

Postgraduate Programmes for Professionals

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The Master of Computing (MComp) and Doctor of Computing (DComp) programmes at Unitec were developed in consultation with industry to meet a perceived need for computing professionals with a wide range of competencies, including interpersonal and technical. Course content and delivery methods have been designed to expose students to issues and experiences that are closely related to those they can expect to encounter in the “real world”. This paper reviews progress to date.

1. INTRODUCTION

The Master of Computing (MComp) programme has been running since February 2000 and has attracted more than 200 students. 81 students have completed the requirements of the Postgraduate Diploma in Computing and 22 of them have also completed the research component required for MComp. The Doctor of Computing (DComp) programme began in February 2003 and five students are currently enrolled in coursework as preparation for writing a thesis.

Doctor of Computing students are expected to “contribute to advancing the knowledge base in their professional field of practice” (Unitec, 2002, see also Adams, 1998) and the aims of the Master of Computing programme are to:

- produce graduates who can undertake systematic research and synthesise their findings as a means of solving substantial applied computing problems in professional practice
- broaden and deepen the knowledge base of computing and information technology professionals through a programme based on the principles of critical reflection and adult learning
- equip graduates with more advanced academic capabilities so that they can perform more

effectively in the rapidly evolving field of applied computing, especially in industry teams

- enhance the national and international academic standing and recognition of the computing and information technology profession.

(Unitec, 1999).

This paper begins by describing how the programmes were designed in consultation with industry. It then reviews the content and delivery of the coursework to identify approaches that have proved helpful in developing the students’ “professionalism”. It concludes by reporting student reactions and evaluating the extent to which the stated aims of the programmes have been met over the past four and a half years.

2. DESIGNING THE PROGRAMMES

A variety of strategies were adopted in order to obtain industry inputs into programme design. These included:

- holding focus groups during the initial stages of development
- presenting an outline of the programmes to the advisory committee
- conducting market research with potential employers of our graduates
- seeking advice on individual courses and particular issues from industry experts
- sending early drafts of the programme document to industry representatives for feedback

As a result of these consultations, we decided that:

- to help in developing teamwork, all MComp courses should have at least one group assessment (as well as at least one individual assessment)

- the compulsory MComp courses should include “The Impact of Information Technology on Society” (ISCG8021), “Managing Information Technology Projects” (ISCG8022) and “Information Technology and Strategic Planning” (ISCG8023)

- the MComp optional courses should include one on “Management Approaches for the Information Technology Professional” and pairs of courses in each of four important application areas: instructional technology, the Internet, multimedia and networks

- the first DComp course (ISCG 1001) should address “Critical Issues in Professional Practice”.

Apart from helping with shaping the programmes, these consultations also generated a significant number of letters of support which helped in getting approval from NZQA.

3. IMPLEMENTING THE PROGRAMMES

All MComp students are expected to take ISCG8021 in their first semester so this course has a pivotal role in introducing students to how we expect them to participate in class and go about researching information and writing assignments that meet level 8 standards in terms of content and format. A range of approaches have been used to achieve these objectives and at the same time “enable students to analyse the impact of on society from social and ethical perspectives” (Unitec, 1999). These include:

- a judge presenting a seminar on computers and the law

- a recent PhD talking about her research into “cyber ethics”

- pairs of students writing assignments about the resolution of ethical dilemmas involving computers

- the whole class undertaking a survey of the general public’s attitudes to computers and analysing the results as a class exercise (Joyce, 2002)

- individual students making presentations “on the possible impacts (positive and negative) of a new

or emerging issue arising from the use of information technology by a sector of society” and critiquing another student’s presentation

Other approaches taken in the compulsory MComp courses have included:

- individual students preparing project proposals and presenting them for approval to an IT steering committee made up of classmates, also assessing and approving project plans in a steering committee capacity (ISCG8022)

- groups of students preparing revised project plans (including rescheduling of tasks, introduction of new tasks, and reallocation of resources) in order to deal with unexpected problems (ISCG8022)

- individual students selecting organisations and situating them in terms of their operational and strategic environment, then critiquing the organisations’ current IT strategic plans and the processes used within the organisations to develop, monitor and revise the strategic plans (ISCG8023)

- groups of students selecting organisations that do not already have IT strategic plans in place, drawing on the available literature to identify an appropriate framework for developing strategic plans and then developing the plans (ISCG8023).

The first DComp course (ISCG1001) began with presentations on “Values, Liabilities and Responsibilities”, “Professionalism”, and “Business Ethics”. Then the students and the author undertook a “comparative study of 27 codes of conduct/ethics/practice of professional bodies in the field of computing and information technology” which eventually formed the basis of a conference paper (Joyce, Blackshaw, King, & Muller, 2003).

Later ISCG1001 sessions covered “Class, Culture and Gender Issues”, “Health Informatics and Privacy”, “Globalisation and e-Business” and “Software Development Impact Statements”. These provided useful background for the students who subsequently each gave two presentations, “contextualising issues in professional computing practice historically and philosophically” and “analysing contemporary perspectives on those issues”.

4. EVALUATING THE PROGRAMMES

Students complete course evaluations during the programme and a “satisfaction” survey after graduating. Most of the MComp students who pass comments indicate that they appreciate the opportunities provided in the coursework to “broaden and deepen [their] knowledge base”. All DComp students expressed satisfaction with the range of issues covered in ISCG1001 and found them helpful in selecting research topics.

Now that 22 MComp students have completed their dissertations, we have been able to assess the extent to which they have been able to “undertake systematic research and synthesise their findings as a means of solving substantial applied computing problems in professional practice”. The examiners’ reports demonstrate that the great majority have. It is too early to say whether they will “perform more effectively in the rapidly evolving field of applied computing, especially in industry teams” and “enhance the national and international academic standing and recognition of the computing and information technology profession”.

5. CONCLUSIONS

Early indications are that both programmes have been designed and implemented in ways that meet the needs of the students, the profession and the institution. The author intends to seek feedback from graduates (and their employers) after they have been practising for five years in order to see whether the long term aims of the programmes are being met.

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