Report of Validation Panel

Date of Meeting: **22**/April/2010

Named Award: Bachelor of Science (Honours)

Programme Title: Bachelor of Science (Honours) in Web Development

Award Type: Honours Bachelor Degree

Award Class: Major

NFQ Level: 8

Intakes Commencing: September 2010

ECTS/ACCS Credits: 240

PANEL MEMBERS

Name	Position/Expertise
Ms. Janice O'Connell	Head of Department of Information Technology, LIT
Mr. Stephen Lawlor	Decare Systems Ireland
Mr. Ed Riordan	Deputy Registrar CIT
(Apologies: Mr Ted Parslow)	GMIT

PROPOSING TEAM MEMBERS

Name
Mr. Jim O'Dwyer – HoD of Computing, CIT
Mr. Gary Couse
Ms. Mary Davin
Ms. Clíona McGuane
Mr. Colin Manning
Mr. Rob Miller
Ms. Linda O'Sullivan
Mr. Paul Rothwell
Mr. Vincent Ryan
Mr. Jonathan Sherwin

BACKGROUND TO THE PROPOSED PROGRAMME

The proposal document stated that the Internet and the Web have become the predominant deployment platform for the IT industry. Social networking, cloud computing, and other emerging paradigms have changed the way we use computers to the extent that web applications now compete with regular applications in terms of functionality and popularity (e.g. Google Docs, Facebook, Twitter, etc.). Many large companies provide web versions of their existing desktop products in order to compete with online competition (Microsoft Office, Adobe Photoshop, etc.).

As a result, web development has become a crucial part of the software development landscape.

The Department of Computing has therefore proposed a level 8 programme specialising in web development to be delivered in conjunction with other departments such as the Department of Media Communications and the Department of Accounting & Information Systems. The programme is designed to give students an all round software/computer science education with a specialisation in the technologies and practices required to create web sites and develop web applications. It will also cover the creative process, and visual design, and will have a strong industry focus (including entrepreneurship).

The programme aims to produce graduates who can work confidently in the area of web application development specifically, and software development generally. They will have the skills to be able to keep up with the rapidly changing technological landscape in web development. Added to that, they will also have an empathy and understanding of the culture, design and business aspects of their target deployment environment (i.e. the Web).

FINDINGS OF THE PANEL

1. General Findings

The Panel commends the quality of the documentation and the lively discussion during the validation meeting. The panel also commends the engagement of the Head and the broadly based course team with this innovative programme.

The Panel notes that specific technologies tend not to be mentioned within module descriptors. It was explained that it was department policy not to specify particular technologies to allow adaptation to the rapid changes within the field of computing.

*[NOTE: In this report, the term "**Requirement**" is used to indicate an action or amendment which in the view of the Panel **must** be undertaken prior to commencement of the Programme. The term "**Recommendation**" indicates an item to which the Institute/Academic Council/Department should give serious consideration for implementation at an early stage and which should be the subject of ongoing monitoring].*

2. Validation Criteria

The Panel has considered the documentation provided and has discussed the programme with the proposers. The panel has concluded that the programme meets the required standards in the Science field of study at Level 8 of the National Framework.

The proposed Programme Outcomes as presented to the Panel are attached as **Appendix 1**. The Panel notes that these are well-written and cogent.

2.1 Need For The Programme; Likely Level Of Applications

The panel accepts that there is a demand for graduates with Web Development skills, based on the research carried out by both the department and the panel's personal experience. In addition, it is noted that the department and CIT operate an active RPL system in place. This will facilitate advanced entry to the proposed course from industry. It was noted that the schools survey was conducted in three single-sex (boys) schools. This was co-incidental and does not indicate any bias in the thinking behind the course. On the contrary, the Panel was assured that this course will be highly appropriate and attractive for female applicants, and will be promoted as such.

Recommendation: An annual review of module content should be carried out, given the rapidly changing landscape in this specific area of computing.

Recommendation: Close ties with industry to feed into the content for this annual review.

With regard to the other CIT Validation Criteria:

2.2   Are the level and type of the proposed award appropriate?

YES

2.3   Is the learning experience of an appropriate level, standard and quality?

YES

2.4   Is the programme structure logical and well designed (incl. procedures for access, transfer and progression)?

YES. The Programme is listed in the CIT courses database as follows: http://courses.cit.ie/coursebuilder/index.cfm?action=viewprogramme&programmeId=723.

The Panel notes that the programme structure had already been the subject of external peer evaluation. It is satisfactory.

Requirement: Attention to the issue of Databases – see 4 below.

Recommendation: In the programme documentation the facilitating of overseas study appears to be given a higher priority than work experience / industrial placement in Ireland. This policy should be further discussed by the Course team.

Recommendation: The Department intends in the coming year to develop a common first year thereby giving students the flexibility to choose the area of Computing that is of most interest to them be it Web Development, Software Development, Networking, IT support, etc. This is supported by the Panel. However, such a development must not weaken the specific programme outcomes of the programmes into which the common first year will feed.

2.5   Are the programme management structures adequate?

YES

The panel commends the work of the Course team and the active liaison with the software industry. The process of developing and presenting this programme for validation gives evidence of a strong internal QA ethos in the Department of Computing.

2.6   Are the resource requirements reasonable?

The Panel was assured on behalf of the President and Head of School that appropriate resources in terms of staffing and facilities will be put in place when the programme is validated. The Department explained that virtual servers and open source software will be used, along with licensed software in labs in the Department of Media Communications and that the largest outlay will be human resources. Redeployment of lecturers will be undertaken to cover the necessary lecturing hours.

Recommendation: Staff development funds should be made available in order to enhance the Department's skill set to include expertise in newer technologies.

Recommendation: Researchers, postgraduate students, and third and fourth year students working on their projects, should regularly brief first year students about their work – e.g. through the module Trends in Computer Technology. Every effort should be made to exploit synergies between research activity and the undergraduate programmes in the Department.

2.7   Will the impact of the programme on the Institute be positive?

YES. This programme supports the Institute's mission and draws on its strengths.

3. Specific Modules

The Panel notes that many modules on the proposed programme are pre-approved modules derived from related programmes in the CIT Modular system. The Panel was also informed that the new draft modules have been the subject of internal and external scrutiny by the CIT module moderator and external reviewers.

In exercising its brief to consider the overall standard and appropriateness of modules, the Panel wishes to add the following observations.

In the view of the Panel there is too much hardware and networking in first year, while a deeper coverage of databases would be appropriate in second and subsequent years.

Requirement: The Department of Computing should modify the structure to include another database module with an emphasis on data driven design, transaction management, query optimisation and distributed databases. This should be introduced as part of the programmatic review which will take place in the coming academic year.

Recommendation: Software development projects should include the management of persistent data.

Recommendation: Reconsider the logic of having Web Publishing module as an elective in first year while Advanced Web Publishing Applications module is mandatory in fourth year.

Recommendation: Consider the overall delivery of inclusion of unit testing in the programming stream. [It was explained that although first year students are taught to test and debug their programmes and use simple schemes such as stubs, automated unit testing would be beyond the scope of students at that level. However, it was mentioned that JUnit is used in OOP post first year].

Recommendation: Keep the choice of programming languages taught within the programme up to date. The department explained that Alice, VB.NET and Java are being taught. The panel suggests the removal of references to C++ in the current OOP modules.

Recommendation: The panel noted that there are no pure mathematics modules in this programme. It was agreed however that the ability to problem-solve is one of the most basic skills needed by a programmer, although this is not exclusively a skill requiring mathematics. The panel recommends that Boolean logic and algebra should be well covered in the programme, e.g. in the programming stream. [It was explained that both of these topics are currently covered within the existing hardware and programming modules]. The Department should satisfy itself as to the adequacy of these arrangements.

Modules: Web Publishing and Advanced Interactive Web Development have an incorrect number of hours allocated.

Requirement: Adjust hours allocated.

Modules: The level of detail of the indicative content of the majority of the modules (both draft and approved) is quite low. There is a concern that this may not adequately convey the learning expected.

Requirement: This should be the subject of a thorough review by the Department, with indicative content expanded where appropriate. The modules Web Usability, Rich Internet Applications and Mobile Web Development are particularly lacking in detail.

Requirement: Expand the indicative content.

4. Conclusions

The Panel recommends that the Programme be validated for five years, or until the next programmatic review, whichever is soonest, subject to implementation of the Requirements above, and with due regard to the Recommendations made.

APPENDIX 1 – Proposed Programme Outcomes

Programme CR_Web Develop - Bachelor of Science (Honours) in Web Development (CF 11/2/10) · 16 May 2010

Programme Outcomes

On successful completion of this programme the learner will be able to demonstrate:

PO1	Knowledge – Breadth	Knowledge of the theoretical, conceptual, practical, cultural and commercial elements involved in creating and successfully deploying interactive web applications.
PO2	Knowledge – Kind	An in-depth knowledge of programming, software engineering and web development skills, content optimisation principles, and communication and information management technologies.
PO3	Skill – Range	The ability to analyse problems from various problem domains, design appropriate software and web solutions, and implement, test and deploy solutions to high professional and agreed standards.
PO4	Skill – Selectivity	The ability to manage a web development software project through all stages of development, evaluating user requirements, design, compatibility, and technology selections within agreed environmental and financial constraints.
PO5	Competence – Context	The ability to analyse, research, develop and deploy web based solutions, while applying the appropriate technical, professional, ethical and legal standards and practices.
PO6	Competence – Role	The ability to work effectively on any stage of a web development project as an autonomous individual or as a part of a multidisciplinary development team, recognising the different roles within a team and the different ways of organising (and leading) those teams.
PO7	Competence – Learning to Learn	The ability to identify limitations of own knowledge, to keep skills relevant and up-to-date, and to appreciate the need for continuous learning within a rapidly evolving industry.
PO8	Competence – Insight	The ability to articulate the wider social, political, creative and business context within which the web developer operates, and the need for high ethical and professional standards in ones work.