

Date of Meeting: 21 March 2013

Named Award: Bachelor of Engineering
Programme Title: Environmental Engineering
Award Type: Bachelor Degree
Award Class: Major Award
NFQ Level: Level 7
Intakes Commencing: September 2013
ECTS/ACCS Credits: 180

PANEL MEMBERS

Name / Function / Institution
Mr John Murphy, Former Head of School of Engineering & Construction Studies, IT Tralee (Chair)
Mr Pat Gill, Head of Department of Construction & Civil Engineering, Limerick IT
Mr Duane O'Brien, Acting Senior Executive Engineer, Cork County Council
Dr Stephen Cassidy, Dean of Academic Quality Enhancement, CIT

PROPOSING TEAM MEMBERS

Name / Function / Department
Dr Joe Harrington, Head of School of Building & Civil Engineering
Mr Des Walsh, Head of Department of Civil, Structural & Environmental Engineering
Mr Jim O'Byrne, Lecturer in the Department of Civil, Structural & Environmental Engineering
Ms Denise Barnett, Lecturer in the Department of Civil, Structural & Environmental Engineering
Mr Leonard O'Driscoll, Lecturer in the Department of Civil, Structural & Environmental Engineering
Mr David Cadogan, Lecturer in the Department of Civil, Structural & Environmental Engineering
Mr John J. Murphy, Lecturer in the Department of Civil, Structural & Environmental Engineering
Ms Mary Moloney, Lecturer in the Department of Civil, Structural & Environmental Engineering
Ms Norma Hurley, Lecturer, Lecturer in the Department of Civil, Structural & Environmental Engineering



BACKGROUND TO THE PROPOSED PROGRAMME

The proposed BEng in Environmental Engineering will be offered as a 3-year full time ab-initio programme complementing the current BEng in Civil Engineering programme. Differentiation between the programmes will be undertaken in Year 3 where learner will develop a range of skills and capabilities consistent with a Level 7 Programme in Environmental Engineering. Module sharing will be undertaken to the maximum extent practicable. The programme may also be timetabled, as appropriate, to facilitate delivery to part-time cohorts of students.

FINDINGS OF THE PANEL

*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/Course Board should give serious consideration for implementation at an early stage and which should be the subject of ongoing monitoring.*

The Panel wishes to commend the proposers on their work and dedication in putting together this programme proposal, and to thank them for their constructive and informed engagement with the Validation Panel during the panel sessions.

The Panel wishes to commend the proposers on the quality of the documentation they provided and their use of external reviewers who reviewed the programme prior to submission and whose reports helped frame the discussion on the day.

Based on this, the Panel has arrived at a number of Findings, Requirements and Recommendations as follows.

1. Programme-Level Findings

1.1 NEED FOR THE PROGRAMME

Validation Criterion: Is there a convincing need for the programme with a viable level of applications?

Overall Finding: Yes, subject to one recommendation

The proposed programme has been developed from an engineering perspective and it is intended that the treatment of environmental engineering will be predominately situated in a civil engineering context. Promotional material regarding this programme should reflect this programme philosophy to ensure all stakeholders are clear as to the intended purpose of the programme.

Recommendation: Promotional and other programme documentation should clearly reflect the proposed programme philosophy.

1.2 AWARD

Validation Criterion: Are the level and type of the proposed award appropriate?

Overall Finding: Yes

1.3 LEARNING EXPERIENCE

Validation Criterion: Is the learning experience of an appropriate level, standard and quality overall?

Overall Finding: Yes.



1.4 PROGRAMME STRUCTURE

Validation Criterion: Is the programme structure logical and well designed (including procedures for access, transfer and progression)?

Overall Finding: Yes, subject to certain Recommendations

The proposers may wish to introduce some additional environmental science material into the earlier years of the programme. This may assist the underpinning of specialist environmental engineering modules later in the programme. This introduction of material may be achieved by re-categorising elective modules such as Environmental Studies as Mandatory on the programme, re-visiting the current Engineering Science module in Semester 1 or by developing additional modules in this area for inclusion in the programme

Recommendation: Review the level of environmental science contained within the first two years of the programme.

The proposers spoke of their intention to develop a BEng (Hons) in Environmental Engineering to allow progression opportunities for the proposed programme. The development of the Level 8 programme would be in accordance with Institute policy regarding the provision of progression opportunities for graduates.

Recommendation: The proposers should consider the development of a BEng (Hons) in Environmental Engineering

A final year 10 credit capstone project is situated in the final semester of the programme. It is envisaged that project topics will span across the field of environmental engineering. Specialist environmental modules which would support these projects are delivered in both Semester 5 and Semester 6 of the programme. The proposers may wish to monitor the scheduling of these modules to best support proposed projects.

Recommendation: The proposers should monitor the scheduling of modules in the final stage of the programme to best support the capstone project.

The development of an overall assessment schedule for the programme indicating timings and weightings of assessments would be beneficial to the learner and is in line with QQI policy as stated in HETAC Assessment and Standards (2009).

Recommendation: The proposers should develop an assessment schedule for the programme to be published to learners.

1.5 PROGRAMME MANAGEMENT

Validation Criterion: Are the programme management structures adequate?

Overall Finding: Yes

1.6 RESOURCE REQUIREMENTS

Validation Criterion: Are the resource requirements reasonable?

Overall Finding: Yes

1.7 IMPACT ON THE INSTITUTE

Validation Criterion: Will the impact of the programme on the Institute be positive?

Overall Finding: Yes

2. Module-Level Findings

The Panel reviewed eight new modules as part of this review process. Three of these new modules are in the first two stages of the programme and it is intended that these modules, if approved, will be incorporated into the complementary BEng in Civil Engineering during the upcoming programmatic review process. The panel noted that the modules are currently undergoing moderation via an internal quality assurance process. The panel is satisfied with the scope and level of the modules and is happy to recommend these modules for approval subject to the internal module moderation process being completed.

Requirement: Module Descriptors should be revised to address the recommendations of the CIT Module Moderator and the Registrar's Office prior to approval by the CIT Academic Council.

3. Conclusion

Based on the above findings, the Panel has arrived at the following Conclusions:

- The proposed Programme meets the required standards for a Bachelor award in Engineering at Level 7 of the National Framework of Qualifications.
- The Programme meets the criteria for validation of a new programme adopted by the Academic Council of Cork Institute of Technology.

The Panel therefore recommends that the **BEng in Environmental Engineering** be validated for five academic years, or until the next programmatic review, whichever is soonest, subject to implementation of the Requirement above, and with due regard to the Recommendations made.

Implementation of Requirements

Module Descriptors have been revised to address issues raised by the CIT Module Moderator. These related to module titling, module field of study, clarifying learning outcomes and clarifying proposed re-assessment regimes. For one module, a re-balancing of assessment weighting has occurred with the weighting of the final examination being lowered and the corresponding coursework element increased in line with best international practice.

APPENDIX 1: Programme Outcomes – BEng in Environmental Engineering

Programme Outcomes

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

PO1	Knowledge - Breadth	A knowledge of areas of mathematics, science, ICT, design, business and engineering practice relevant to civil and environmental engineering technology
PO2	Knowledge - Kind	The ability to apply knowledge of mathematics, science, ICT, design, business and engineering practice to the solution of broadly-defined civil and environmental engineering technology problems.
PO3	Skill - Range	The ability to use basic techniques, skills and modern computer-based engineering tools necessary for engineering practice
PO4	Skill - Selectivity	The ability to contribute to the design of a system, component or process to meet specified needs and to contribute to the assessment of the technical performance of the design.
PO5	Competence - Context	The ability to conduct investigations to facilitate the solution of common engineering technology problems in civil and environmental engineering
PO6	Competence - Role	The ability to work effectively as an individual, in teams and in multidisciplinary settings within her/his allocated responsibility, and to supervise staff in well-defined work settings. The ability to communicate effectively, using the appropriate communication tools and methods, with the engineering community and society at large.
PO7	Competence - Learning to Learn	The ability plan and carry through self-directed continuing professional development and the ability to consult work with and learn from experts in various fields in the realisation of a project.
PO8	Competence - Insight	An understanding of the wider social, political, business and economic context within which engineering operates and the need for high ethical standards in the practice of engineering, including the responsibilities of the engineering profession towards people and the environment.



Semester 1

Mandatory

Mod Code	Module Title	Co-ordinator	Level	Credits	FT Hours Contact Hours	PT Hours Contact Hours	Course Work	Final Exam
CMOD6001	Creativity, Innovation & Teamwork (Approved)	STEPHEN CASSIDY	Fundamental	5.0	3.00	0.00	100.0%	0%
CIVL6001	Applied Mechanics 1 (Approved)	DES WALSH	Fundamental	5.0	4.00	2.00	20.0%	80%
CIVL6009	Engineering Science (Approved)	DES WALSH	Fundamental	5.0	4.00	2.17	40.0%	60%
MATH6014	Technological Mathematics 1 (Approved)	AINE NI SHE	Fundamental	5.0	4.00	2.50	30.0%	70%
CIVL6008	Engineering CAD (Approved)	DES WALSH	Fundamental	5.0	3.50	2.00	100.0%	0%
CIVL6003	Construction 1 (Approved)	DES WALSH	Fundamental	5.0	5.00	2.50	25.0%	75%

Semester 2

Mandatory

Mod Code	Module Title	Co-ordinator	Level	Credits	FT Hours Contact Hours	PT Hours Contact Hours	Course Work	Final Exam
EENG6001	Environmental Engineering (Approved)	DES WALSH	Fundamental	5.0	3.50	2.25	25.0%	75%
CIVL6031	Health and Safety - Built Env (Approved)	DES WALSH	Fundamental	5.0	4.00	2.50	100.0%	0%
CIVL6028	Introductory Land Surveying (Approved)	DES WALSH	Fundamental	5.0	4.00	2.50	100.0%	0%
CIVL6002	Applied Mechanics 2 (Approved)	DES WALSH	Fundamental	5.0	4.50	3.00	20.0%	80%
MATH6015	Technological Mathematics 2 (Approved)	AINE NI SHE	Fundamental	5.0	4.00	3.00	30.0%	70%



Elective

Mod Code	Module Title	Co-ordinator	Level	Credits	FT Hours Contact Hours	PT Hours Contact Hours	Course Work	Final Exam
ENVI6001	Environmental Studies (Approved)	BRENDAN O CONNELL	Fundamental	5.0	4.00	0.00	100.0%	0%
INFO6015	IT in Communications (Approved)	DES WALSH	Fundamental	5.0	3.50	2.00	100.0%	0%
FREE6001	Free Choice Module (Approved)	PAUL GALLAGHER	N/A	5.0	4.00	0.00	50.0%	50%

Semester 3

Mandatory

Mod Code	Module Title	Co-ordinator	Level	Credits	FT Hours Contact Hours	PT Hours Contact Hours	Course Work	Final Exam
CIVL6032	Planning & Development (Approved)	DES WALSH	Fundamental	5.0	4.00	2.00	100.0%	0%
CIVL7024	Land Surveying Control (Approved)	DES WALSH	Intermediate	5.0	4.00	3.00	35.0%	65%
CIVL6018	Civil Engineering Materials (Approved)	DES WALSH	Fundamental	5.0	3.25	2.25	30.0%	70%
CIVL6024	Structural Engineering 1 (Approved)	DES WALSH	Fundamental	5.0	4.00	2.00	100.0%	0%
CIVL6029	Intro. to Structural Steel (Approved)	DES WALSH	Fundamental	5.0	4.00	3.00	100.0%	0%
MATH6040	Technological Mathematics 201 (Approved)	AINE NI SHE	Fundamental	5.0	4.00	3.00	30.0%	70%



Semester 4

Mandatory

Mod Code	Module Title	Co-ordinator	Level	Credits	FT Hours Contact Hours	PT Hours Contact Hours	Course Work	Final Exam
CIVL7032	Hydraulics & Hydrology (Approved)	DES WALSH	Intermediate	5.0	4.50	2.50	30.0%	70%
CIVL7025	Practical Land Surveying (Approved)	DES WALSH	Intermediate	5.0	4.50	4.00	100.0%	0%
CIVL6022	Professional Studies (Approved)	DES WALSH	Fundamental	5.0	4.00	2.00	100.0%	0%
CIVL6030	Intro. to Reinforced Concrete (Approved)	DES WALSH	Fundamental	5.0	4.00	3.00	100.0%	0%
CIVL7027	Civil & Struc Eng Construction (Approved)	DES WALSH	Intermediate	5.0	4.00	2.00	20.0%	80%

Elective

Mod Code	Module Title	Co-ordinator	Level	Credits	FT Hours Contact Hours	PT Hours Contact Hours	Course Work	Final Exam
ENVI6001	Environmental Studies (Approved)	BRENDAN O CONNELL	Fundamental	5.0	4.00	0.00	100.0%	0%
CIVL6016	Advanced Civil Engineering CAD (Approved)	DES WALSH	Fundamental	5.0	3.00	2.50	100.0%	0%
FREE6001	Free Choice Module (Approved)	PAUL GALLAGHER	N/A	5.0	4.00	0.00	50.0%	50%

Semester 5

Mandatory

Mod Code	Module Title	Co-ordinator	Level	Credits	FT Hours Contact Hours	PT Hours Contact Hours	Course Work	Final Exam
CIVL7012	Soil Mechanics and Geology (Approved)	DES WALSH	Intermediate	5.0	3.75	3.50	30.0%	70%
CIVL7031	Transport Infrastructure (Approved)	DES WALSH	Intermediate	5.0	4.00	2.50	100.0%	0%
MATH7019	Technological Mathematics 311 (Approved)	AINE NI SHE	Intermediate	5.0	4.00	4.00	30.0%	70%
INTR6016	Introductory GIS (Approved)	DES WALSH	Fundamental	5.0	4.00	2.50	100.0%	0%
CIVL7002	Civil Eng Construct Management (Approved)	DES WALSH	Intermediate	5.0	4.00	2.00	20.0%	80%

Elective

Mod Code	Module Title	Co-ordinator	Level	Credits	FT Hours Contact Hours	PT Hours Contact Hours	Course Work	Final Exam
ENVI7001	Environmental Sc. & Ind. Hyg. (Approved)	BRENDAN O CONNELL	Intermediate	5.0	4.00	0.00	100.0%	0%
BULD7002	Building Energy Rating (Approved)	DAITHI FALLON	Intermediate	5.0	4.00	0.00	100.0%	0%
CIVL7010	Highway Engineering (Approved)	DES WALSH	Intermediate	5.0	4.00	2.50	20.0%	80%
CIVL7005	Digital Land Surveying and GPS (Approved)	DES WALSH	Advanced	5.0	5.00	4.00	100.0%	0%
FREE6001	Free Choice Module (Approved)	PAUL GALLAGHER	N/A	5.0	4.00	0.00	50.0%	50%



Semester 6

Mandatory								
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Hours Contact Hours	PT Hours Contact Hours	Course Work	Final Exam
CIVL7001	CE3 Research Project (Approved)	DES WALSH	Intermediate	10.0	1.35	1.00	100.0%	0%
CIVL7029	Integrated Waste Management (Approved)	DES WALSH	Intermediate	5.0	4.00	2.00	30.0%	70%
CIVL7030	Water & Wastewater Engineering (Approved)	DES WALSH	Intermediate	5.0	4.00	2.50	30.0%	70%

Elective

Mod Code	Module Title	Co-ordinator	Level	Credits	FT Hours Contact Hours	PT Hours Contact Hours	Course Work	Final Exam
MATH7021	Technological Mathematics 312 (Approved)	AINE NI SHE	Intermediate	5.0	4.00	2.00	30.0%	70%
CIVL7009	Geotechnical Engineering (Approved)	DES WALSH	Intermediate	5.0	4.75	3.00	30.0%	70%
CIVL7010	Highway Engineering (Approved)	DES WALSH	Intermediate	5.0	4.00	2.50	20.0%	80%
BULD7029	Financial & Contract Const Mgt (Approved)	DANIEL CAHILL	Intermediate	5.0	3.00	0.00	100.0%	0%
CIVL7003	Communication (Approved)	DES WALSH	Intermediate	5.0	3.50	2.50	100.0%	0%