Towards Industry Focused Testing Courses

John McPhee
CPIT
130 Madras Street
Christchurch
+6439408000
john.mcphee@cpit.ac.nz

Alison Clear
CPIT
130 Madras Street
Christchurch
+6439408800
alison.clear@cpit.ac.nz

ABSTRACT
Software Testing had been taught on the Bachelor of Information and Communication Technologies (BICT) degree at Christchurch Polytechnic Institute of Technology (CPIT) as part of a level 6 course covering broader software engineering topics including Agile, Project management, etc. Only three weeks were devoted to coverage of Testing and the teaching material used was based upon traditional University texts covering the topic. Essentially it was very theoretical with a few simple practical exercises. Upon reflection now, it was similar to teaching programming with minimal and only very simple code being written. This paper describes the original plan and the refinements made and new courses introduced over three semesters.

Categories and Subject Descriptors
K.3.1 [**Computers and Education]**: Computer Uses in Education

General Terms
Verification.

Keywords
Software testing, Computing Education.

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1. INTRODUCTION
It was recognized that BICT graduates especially in the specialisations of software development and interactive multimedia development. The topic of Software Testing had been taught as part of other courses however two years ago it was recognized that this should be a separate course. In order to gain a better understanding of software testing, one of the authors attended a Software Testing Industry conference. These appear to be rarely attended by academics as academic conferences that can gain credit towards a PBRF rating are preferred. This led to us becoming aware that testing as practiced by leading professionals was very different and much broader than the texts implied and a review of the testing course that was being offered was necessary.

2. ANZTB
Discussions with the Australia and New Zealand Testing Board (ANZTB), a sub-group of the International Software Testing Qualifications Board (ISTQB) revealed that their biggest concern was a big shortage of suitably trained graduates for jobs as test analysts. Their experience had indicated no Tertiary institution in NZ provided appropriate training for graduate positions. The employers' only option was to recruit staff and provide training themselves or through placing their staff on expensive courses offered by corporate training providers.

Tracking of job vacancies advertised on Seek [2] reveals software testing vacancies to be consistently amongst the most in-demand job roles consistently exceeding vacancy numbers for web developers, network and system administrators, and help desk vacancies. As one of the core roles of an Institute of Technology and Polytechnic (ITP) is to meet the needs of industry [3], clearly we had a responsibility to address this need.

Consultation with ANZTB also identified the existing ISTQB Foundation Tester curriculum as an excellent source of core theory and this to be taught in conjunction with applied testing workshops introducing the students to the main techniques and tools used in Industry. This level 7, 15 credit semester-based course had two occurrences to 'bed in' and refine its delivery.

Following the success of these two occurrences, a wider consultation with the testing industry occurred. Christchurch enjoys a strong professional network of software testers (TPN) who meet bi-monthly. CPIT hosted one of these meetings and used it as a forum to gain feedback on our course and to what extent it met the needs of industry. A very healthy discussion followed this presentation with many recommendations but an overwhelming appreciation of the work put in by CPIT and the alignment of our course with the current needs of industry.

3. INDUSTRY FEEDBACK
The feedback from industry confirmed some of our suspicions but also gave valuable advice which then became the basis for a re-design of our Software Testing curriculum. There is an on-going

debate amongst industry experts as to the most appropriate testing approach. One camp is very supportive of the highly process-driven and structured approach promoted by ISTQB in their curriculum. The other camp is very much against this and strongly prefers the context-driven and exploratory testing approaches.

As educationalists, our view is that the context-driven and exploratory approaches require significant testing experience and expertise before they can achieve the effectiveness they claim. We used the Kaizen in Vocational Education model, see Fig 1. For this reason, an entry-level tester is unable to be effective in fact could prove to be a liability for the employer. We have decided to base our courses on the ISTQB structured processes but also introduce context-based and exploratory testing as concepts.

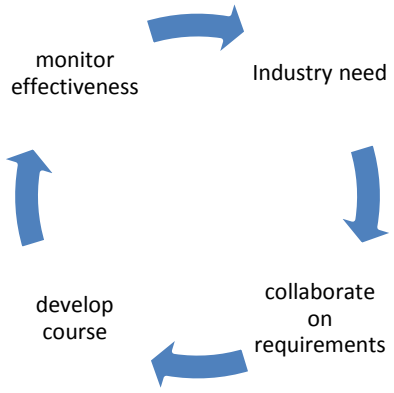

Figure 1. Kaizen in Vocational Education

The other main feedback gained from the Testing industry was the need for more practical testing experience and exposure to the Testing tools in common use in NZ.

4. NEW COURSES DEVELOPED

Based upon the interaction with the ANZTB and the industry feedback we now re-designed our Testing curriculum. The previous level 7 Testing course was redeveloped as a level 6 courses however it still covers the ISTQB Foundation Tester curriculum but be a little easier and have more practical Testing workshops. These workshops will introduce the students to common tools used throughout the Testing lifecycle. In addition, a new course will be offered at level 7. This course will cover agile Testing, context-based Testing and more in-depth application of Testing tools and have the level 6 course as a prerequisite. It will have a large project component requiring them to test a software application.

5. CONCLUSION

This paper reviewed the development of two Software Testing papers that were introduced into the BICT at CPIT. The development of the first level 7 paper was a collaboration with industry however by further industry involvement and the contribution of the ISTQB and the ANZTB along with conference attendance and collaboration with the Canterbury network of professional testers, a very strong well developed and pedagogically sound series of courses has been developed. These two courses will be offered in the BICT and the Graduate Diploma in Information and Communication Technologies in both semesters in 2014 at CPIT. They will also be available for our partner institutions.

6. REFERENCES

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