"/ 5"Little more than reasonably" categories. Building up links to the Frameworks descriptions for users is important. Notably 88% of respondents considered that they understood the information they were looking at Reasonably to Completely. This understanding is critical to whether the benefits of building a ProgramMap will be realised by one important group of stakeholders.

**Q7: What information would you like to have about the Program Bachelor of Design Studies?**

Open Text box comments followed by [any relevant commentary]

| |
|---|
| Prog. Map could be on top banner menu on home page |
| Information on assignments, tips, past assignments etc. |
| How much work you need to do in the Program to keep a good grade? |
| Timetable |
| No more than available |
| more internal program content |
| What courses are absolutely necessary to be completed to be eligible for the Architecture & Landscape |

| |
|---|
| Architecture double degree? |
| All the answers! [smiley face] |
| what is on the internet was fine |
| How to get to Architecture Degree after, ie: do you need specific grades to go on further. |
| try and put more visual examples about the course, to show people interest the work which will be produced |
| Where it leads me to at the end (ie. what occupations are available.) |
| Excellent! |
| I think that at this stage the info contained in the MyUni website under courses is more relevant at this stage. This site appears to be more of an overview. Having said that it is good to look at the find general info about the course as opposed to specific info. |
| maybe more on assessment pieces |
| need a lot of this information when enrolling in the course |
| Combination with other degrees? |
| Nothing else everything is there!! |
| The information I found was satisfactory & informable |
| None |
| Career possibilities, not just in adelaide |
| Career paths, possible combinations with other degrees |
| Talking to present students |

23 responses

**Q8: What information would you like to have about the individual Courses in Bachelor of Design Studies?**

Open Text box comments followed by [any relevant commentary]

| |
|---|
| ? |
| What tools, stationery do u need? |
| Guide line. Assignment |
| course content |
| An insight in how the courses work together to generate a complete student |
| Basically what we are doing & what we are doing it for |
| once again more about assessment pieces |
| Past examples in other courses - following the example of Built Environments 1 |
| Assessment |
| None |
| Clear outline eg handout of work listed that must be done |
| Clearer outline of subjects |

13 responses

**Q 9 . How did ProgramMap help you to answer your questions?**

Open Text box comments followed by [any relevant commentary]

| |
|---|
| I don't think it did |
| relevant references |
| Helped in informing about the actual learning goals of the course |
| It provided all the information I need |
| Letting me know the requirements & expectations of the course. It gives some examples of previous work. |
| Not a lot, just told me what the course is about, what I expect from it. |
| no quest. yet. |
| Detailed content of each course |
| what they are assessing |
| To see how much people write and the context in which it is written |
| Provided me with resources to follow up on |

11 responses

**Q10. Will you refer back to Program Map in your own time as a resource?**

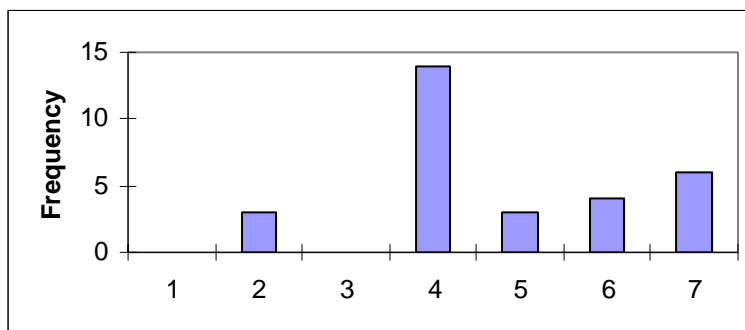| Definitely Not 1 | 2 | 3 | Maybe 4 | 5 | 6 | Definitely 7 |
|---|---|---|---|---|---|---|
| | 3 | | 14 | 3 | 4 | 6 |

**summary statistics**

average   4.77

stand dev  1.52

responses 30

max     7

min     2



**Commentary**: Only 30 of the 48 respondents answered this question, and of those 27 (90%) responded Maybe to Definitely. Looking at the average score given by these 30 students for questions 1 through 6 compared to the average score given by the students who did not answer question 10 (of whom there were 18), we can see that the students who did not answer question 10 gave a higher average score for all of the questions 1-6.

| Question | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Av answer Q10 | 5.80 | 5.47 | 5.47 | 5.20 | 4.67 | 4.90 |
| Av others | 5.83 | 6.00 | 6.00 | 5.67 | 4.89 | 5.17 |

This could be interpreted as suggesting that those who did not answer question 10 may still refer back to ProgramMap as a resource.

**Q11 In what ways can the information within ProgramMap on courses an Programs be improved to answer your questions?**

Open Text box comments followed by [any relevant commentary]

more references

maybe inc. FAQ answers. But really it's quite good.

I think the info is fine for what it is. Maybe a link to the relevant MyUni page or even just a note saying

 there is additional info that can be found there. (Eg. BE1)

maybe a bit more direction as the where to go, what to do, yet we can find it under MyUni

Have direct links to the resources, electronically

5 responses

**Q12 How can the visual presentation of ProgramMap be improved to provide the information you need?**

Open Text box comments followed by [any relevant commentary]

Its OK

?

I don't think it can be improved!

more colours to associate with different topics. More fun/user friendly.

I think it is set out well

maybe have less text to read through, or break it up.

Put more student work examples on there

?

8 responses

**Q13 Any other comments on what other information on University Courses and Programs you need at this stage as a student that you don't already have?**

Open Text box comments followed by [any relevant commentary]

No

Its really a good site & not much needs to be done to improve it

Not at this stage

Website good example of how we're supposed to do things.

No thank you

5 responses

# Summary

ProgramMap was well received at its initial in-School trial with 48 beginning Built Environments 1 Level 1 students during structured Built Environments 1 tutorials. The results are important in that they demonstrate that

1. students could easily navigate the site and gather useful information which they could readily understand;

2. their comments regarding the potential for links to their MyUni sites reflect the University strategic direction for Graduate mapping;

3. their request for the inclusion of exemplars reflects one of the priorities of the ProgramMap team.

Susan Shannon
Evaluator
1 May 2003

## 8. Appendix D: ProgramMap web page examples

The following pages form Appendix D: ProgramMap web page examples of ProgramMap.
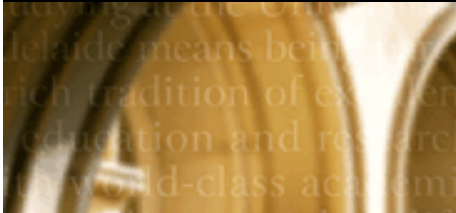
Calendar 2004
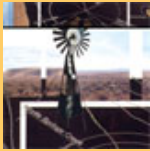
## ProgramMap Academic programs

This is the entry point for ProgramMap an online tool allowing staff, students and others to explore some academic programs available at the University of Adelaide. ProgramMap currently contains extensive descriptions of all academic programs within the School of Architecture, Landscape Architecture and Urban design at the University of Adelaide. Descriptions of other programs may follow. ProgramMap was developed with assistance from the Deputy Vice-Chancellor (Education) and Provost.

You must select a Field of Education to proceed.

Choose a Field of Education:

# Faculty of
# Humanities & Social Sciences

THE UNIVERSITY
OF ADELAIDE
AUSTRALIA

## ProgramMap Academic programs in Media Studies

This is the entry point for ProgramMap an online tool allowing staff, students and others to explore some academic programs available at the University of Adelaide. ProgramMap currently contains extensive descriptions of all academic programs within the School of Architecture, Landscape Architecture and Urban design at the University of Adelaide. Descriptions of other programs may follow. ProgramMap was developed with assistance from the Deputy Vice-Chancellor (Education) and Provost.

Choose an alternative Field of Education:

Bachelor of Media
> Bachelor Degree (BMedia)
> A course of general media studies.

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## ProgramMap Academic programs in Architecture and/or Landscape Architecture

This is the entry point for ProgramMap an online tool allowing staff, students and others to explore some academic programs available at the University of Adelaide. ProgramMap currently contains extensive descriptions of all academic programs within the School of Architecture, Landscape Architecture and Urban design at the University of Adelaide. Descriptions of other programs may follow. ProgramMap was developed with assistance from the Deputy Vice-Chancellor (Education) and Provost.

Choose an alternative Field of Education:

Bachelor of Architecture

> Bachelor Degree (BArch)
> A two-year degree, the Bachelor of Architecture is a first professional degree designed for people who wish to work within the profession. The degree aims to produce highly capable graduates, keen to enter the disciplines of architecture as productive successful individuals who are creative, insightful and intellectually skilled in their approach to the professions and their practice.

Bachelor of Design Studies

> Bachelor Degree (BDesSt)
> The entry point for most students into the School, the Bachelor of Design Studies degree aims to develop a student's understanding of the diverse knowledge and specialised skills required within the design fields. It is a three-year degree that consists of both elective and core courses. The Bachelor of Design Studies degree is the first degree of a two degree system aimed at students who are interested in entering professional degrees in architecture or landscape architecture. (see Bachelor of Architecture and Bachelor of Landscape Architecture).

Bachelor of Landscape Architecture

> Bachelor Degree (BLArch)
> A two-year degree, the Bachelor of Landscape Architecture, is a professional degrees designed for people who wish to work within the profession. The degrees aim to produce highly capable graduates, keen to enter the discipline of landscape architecture, as productive successful individuals who are creative, insightful and intellectually skilled in their approach to the

professions and their practice.

## Doctor of Philosophy

Doctoral degree (PhD)

The School of Architecture, Landscape Architecture and Urban Design offers a PhD to selected candidates who show exceptional skill through independent research or study and who can successfully, assemble, criticise and defend arguments. The School has a reputation for well thought-out experimentation and an attitude which values exploration and work at the forefront of architecture, landscape architecture and urban design. It aims to produce highly regarded researchers and graduates with the experience, tools and insight required by professionals in order to be successful leaders in the field.

## Graduate Certificate in Architecture (Digital Media)

Graduate Certificate (GradCertDesSt (DM))

The Graduate Certificate in Architecture (Digital Media) is a semester-length program designed to further educate practicing architects and graduates from the Bachelor of Architecture Degree in the use of Digital media within design.

## Graduate Certificate in Design Studies

Graduate Certificate (GradCertDesSt)

The Graduate Certificate in Design Studies, is a semester-length program designed as a bridging program for graduates of non-design studies degrees who wish to enter the field of architecture. It is designed to lead into the Bachelor of Architecture and Master of Architecture (Coursework) degrees.

## Graduate Certificate in Design Studies (Landscape)

Graduate Certificate (GradCertDesSt (LArch))

The Graduate Certificate in Design Studies (Landscape), is a semester-length program designed as bridging program for graduates of non-design studies degrees, who wish to enter the field of landscape architecture. It is designed to lead into the Bachelor of Landscape Architecture and Master of Landscape Architecture (program-work) degrees.

## Diploma in Architecture (Digital Media)

Graduate Diploma (GradDipDesSt(DM))

The Graduate Diploma in Architecture (Digital Media) is a full-year program designed to further educate practicing architects and graduates from the Bachelor of Architecture Degree in the use of Digital media within design.

## Graduate Diploma in Design Studies

Graduate Diploma (GradDipDesSt)

The Graduate Diploma in Design Studies is a full-year program as a bridging program for graduates of non-design studies degrees who wish to enter the field of architecture.It is designed to lead into the Bachelor of Architecture and Master of Architecture (Coursework) degrees.

## Graduate Diploma in Design Studies (Landscape)

Graduate Diploma (GradDipDesSt (LArch))

The Graduate Diploma in Design Studies (Landscape) is a full-year program designed as a bridging program for graduates of non-design studies degrees, who wish to enter the field of landscape architecture. It isdesigned to lead into the Bachelor of Landscape Architecture and Master of Landscape Architecture (program-work)

degrees.

## Master of Architecture (Coursework)

Masters by coursework (MArch (Coursework))

The Master by program-work degrees allow students to explore architectural, landscape architectural or urban design issues within both practical and theoretical frameworks. The degrees aim to produce highly capable graduates, keen to enter the discipline of architecture, landscape architecture, or urban design, as productive successful individuals who are creative, insightful and intellectually skilled in their approach to the profession and their practice.

## Master of Architecture (Digital Media)

Masters by coursework (MArch (DM))

The Master of Architecture (Digital Media) is a three semester-length program designed to further educate practising architects and graduates from the Bachelor of Architecture Degree in the use of Digital media within design.

## Master of Landscape Architecture (Coursework)

Masters by coursework (MLArch (Coursework))

The Master by program-work degrees allow students to explore architectural, landscape architectural or urban design issues within both practical and theoretical frameworks. The degrees aim to produce highly capable graduates, keen to enter the discipline of architecture, landscape architecture, or urban design, as productive successful individuals who are creative, insightful and intellectually skilled in their approach to the profession and their practice.

## Master of Architecture (Research)

Masters by research (MLArch (Research))

The Master by research degree is designed for those who wish to explore a portion of the built world through the study of design, disprogram, the profession, or a relevant topic to advance thought. Students will draw upon the expertise offered by staff of the School in the areas of research excellence of the School (http://www.arch. adelaide.edu.au/research/). The School has a reputation for well thought-out experimentation and an attitude which values exploration and work at the forefront of architecture and landscape architecture. It aims to produce highly regarded researchers and graduates with the experience, tools and insight required by professionals in order to be successful leaders in the field.

## Master of Landscape Architecture (Research)

Masters by research (MArch (Research))

The Master by research degree is designed for those who wish to explore a portion of the built world through the study of design, disprogram, the profession, or a relevant topic to advance thought. Students will draw upon the expertise offered by staff of the School in the areas of research excellence of the School (http://www.arch. adelaide.edu.au/research/). The School has a reputation for well thought-out experimentation and an attitude which values exploration and work at the forefront of architecture and landscape architecture. It aims to produce highly regarded researchers and graduates with the experience, tools and insight required by professionals in order to be successful leaders in the field.

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## Bachelor of Design Studies (BDesSt)

Program type
> Bachelor Degree

The entry point for most students into the School, the Bachelor of Design Studies degree aims to develop a student's understanding of the diverse knowledge and specialised skills required within the design fields. It is a three-year degree that consists of both elective and core courses. The Bachelor of Design Studies degree is the first degree of a two degree system aimed at students who are interested in entering professional degrees in architecture or landscape architecture. (see Bachelor of Architecture and Bachelor of Landscape Architecture).

## Program plan

### Selected Major: Generic

| Level 1 (24 units, 100% FTE) ||
|---|---|
| **Semester 1** | **Semester 2** |
| • Built Environments I<br>• Computer-Aided Design I<br>• Drawing Architecture and Landscape Architecture I<br>• ———<br>• An Introduction to Contemporary Arab Culture and Architecture<br>• Art History and Theories IA<br>• Natural Systems and Design I<br>• Special Topic in Design Studies IA | • Composing Architecture and Landscape Architecture I<br>• Construction I<br>• Image/Text/Architecture I<br>• ———<br>• Art History and Theories IB<br>• Australian Architecture and Landscapes I<br>• Special Topic in Design Studies IB (Landscape Design) |
| Level 2 (24 units, 100% FTE) ||
| **Semester 1** | **Semester 2** |
| | |

| | |
|---|---|
| • Domestic Scale Construction II<br>• Technology in the Built Environment II<br>• _____<br>•    Art History and Theories IIA<br>•    Conservation in the Built Environment II<br>•    Natural Systems and Design II<br>•    Special Topic in Design Studies IIA (The Place for Furniture)<br>•    Special Topic in Design Studies IIE (Aboriginal Built Environments) | • Design and Environments II<br>• Twentieth Century Architecture and Landscapes II<br>• _____<br>•    Art History and Theories IIB<br>•    Computer-Aided Design IIB<br>•    Special Topic in Design Studies IIB<br>•    Special Topic in Design Studies IIF (Performance of Design) |

| Level 3 (24 units, 100% FTE) ||
|---|---|
| **Semester 1** | **Semester 2** |
| • Issues in Urban and Landscape Sustainability III<br>• _____<br>•    Conservation in the Built Environment III<br>•    Special Topic in Design Studies IIIA (Domestic Scale Construction)<br>•    Special Topic in Design Studies IIIE (Aboriginal Built Environments) | •    Computer-Aided Design IIIB<br>•    Special Topic in Design Studies IIIF (Performance of Design) |

## Steps to program analysis

1. Choose your preferred major:
2. Select your preferred electives from the table above.
3. Select from these relevant frameworks:

   AILA Education

   Bloom's Taxonomy

   ProgramMap

   RAIA Education

   RAIA National Visiting Panel Categories

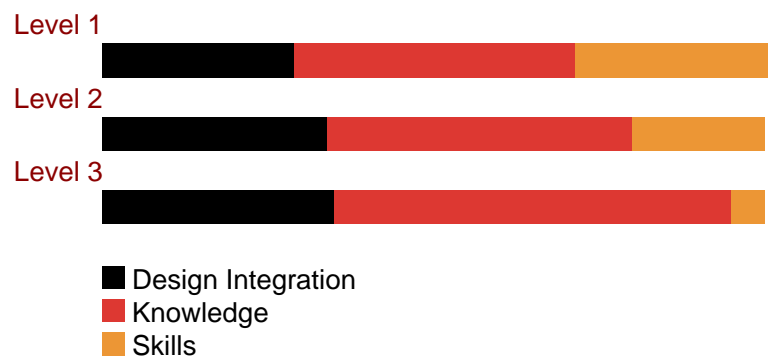   School Graduate Attributes

4. Press Go to re-analyse program.

## Program analysis
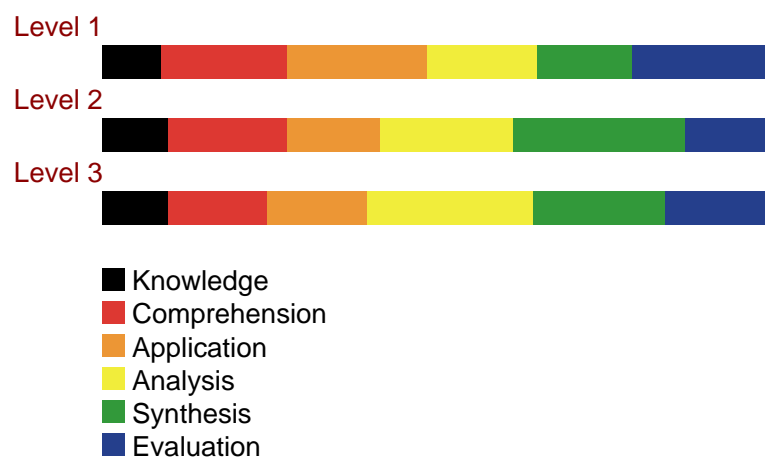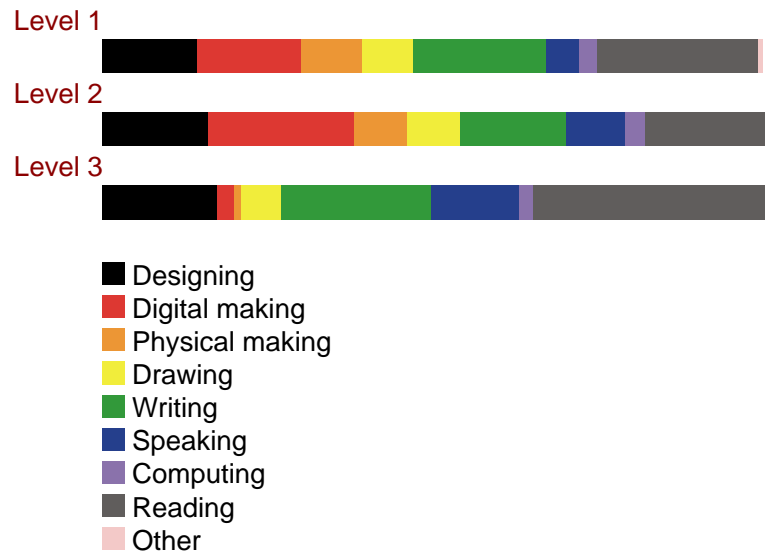
## School Graduate Attributes by Level

Level 1

Level 2

Level 3

■ Attitudes and values
■ Intellectual and Social Capabilities
■ Knowledge

## Royal Australian Institute of Architects Education Policy

Level 1

Level 2

Level 3

■ Design Integration
■ Knowledge
■ Skills
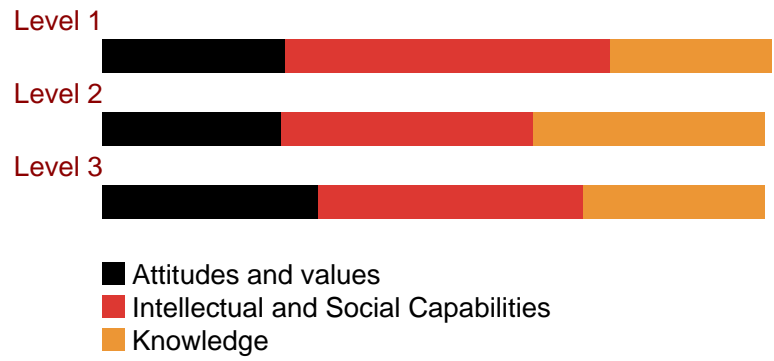
## Bloom's Taxonomy by Level

Level 1

Level 2

Level 3

■ Knowledge
■ Comprehension
■ Application
■ Analysis
■ Synthesis
■ Evaluation

## Learning activities by Level

Level 1

Level 2

Level 3

- ■ Designing
- ■ Digital making
- ■ Physical making
- ■ Drawing
- ■ Writing
- ■ Speaking
- ■ Computing
- ■ Reading
- ■ Other

## Learning mode by Level

Level 1

Level 2

Level 3

- ■ Individual
- ■ Group
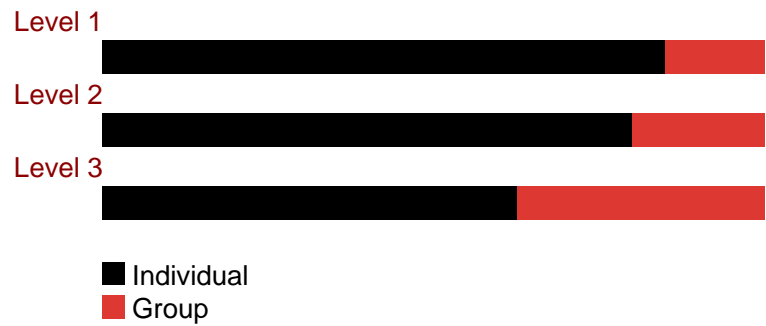
## Learning locale by Level
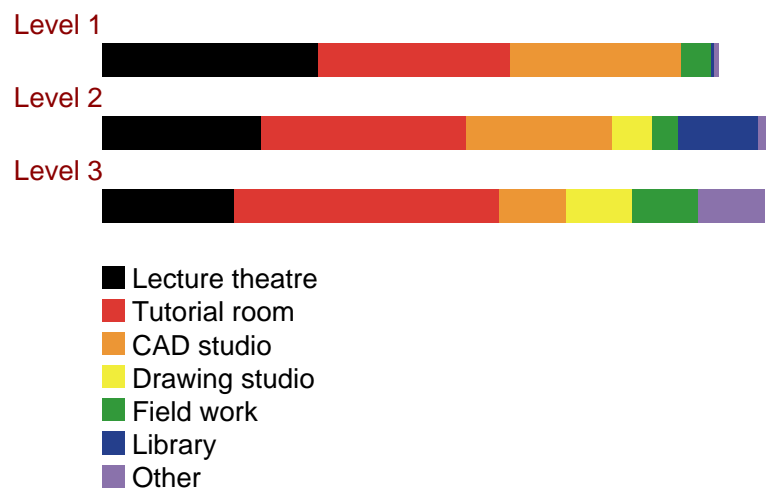
Level 1

Level 2

Level 3

- ■ Lecture theatre
- ■ Tutorial room
- ■ CAD studio
- ■ Drawing studio
- ■ Field work
- ■ Library
- ■ Other

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[Construction model](#)
Mr Mark Hinchcliff
(2002)



[Homage to Ando](#)
Mr Hamish Barrett
(2002)



[Red balcony](#)
Ms Pui Chi Tsang
(2002)

# Construction I

Program
> [Bachelor of Design Studies](#) (BDesSt)

Level
> 1

Semester
> 2

Note
> This is an elective course within this program.

Units
> 3

Learning goals
Course requisites

# Course analysis

**School Graduate Attributes**

**Attitudes and values**

30%
Critical thinking 20%
Creative Action 5%
Architecture and Landscape Architecture 5%

**Intellectual and Social Capabilities**

55%
Instrumental 5%
Visualising, representing & manipulating spatial objects 20%
Writing 20%
Speaking 5%
Working in groups 5%

**Knowledge**

15%
Criticism of architectural and landscape design objects 15%

## Royal Australian Institute of Architects Course Categories (National Visiting Panel 2003)

### Course categories

100%

■ Design 17%

■ Communications and Documentation 8%
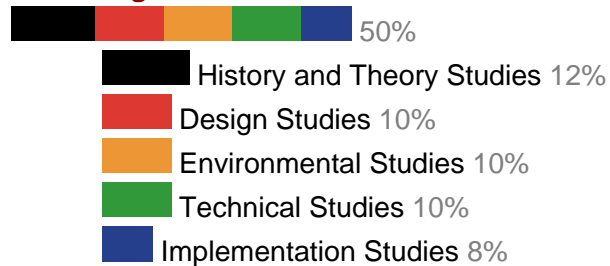
■ Cultural Studies 8%

■ Technical and Environmental Studies 67%
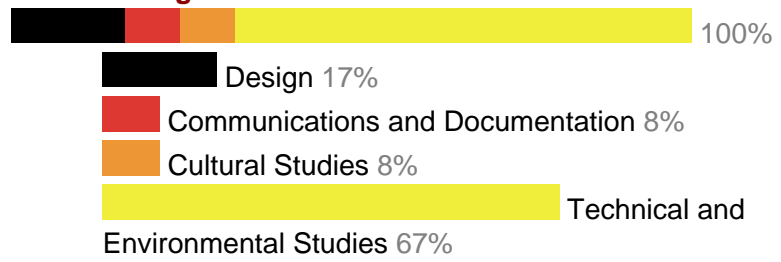
## Royal Australian Institute of Architects Education Policy

### Design Integration
0%

### Knowledge

50%

■ History and Theory Studies 12%

■ Design Studies 10%

■ Environmental Studies 10%

■ Technical Studies 10%

■ Implementation Studies 8%

### Skills

50%

■ Model making 6%

■ Visual literacy 6%

■ Technical drawings and documentation 19%

■ Representation and communication 19%
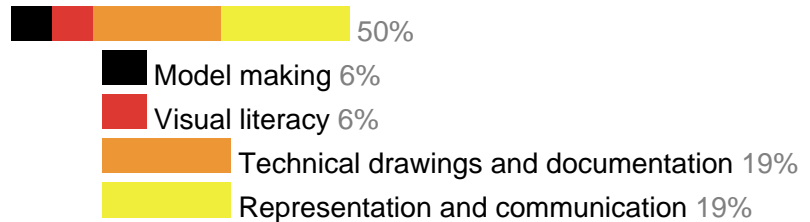
## Australian Institute of Landscape Architects Education Policy

### Academic knowledge base

50%

■ Design Theory & History 25%

■ Cultural Systems 25%

### Professional skills base

50%

■ Design Theory and History 25%

■ Landscape Analysis and Visual Assessment 25%

**Bloom's Taxonomy**

**Cognitive**

100%

- ⬛ Knowledge 10%
- 🟥 Comprehension 30%
- 🟧 Application 30%
- 🟨 Analysis 10%
- 🟩 Synthesis 10%
- 🟦 Evaluation 10%
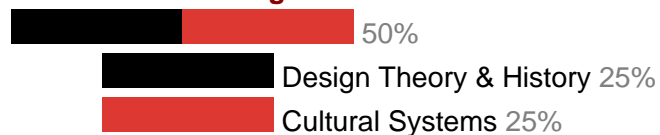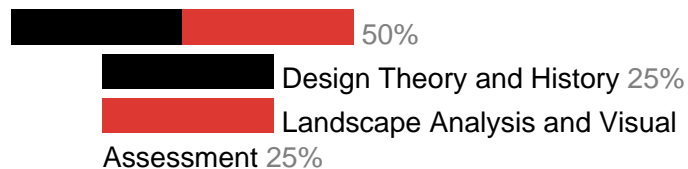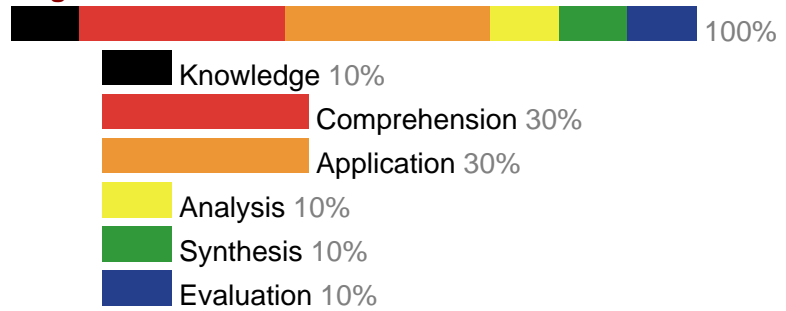
**ProgramMap framework**

**Learning activities**

100%

- ⬛ Designing 10%
- 🟧 Physical making 35%
- 🟨 Drawing 10%
- 🟩 Writing 20%
- 🟦 Speaking 5%
- ⬜ Reading 15%
- 🟪 Other 5%

**Learning mode**

100%

- ⬛ Individual 90%
- 🟥 Group 10%

**Learning locale**

100%

- ⬛ Lecture theatre 45%
- 🟥 Tutorial room 45%
- 🟩 Field work 10%
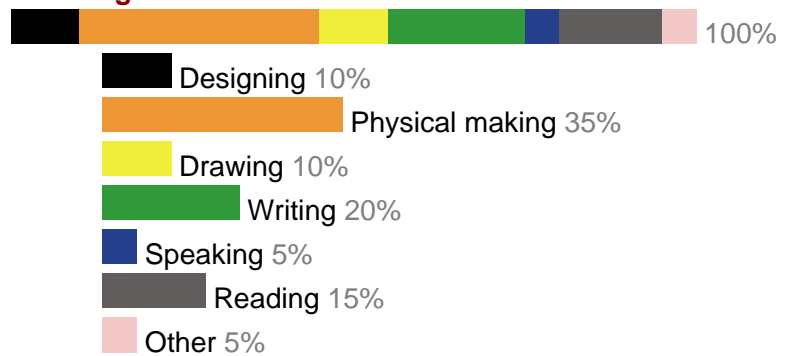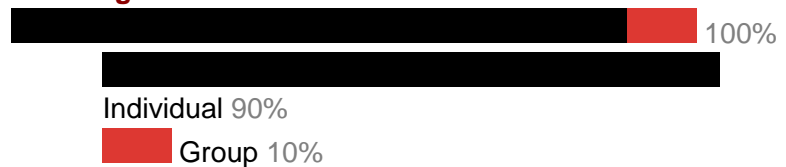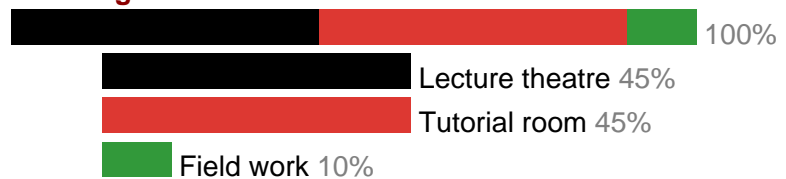
Contribute data about this course. A valid username/password will be required.

---

## Navigate this section

The navigation links for this section have been reproduced here for your convenience.

School of Architecture,
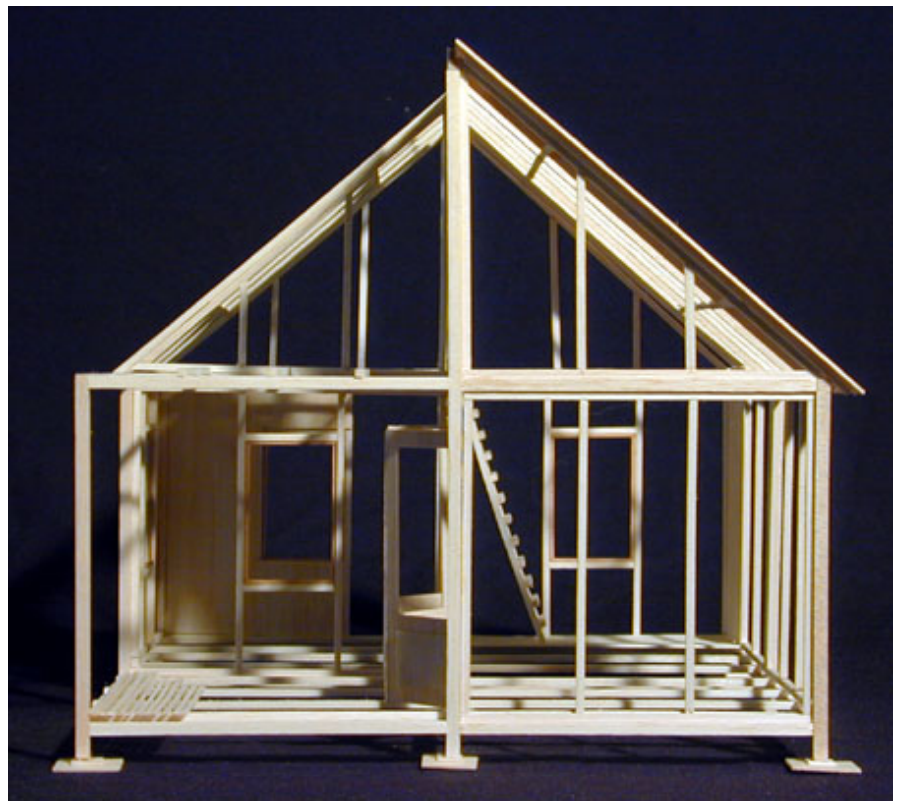Landscape Architecture &
Urban Design

THE UNIVERSITY
OF ADELAIDE
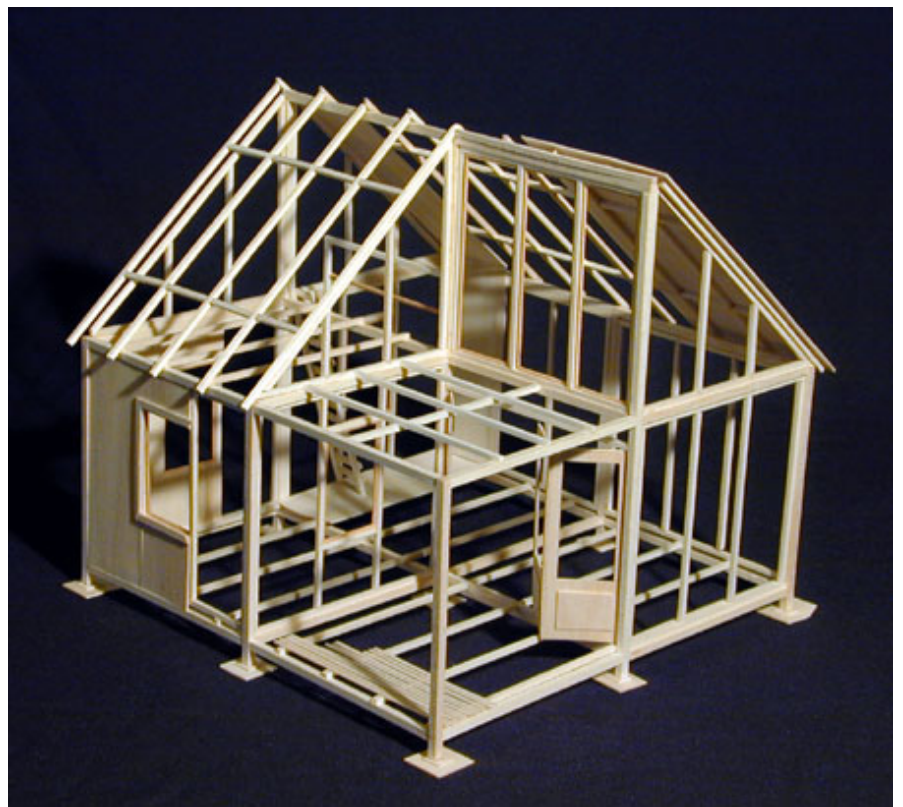AUSTRALIA

## Construction model

Mr Mark Hinchclif (2002)

Course context
[Construction I](#)



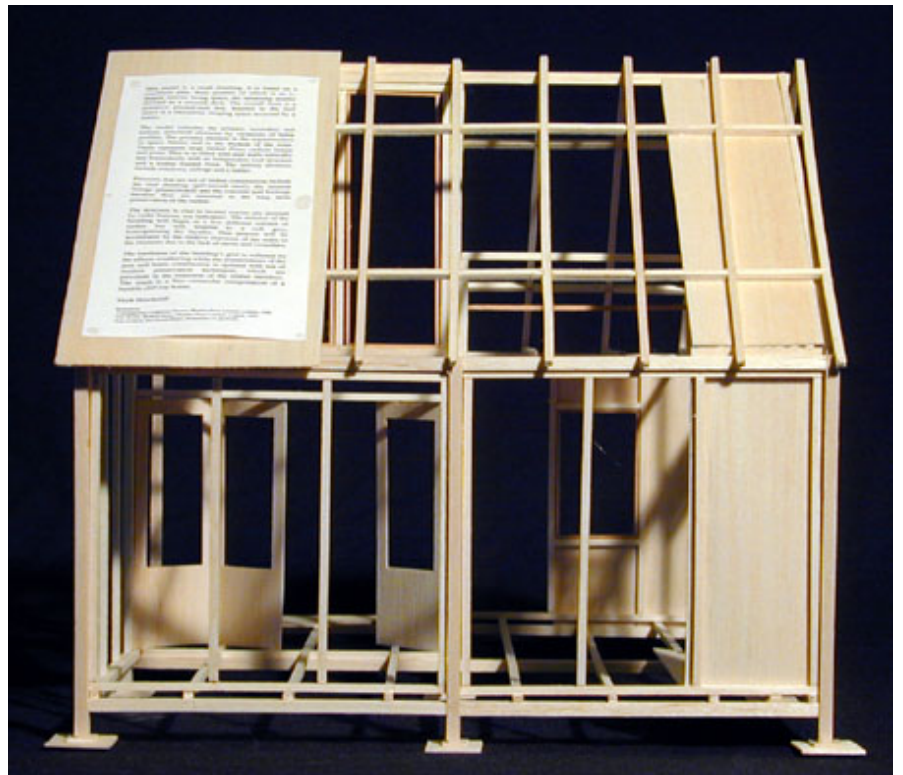**End elevation**

**Perspective view**



**Side elevation**

## Navigate this section

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School of Architecture,
Landscape Architecture &
Urban Design

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OF ADELAIDE
AUSTRALIA

## Course analysis update: Construction I

**School Graduate Attributes**

### School Graduate Attributes (Attitudes and values)
Indicate on a scale from 0 to 5 the intended emphasis of this course over the following dimensions.

| Critical thinking |
|---|

| Creative Action |
|---|

| Architecture and Landscape Architecture |
|---|

### School Graduate Attributes (Intellectual and Social Capabilities)
Indicate on a scale from 0 to 5 the intended emphasis of this course over the following dimensions.

| Instrumental |
|---|

| Visualising, representing & manipulating spatial objects |
|---|

| Writing |
|---|

| Speaking |
|---|

| Computing |
|---|

| Working in groups |
|---|

### School Graduate Attributes (Knowledge)
Indicate on a scale from 0 to 5 the intended emphasis of this course over the following dimensions.

| Criticism of architectural and landscape design objects |
|---|

| Generate and present proposals |
|---|

| Design process |
|---|

**Royal Australian Institute of Architects**

### RAIA Education (Design Integration)
Indicate on a scale from 0 to 5 the intended emphasis of this course over the following dimensions.

| Imagination and creativity |
|---|

| Problem definition and strategy formulation |
|---|

| Information gathering, analysis and criticism |
|---|

**Elucidation of issues**

**Values and ethics definition**

**Reconciliation and integration in design**

**Team work**

**Specialist information sources**

RAIA Education (Knowledge)

Indicate on a scale from 0 to 5 the intended emphasis of this course over the following dimensions.

**History and Theory Studies**

**Design Studies**

**Environmental Studies**

**User Studies**

**Technical Studies**

**Implementation Studies**

RAIA Education (Skills)

Indicate on a scale from 0 to 5 the intended emphasis of this course over the following dimensions.

**Model making**

**Visual literacy**

**Technical drawings and documentation**

**Representation and communication**

**Evaluation systems**

RAIA National Visiting Panel Categories (Course categories)

Indicate on a scale from 0 to 7 the intended emphasis of this course over the following dimensions.

**Design**

**Communications and Documentation**

**Cultural Studies**

**Technical and Environmental Studies**

**Practice and Project Management**

**Australian Institute of Landscape Architects**

AILA Education (Academic knowledge base)

Indicate on a scale from 0 to 7 the intended emphasis of this course over the following dimensions.

**Design Theory & History**

**Cultural Systems**

| Natural Systems |
| Information Technology & Communication |
| Professional Issues |

### AILA Education (Professional skills base)

Indicate on a scale from 0 to 7 the intended emphasis of this course over the following dimensions.

| Design Theory and History |
| Landscape Analysis and Visual Assessment |
| Information Technology and Communication |
| Cultural Systems |
| Professional Issues |

## General educational descriptors

### Bloom's Taxonomy (Cognitive)

Indicate on a scale from 0 to 10 the intended emphasis of this course over the following dimensions.

| Knowledge |
| Comprehension |
| Application |
| Analysis |
| Synthesis |
| Evaluation |

### ProgramMap (Learning activities)

Indicate on a scale from 0 to 2 the intended emphasis of this course over the following dimensions.

| Designing |
| Digital making |
| Physical making |
| Drawing |
| Writing |
| Speaking |
| Computing |
| Reading |
| Other |

### ProgramMap (Learning mode)

Indicate on a scale from 0 to 1 the intended emphasis of this course over the following dimensions.

| Individual |

**Group**

<span style="color:#b00">ProgramMap (Learning locale)</span>

Indicate on a scale from 0 to 4 the intended emphasis of this course over the following dimensions.

**Lecture theatre**

**Tutorial room**

**CAD studio**

**Drawing studio**

**Field work**

**Library**

**Other**

<span style="color:#b00">ProgramMap (Student outputs)</span>

Indicate on a scale from 0 to 4 the intended emphasis of this course over the following dimensions.

**Digital images, animations or models**

**Drawing folios**

**Presentations**

**Written work**

**Physical models**

**Digital models**

**Exam papers**

**Online discussion contributions**

**Other**

## Navigate this section

The navigation links for this section have been reproduced here for your convenience.

## 9.  Appendix E: Budget acquittal

The following pages form Appendix E: Budget acquittal for this project.

| Host Institution: | The University of Adelaide University. |
| Project Leader: | Professor Antony Radford/ Dr Susan Shannon |
| Project Title: | IT Program and Course Mapping |
| Grant: | $28, 000 |
| Grant Period: | 1/1/2001 to 16/09/2004 |
| Project number: | 16005900 |

## Summary of the Revenue and Expenditure on Project 16005900- IT Program Mapping

**2001 Initial Grant:** $16 000

**2003 Additional Grant:** $12 000

**Expenditure:**

| | |
|---|---|
| Salaries 2002 | $11 669.00 |
| Stationery 2002 | $ 12.00 |
| **Total 2002** | **$11 681.00** |
| | |
| Salaries 2003 | $10 329.00 |
| Student Services 2003 | $ 300.00 |
| Printing 2003 | $ 38.00 |
| Stationary 2003 | $ 13.00 |
| **Total 2003** | **$10 680.00** |
| | |
| Salary recharge 2004 | $ 5 624.00 |
| Printing 2004 | $ 15.00 |
| **Total 2004** | **$ 5 639.00** |

**Total Expenditure:** $28 000

**Closing Balance:** $0.00

## Certification

I declare that the expenditure for the IT Program and Course Mapping Grant are true and correct.

Name: _____ KERRY BRAINI _____        Position Title: _____ FACULTY FINANCE MANAGER _____

Signature: _____        Date: _____ 20 September 2004 _____