

# Doctoring the Profession

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## ABSTRACT

This paper describes the background to UNITEC's professional doctorate in computing (DComp), the development and approval processes, and the experience of running the programme for the first time. It compares DComp with other professional doctorates in Australia, NZ and the UK, and with "research-only"

doctorates and attempts to identify how the "target audiences" of professional doctorates and "research-only" doctorates differ. It is too early to say whether DComp will meet the needs perceived by industry, but some initial reactions of enquirers and students will be presented at the conference.

## Keywords

Professional doctorate, development process, accreditation.

## 1. INTRODUCTION

When UNITEC was exploring the idea of offering a professional doctorate in computing (Fielden and Joyce, 2001) industry representatives were asked whether such a qualification would benefit professionals in the field of computing and information technology. Most responses were positive; they included the following:

*I welcome the proposal for a professional computing doctorate (as opposed to a research-only programme) and think it is a good idea. I do feel that any move which provides more academic stiffness to the spine of the IT industry is a good thing and to be encouraged. We need to "lift our game" in many areas to do with quality, innovation and timeliness, and this can only be helped by having doctoral graduates entering the IT/computing workforce.*

Several respondents stressed the need for an "applied" doctorate, in contrast to the academic style of a doctor of philosophy. Others noted that the structured nature of a professional doctorate, with its course work leading in to the thesis, meant that students were more likely to succeed, especially those with full time jobs. Another consideration was the global shortage of highly skilled and trained professionals in the information technology industry, including academia.

Collectively the responses confirmed UNITEC's view that professional doctorates are better suited than PhDs to meeting the needs of industry, because they are applied, structured and involve students studying together for at least the first third of their degree. Most students will be in full-time employment, or taking a break from full-time employment, will want to research a topic that relates to their professional activities, and will value the support provided by the staff and students they interact with during the course work (see also Adams, 1998). This paper reviews the internal and external processes that led to the introduction of the Doctor of Computing (DComp) in 2003, and describes the entry and delivery processes.

## 2. DEVELOPMENT PROCESS

The development team tried to locate comparable programmes in Australia and the UK, but had only found three by the time they met the NZQA panel. The two Australian ones involved masters level course work, and theses that made up half (or less) of the total credits. In New Zealand the course work must be at level 10

(masters course work is at level 8) and the thesis must be 240 credits (out of 360). The UK professional doctorate was based on a different model, so the team examined other NZ professional doctorates, in business administration, education and technology.

Most professional doctorates have one or more courses addressing current issues in the discipline area and one or more courses concerned with research methods. The team, which was aiming to produce a generic structure for UNITEC professional doctorates in any discipline, opted for a 60 credit “critical issues” course and two 30 credit “research methods” courses. The two 30 credit courses were designed to be taught together, with one focussed on methodologies and the other on literature review.

Regulations require that students must pass the 60 credit course and obtain at least B- passes in each of the 30 credit courses, before they start their theses. In light of “bad press” elsewhere about qualifications being awarded for “failed doctorates”, it was decided that no “exit qualifications” would be provided for students who completed the coursework but not the thesis. (Fielden, Joyce and Young, 2002)

In March 2002 the proposal was reviewed by a panel of five senior academics from UNITEC and from Australian and New Zealand universities, which was set up by UNITEC’s Academic Standards Committee. Meanwhile nominations were sent to the New Zealand Qualifications Authority (NZQA) for the panel of eight that would review the final proposal. The proposal was revised in light of feedback from the UNITEC panel and sent to NZQA in May 2002.

### 3. ACCREDITATION PROCESS

The panel consisted of an independent chair, an NZQA quality analyst, two university representatives, two industry representatives, a representative of an Australian institution with a similar degree, and a senior UNITEC staff member. Having read the proposal, the panel members provided 18 pages of feedback before coming on campus for a two-day visit in July. Most of the panel’s reservations about the proposal were resolved during meetings with the development team, potential students, senior management and members of the UNITEC Computing and Information Technology Advisory Board (Fielden et al., 2002)

At the end of its visit the panel said that it would recommend approval provided four conditions were met:

- ◆ Alignment of programme objectives with NZQA criteria;
- ◆ Clarification of regulations concerning admission, period of enrolment, and examination;

- ◆ Provision of full course outlines with specific computing content; and

- ◆ Redrafting of guidelines for thesis examiners.

UNITEC sent a 52-page response in August 2002 and the panel spent two months discussing it, before recommending to NZQA that DComp be approved unconditionally

At the end of November, the NZQA Academic Committee informed UNITEC that it has reservations about four areas: admission, research, supervision and thesis examination. Members of the development team were concerned that the committee was raising issues that had been resolved to the panel’s satisfaction (after five months detailed scrutiny and discussion). However, we further tightened the regulations for admission and thesis examination and informed NZQA of the very recent (three days previously) appointment of a staff member with a strong research and supervision record. NZQA then approved the offering of DComp in 2003, provided enrolments were strictly limited.

### 4. LESSONS LEARNED FROM THE ACCREDITATION PROCESS

The initial panel feedback helped us prepare for their visit by focussing on their main areas of concern:

- ◆ Assessment: we supplied copies of the examiner’s guidelines already approved for PhD;

- ◆ Content: we prepared more detailed course outlines with specific computing content and resources;

- ◆ Delivery: we prepared a schedule for the Critical Issues in Professional Practice course;

- ◆ Library: we prepared a demonstration of electronic resources (including full text journals);

- ◆ Regulations: we drafted clauses to address concerns about admission and retention;

- ◆ Staffing: we took steps to confirm that several distinguished overseas academics would contribute to the Critical Issues in Professional Practice course (and receiving two acceptances from prominent US academics during the panel visit effectively disposed of that issue);

- ◆ Title: we affirmed our strong preference for DComp, rather than DInfoSys or DInfoTech.

It became clear during the visit that our institution’s decision to have generic courses, guidelines, objectives and regulations, while useful for internal purposes, had

raised many issues for the panel and may have been counterproductive. Indeed all of the requirements imposed by the panel were related to this decision (Fielden et al., 2002).

## 5. ENTRY REQUIREMENTS

Admission to the DComp requires at least three years professional experience in computing plus one of the following:

- ◆ A master's degree in computing or related discipline with at least second class honours;
- ◆ An honours degree in computing or related discipline of four years duration with at least an A-average and a substantial research project;
- ◆ A postgraduate diploma in computing or related discipline plus proof of appropriate skills in analysis, thinking skills and data interpretation (through substantial industry reports or other research publications).

(Fielden *et al.*, 2002).

In practice, most applicants to date have had at least 10 years professional experience in computing. Unfortunately several have not meet the academic criteria, although they have met the criteria approved by the NZQA panel!

## 6. DELIVERY

Full-time professional doctorate students will study all three courses concurrently. Part-time students take the 60-credit course (Critical Issues in Professional Practice) in their first year of study, and the two 30-credit courses (Advanced Scholarly Inquiry and Research Development) in their second year. All current students are part time.

The students enrolled in the 60-credit course meet on nine weekends, spread over a nine-month period, for eight hours each day, totalling 144 contact hours. Between face-to-face sessions, staff and students keep in touch via Blackboard. The students enrolled in the two 30-credit courses will meet on eight weekends spread over an eight month period, with eight hours each day, totalling 128 contact hours.

The 60-credit "critical issues" course had met three times at the time of writing. Topics covered have included

- ◆ Historical and philosophical context
- ◆ Values and ethics
- ◆ Class, culture and gender issues

The presenters were a professor from Virginia Tech, six UNITEC staff and two private consultants.

- ◆ The next four weekends will cover
- ◆ Expert systems and extreme programming
- ◆ e-Commerce emerging technologies and health informatics
- ◆ Globalisation, logistics and e-business
- ◆ Software development impact statements

The presenters will be professors from Grinnell College, the University of Melbourne, Tech de Monterrey and East Tennessee State University. The final two weekends will be taken up with assessment of student presentations by a mixed academic/industry panel.

## 7. CONCLUSION

NZQA subjects any proposal for a postgraduate programme to a very rigorous process and this is magnified when a doctorate is involved (Joyce, 2002). UNITEC's DComp proposal succeeded because of wide consultation, thorough internal review, external scrutiny, adequate resources and lots of hard work. It helped that one of university representatives on the panel had made a study of professional doctorates, especially since the other university representative talked about "your PhD proposal" throughout the visit and persisted in evaluating the proposal as if it were a PhD!

## REFERENCES

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