

Report of Validation Panel

Date of Meeting: 19th June 2020

Award Type: *MEng*

Programme Title: *Master of Engineering in Structural Engineering*
Master of Engineering in Civil Engineering (Environment and Energy)
Consequent restructuring of BEng(Hons) in Structural Engineering

Award Class: Major

NFQ Level: 9

Intakes Commencing: September 2020

ECTS/ACCS Credits: 300

Award Standard(s): Engineering Award Standards.

Embedded Exit Award: No

PANEL CHAIR

Name, Function, Institution/Organisation
Professor Padraic O'Donoghue, Professor in Civil Engineering, NUI Galway.

PANEL MEMBERS

Name, Function, Institution/Organisation
Mr Anthony O'Brien, Technical Director at RPS Europe.
Ms Clodagh O'Donovan, Director at Arup.
Dr Patrick Purcell, Associate Professor, School of Civil Engineering, UCD.
Dr Ann Toebe, Curriculum Development Facilitator, Office of the Registrar and VP of Academic Affairs, CIT.

PROPOSING TEAM MEMBERS

Name, Function, Institution/Organisation
Dr Joe Harrington, Head of School of Building and Civil Engineering
Mr Des Walsh, Head of Department, Department of Civil, Structural and Environmental Engineering
Lecturers in the Department of Civil, Structural and Environmental Engineering:
Mr John Justin Murphy, Course Coordinator, MEng in Structural Engineering
Mr Leonard O'Driscoll, Course Coordinator, MEng in Civil Engineering (Environment and Energy)
Mr Brian O'Rourke, Course Coordinator, BEng (Hons) in Structural Engineering

Ms Denise Barnett
Mr David Cadogan
Mr Donogh Coleman
Ms Norma Hurley
Dr Vesna Jaksic
Mr Ted McKenna
Dr Mary Moloney
Dr Niamh Power
Mr Kieran Ruane

PANEL DECLARATIONS ON GDPR AND CONFLICT OF INTEREST

- a) The chair and members of the New Programme Validation Panel confirm that they agree to the publication of their name, relevant professional function(s) and affiliated institution/organisation in connection with the present validation review, as required under the statutory quality assurance obligations of Cork Institute of Technology as a public provider of higher education in Ireland.
- b) In submitting this report, the chair and members of the New Programme Validation Panel furthermore confirm that no real or apparent conflict of interest is present which would prevent, or could be seen to prevent, the panel's independent and impartial evaluation of the proposed programmes and awards.

BACKGROUND TO THE PROPOSED PROGRAMME

The School of Building & Civil Engineering proposes an Integrated 5-Year (300 credit) MEng in Structural Engineering programme (to commence September 2020) and an Integrated MEng in Civil Engineering (Environment & Energy) Programme (to commence September 2021) in the Department of Civil, Structural & Environmental Engineering. Students will be required to make a decision after 3 years of the BEng (Hons) in Structural Engineering programme whether they wish to complete the Level 8 programme over one additional year of full-time study or level 9 programmes over two additional years of full-time study (subject to meeting the standard entry/progression requirements as per CIT policy).

The department has delivered a 4 year BEng (Hons) in Structural Engineering degree since 1996; the programme has always been fully accredited through Engineers Ireland and graduates have a strong reputation in local, national and international industry. CIT's 90-credit MEng in Structural Engineering and MEng in Civil Engineering (Environment & Energy) programmes were launched in 2010 and 2011 respectively and have been delivered continuously, developing strong reputations over the past decade.

A Level 9 MEng qualification is the required educational standard for Chartered Engineer. The current 90-credit MEng in Structural Engineering and MEng in Civil Engineering (Environment & Energy) programmes are fully accredited and meet this Chartered Engineer standard. The proposed Integrated MEng programmes will be submitted for accreditation to Engineers Ireland; we are confident, based on many years of successful programme accreditations, that such an application will be successful.

In a broader context the trend nationally is towards the Integrated 5-Year Master in Engineering Programme; this structure is now delivered in UCC, UCD, NUIG, DCU and Trinity College and is seen nationally as the structure of choice for Professional Engineering Education. From a student perspective there is also a shift towards a preference for completion of the 5-year MEng programme.

The proposed Integrated 5-Year Programmes will join the current suite of integrated MEng Programmes in Mechanical Engineering and Biomedical Engineering here in CIT that are currently delivered.

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, as a **condition of validation**.*

*The term “**Recommendation**” indicates an item to which the Institute, academic unit or programme board should give serious consideration. Normally it is expected that recommendations will be implemented as soon as possible. Progress will be monitored and will be discussed in programmatic review.*

Requirements and recommendations should be accompanied by a short summary of the observations and findings giving rise to them.

*Panels may also make **Commendations** on instances of good design or practice which may merit wider dissemination, and may record any other findings which they deem important for the QA record.*

The Panel has considered the documentation provided and has discussed the programme with the proposers. 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.

Findings: These new offerings align well with the approach taken internationally and in other Irish institutions. They allow more CIT graduates to compete with those who have a Level 9 qualification, which is now the required educational standard to be granted Chartered Engineer status with Engineers Ireland. It will mean that graduates, will arrive at the work place with more advanced learning and can focus on their careers without the distraction of completing their Masters on a part-time basis. In terms of competing with other institutes and in relation to the unique selling points of these programmes, it is accepted that CIT has a differentiated offering with the ladder system to progression, excellent student support systems and a distinctive Teaching & Learning strategy that suits many students. The department has a long history of successfully competing with other institutes, at level 8 since the mid 90s and at Level 9 since 2010.

1.1.1 Commendations: The development of the Integrated MEng programmes is considered a good move for CIT.

1.2 AWARD AND PROGRAMME OUTCOMES

Validation Criterion: Are the level and type of the proposed award appropriate? Do the minimum intended programme outcomes adequately describe the intended graduate profile, and do they align with the relevant award standard(s) (incl. for any embedded exit awards)?

Overall Finding: Yes, subject a recommendation.

Findings: The programme outcomes of the integrated masters match those for the existing approved 90 credit Masters. This is acceptable as the new integrated masters programmes represent a restructuring of the current L8 and L9 offerings rather than the development of new offerings. The programmes as described align with the award standards.

1.2.1 Recommendations: Reflect on the title of the undergraduate programme, whether it should be changed to incorporate 'Civil' along with 'Structural' to broaden its appeal and make it more attractive to those who may be more interested in the Civil Engineering specialisation. It would also address the apparent anomaly for students of starting on a Structural Engineering degree and switching to an Environmental/Energy Engineering degree after three years. Note that the BEng curriculum does facilitate a smooth transition.

1.3 LEARNING EXPERIENCE

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

Overall Finding: Yes, subject to a recommendation.

The proposed Programme Outcomes as presented to the Panel are attached as Appendix 1.

Findings, requirements and recommendations concerning individual modules (if any) are recorded in Section 2 below.

Findings: It is anticipated the learning experiences should be very similar to the existing experiences for the students on the BEng(Hons) and MEng programmes. The new offerings represent largely a restructuring of the arrangement of the current approved programmes with enhancement in terms of an increased time spent in the work place.

The current 90 credit MEng in Civil Engineering offers elective choice in Semester 1 and 2 of the three semester programme where the student can choose a 5 credit cognate elective in each semester. The corresponding MEng in Structural Engineering offers a 5 credit elective from a large number of electives in Semester 2. It is understood that this list grew over the years to accommodate students' specific interests. In the proposed Integrated MEng in Civil Engineering there are no electives offered in Years 4 and 5 and the list is reduced to a sensible choice between 2 electives in Year 5, Semester 1 of the Structural Engineering programme. Free Choice modules are not offered in Years 4 and 5 of either programme.

1.3.1 Recommendations: Consider introducing electives to the MEng in Civil Engineering and increasing the elective choice in the MEng in Structural Engineering.

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 a recommendation.

The Semester Schedules as proposed are in Appendix 2.

Findings: The structure of the proposed integrated masters programmes allows for direct entry from the CAO to the first year of the BEng(Hons) in Structural Engineering or to its second year from CIT's Common Entry Engineering programme. L7 graduates can transfer from appropriate programmes into Year 3. At the end of Year 3 it is proposed that students can opt to complete the BEng(Hons) in Structural Engineering in Year 4 or, once they are in receipt of at least a H22, they can opt to move to the MEng in Structural Engineering or the MEng in Civil Engineering (Environment and Energy) for years 4 and 5.

The advanced entry route to Years 4 and 5 of the MEng programmes should be very attractive to returning graduates of the BEng (Hons) in Structural Engineering who have gained appropriate work experience. They can apply for Recognition of Prior Learning (RPL) for the Work Placement module (30 credits) and go directly to Year 5 to complete the MEng programme taking an additional 60 credits rather than 90 credits in the current MEng programme. Advanced entry students from other undergraduate programmes outside CIT may be required to complete certain Year 4 Semester 1 modules as well complete the Work Placement module, or apply for RPL for the Work Placement, before entry to Year 5 of the programme, effectively making it a 2 year Masters.

At the end of Year 4 of the MEng programmes, a student can elect to revert to the BEng(Hons) in Structural Engineering, however they will at a minimum need to complete a 10 credit capstone project before graduating. This change of mind can happen seamlessly if the student wishes to revert to the BEng (Hons) before the start of Year 4, Semester 2.

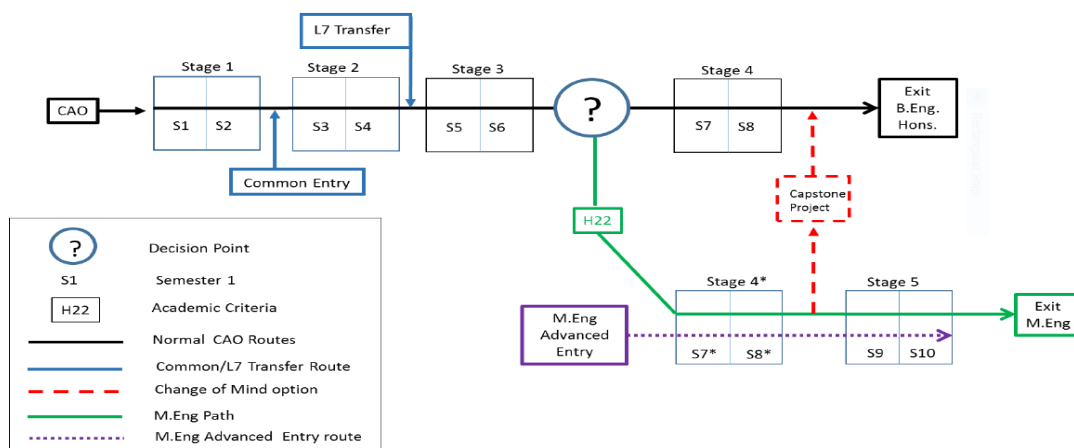


Figure 1. CIT Model for Integrated MEng programmes taken from the programme document.

While the students are registered on the BEng(Hons) in Structural Engineering for the first 3 years of both masters programmes, the panel felt there is a well-rounded mix of structural and civil modules in years 2 and 3 to give the student an appreciation of both Structural and Civil aspects and sufficient depth to choose either of the MEng programmes at the end of Year 3.

In response to the Covid-19 pandemic, instead of Work Placement the 3rd Year BEng(Hons) in Structural Engineering, students in 2020 completed an alternative programme devised at departmental level. As part of this the students received online lectures in the area of Lean Six Sigma and Emerging Computer Technological Trends. They completed individual and group projects on the subject of Industry 4.0 and its impact on the organisation where they were due to go on placement. They also completed an industry appropriate Six Sigma Project. It is anticipated that the department will be able to create such an alternative to MEng Placement if the need arises in the future.

1.4.1 Commendation: Logical and well designed structure of the MEng programmes. The 30 credit placement in 4th year is thought to be particularly useful from student and industry perspectives.

1.4.2 Commendation: The panel commends the department for its creativity in designing alternatives to this year's placement which was cancelled due to the Covid-19 pandemic.

1.4.3 Commendation: Creating the Integrated MEng programmes required the reorganisation of the BEng (Hons) in Structural Engineering. The department is commended on the approach to streamlining the deliveries to maximise flexibility to access, transfer and progression.

1.4.4 Recommendation: Review the structure of the advanced entry route to make it more suitable to non-CIT graduates including international students as a two year masters may not be attractive to them.

1.5 PROGRAMME MANAGEMENT

Validation Criterion: Are the programme management structures adequate?

Overall Finding: Yes.

Findings: Given the existing maturity of the department and that it currently offers MEng programmes, the panel is confident the programme management structures are adequate.

1.6 RESOURCE REQUIREMENTS

Validation Criterion: Are the resource requirements reasonable?

Overall Finding: Yes.

Findings: It is expected that there should be limited additional resource requirements given the nature of the proposal.

1.7 IMPACT ON THE INSTITUTE

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

Overall Finding: Yes.

Findings: This move to the Integrated Masters programmes is a strategic goal of the School of Building and Civil Engineering in CIT and will ensure the school remains at the forefront of engineering.

1.7.1 Commendation: The panel wishes to commend the staff and management for developing these Integrated Masters programmes, they are good for civil and structural engineering and good for CIT.

2. Module-Level Findings

The Panel notes that most modules on the proposed programme are approved modules, and may be delivered across several CIT programmes. All approved modules were reviewed during Programmatic Review which took place in Semester 2, 2019.

The Panel was informed that there are 6 new modules in the programmes under review:

- Infrastructure Design Office (MEng in Civil Engineering (Environment and Energy, Stage 5, Semester 2) was reviewed by Kieran Thornton, Technical Director, Byrne Looby.
- Sustainable Infrastructure (BEng(Hons) in Structural Engineering, Stage 4, Semester 2) reviewed by David Cotter, Project Director, John Sisk & Son (Holding) Ltd., and Dr Eamon McKeogh (Senior Lecturer, retired), Department of Civil Engineering, UCC.
- Work Placement (MEng), (Stage 4 Semester 2 of the MEng programmes) 30 credits.
- Engineering Project Realisation, (Stage 5, Semester 2) 20 credits.
- Work Placement in AEC (20C), in the 2020 MEng in Structural Engineering transition schedule, for 1 year only.
- Work Placement in AEC, 10 credits, the placement module has been reduced from 15 to 10 credits and moved from 3rd year to 4th year.

In creating the integrated masters programmes, a limited number of modules from the MEng programmes were not included in the new schedules. Ocean Energy Analysis (MECH8015) was omitted from the new MEng in Civil Engineering schedule to make room for the extended placement. Project Development (INTR9003) has been removed from both MEng programmes again to make way for the 30 credit placement

and finally Infrastructure/Special Structures (CIVL9002) has been absorbed into other modules of the MEng in Structural Engineering.

In exercising its brief to consider the overall standard and appropriateness of modules, the Panel has reviewed the book of modules and is satisfied with its quality and currency. The new modules will be the subject of final review by the Module Moderator prior to approval by CIT's Academic Council.

2.1 Recommendations: The inclusion of a module on Transport in the five year curriculum covering topics including traditional road design, project appraisal, sustainable transport and cycle/walking infrastructure.

3. Other Findings

3.1 Commendation: The panel wishes to commend the staff and management on the clear, excellent documentation received.

3.2 Commendation: The staff and management are to be commended for their pastoral commitment to the students.

4. Conclusion

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

- The Integrated Masters programmes meet the required standards for awards in their field of study at Level 9 of the National Framework of Qualifications.
- The Integrated Masters programmes meet the criteria for validation of new programmes adopted by the Academic Council of Cork Institute of Technology.
- The restructured BEng (Honours) in Structural Engineering maintains the required standards for the award at Level 8 of the National Framework of Qualifications.

The Panel therefore recommends that the Programmes be validated for five academic years, or until the next programmatic review, whichever is soonest, with due regard to the recommendations made.

Implementation of Requirements and Recommendations

NOTE: This section is **co-completed by the Academic Department and the CIT Registrar's Office**.

It records the implementation of any panel requirements and the completion of the internal programme and module moderation process. Confirmation of completion by the CIT Registrar's Office is required for both before the programme is submitted to the CIT Academic Council for validation.

1. IMPLEMENTATION OF PANEL REQUIREMENTS

Requirements <i>[Please copy & paste from the report, adding rows as necessary. Completed recommendations can also be indicated.]</i>	Department Response <i>[Academic Department to complete]</i>
1.2.1 Recommendations:	Recommendation noted, for further consideration
1.3.1 Recommendations:	Further appropriate electives will be identified in light of student experience and demand
1.4.4 Recommendation:	Recommendation noted
2.1 Recommendations:	This was discussed with the panel on the day of the visit; the department would need to recruit additional expertise in this area – options will be explored in the coming period
...	...

2. SIGN-OFF ON FINAL PROGRAMME SPECIFICATION (INCLUDING MODULES)

The CIT Registrar's Office confirms that:	
- The Programme and Module Moderation Process for this proposed programme is complete; and - The final Programme Specification and associated Module Descriptors are deemed ready to be submitted to Academic Council for approval.	
Signed:  Dr Stephen Cassidy	Date: July 3 rd 2020

APPENDIX 1 – PROPOSED PROGRAMME OUTCOMES

Programme Outcomes for the MEng in Structural Engineering

Programme Outcomes

Upon successful completion of this programme the graduate will be able to demonstrate... :

P01	Knowledge - Breadth
(a)	A wide and systematic knowledge of scientific principles and the design process in Structural Engineering; an understanding of the key parameters and the technical, economic, environmental and social issues pertaining to Structural Engineering
P02	Knowledge - Kind
(a)	A critical awareness of current issues in Structural Engineering, a knowledge of the latest mathematical, scientific and ICT techniques and their limitations in their practical application to ill defined complex problems of Structural Engineering
P03	Skill - Range
(a)	Mastery of a range of specialised research and design tools and methods of investigation and analysis in the field of Structural Engineering; the ability to use engineering principles to design and develop new solutions to complex Structural Engineering problems
P04	Skill - Selectivity
(a)	The ability to select appropriate advanced skills and use new methods required for novel situations and the ability to develop, to a high level, new skills in emerging techniques as required in Structural Engineering design and analysis; the ability to undertake analysis of a design and justify decisions throughout a particular design process
P05	Competence - Context
(a)	The ability to act at a variety of professional levels, particularly in the initiation, development and promotion of design solutions in Structural Engineering; the ability to identify potential projects and opportunities, conduct appropriate research and undertake the design and development of solutions to ill-defined and complex engineering problems
P06	Competence - Role
(a)	The technical competence necessary to take significant responsibility for the work of individuals and groups, lead and initiate activity in Structural Engineering
P07	Competence - Learning to Learn
(a)	The ability to evaluate their own learning, identify knowledge gaps, and take responsibility for the pursuit of academic professional development pathways
P08	Competence - Insight
(a)	An awareness of the impacts of Structural Engineering infrastructure on society and the ability to critically evaluate the technical, economic, environmental and social implications of Structural Engineering solutions.

APPENDIX 1 – PROPOSED PROGRAMME OUTCOMES

Programme Outcomes for the MEng in Civil Engineering (Environment and Energy)

Programme Outcomes

Upon successful completion of this programme the graduate will be able to demonstrate... :

PO1	Knowledge - Breadth
(a)	A wide and systematic knowledge of scientific principles and the design process in Civil Engineering (Environmental and Energy); an understanding of the key parameters and the technical, economic, environmental and social issues pertaining to these disciplines
PO2	Knowledge - Kind
(a)	The ability to apply knowledge of mathematics, science, ICT, design, business and engineering practice to the analysis and solution of complex problems in Civil Engineering (Environmental and Energy).
PO3	Skill - Range
(a)	Mastery of a range of specialist research and design tools and methods of investigation and analysis in the field of Civil Engineering (Environmental and Energy); the ability to use engineering principles to design and develop new solutions to complex Environmental and Energy Engineering problems
PO4	Skill - Selectivity
(a)	The ability to select appropriate advanced skills and use new methods required for novel situations and the ability to develop, to a high level, new skills in emerging technologies as required in Civil Engineering (Environmental and Energy) design and analysis; the ability to undertake analysis of a design and justify decisions throughout a particular design process
PO5	Competence - Context
(a)	The ability to act at a variety of professional levels, particularly in the initiation, development and promotion of design solutions in Civil Engineering (Environmental and Energy); the ability to identify and critically appraise potential projects and opportunities, conduct appropriate research and undertake the design and development of solutions to ill-defined and complex engineering problems
PO6	Competence - Role
(a)	The technical competence necessary to take significant responsibility for the work of individuals and groups, lead and initiate activity in Civil Engineering (Environmental and Energy) practice
PO7	Competence - Learning to Learn
(a)	The ability to evaluate their own learning, identify knowledge gaps, and take responsibility for the pursuit of academic professional development pathways
PO8	Competence - Insight
(a)	An awareness of the impacts of Civil Engineering (Environmental and Energy) infrastructure on society and the ability to critically evaluate the technical, economic, environmental and social implications of appropriate Engineering solutions.

APPENDIX 1 – PROPOSED PROGRAMME OUTCOMES

Programme Outcomes for the BEng (Hons) in Structural Engineering

Programme Outcomes

Upon successful completion of this programme the graduate will be able to demonstrate... :

PO1	Knowledge - Breadth
(a)	An in-depth knowledge of areas of mathematics, science, ICT, design, business and engineering practice relevant to the structural engineer.
PO2	Knowledge - Kind
(a)	The ability to apply knowledge of mathematics, science, ICT, design, business and engineering practice to the analysis and solution of complex problems in structural engineering.
PO3	Skill - Range
(a)	The ability to use modelling and analytical techniques, skills and modern computer-based engineering tools necessary for engineering practice.
PO4	Skill - Selectivity
(a)	The ability to design a system, component or process to meet specified needs, to design and conduct experiments and to analyse and interpret data.
PO5	Competence - Context
(a)	The ability to assume personal responsibility for the development and application of engineering science and knowledge, particularly in research, design and construction of civil and structural engineering works.
PO6	Competence - Role
(a)	The ability to work autonomously, in teams and in multi-disciplinary settings to give authoritative technical advice and to assume responsibility for the direction of important tasks in structural engineering. The ability to communicate effectively with the engineering community and with society at large.
PO7	Competence - Learning to Learn
(a)	The capacity to identify learning needs and to undertake continuous learning (including lifelong learning and continuing professional development), incorporating the ability to closely and continuously follow progress in structural engineering by consulting newly published works, assimilating such information and applying it independently.
PO8	Competence - Insight
(a)	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.

APPENDIX 2 – SEMESTER SCHEDULES

Stage 1 for The MEng in Structural Engineering, the MEng in Civil Engineering (Environment and Energy) and the BEng(Hons) in Structural Engineering

Stage 1 / Semester 1

Mandatory									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
CMOD6001	Creativity Innovation&Teamwork (Approved)	MARESE BERMINGHAM	Fundamental	5.0	3.00	0.00	100.0	0.0	
CIVL6034	Design Graphics (Approved)	DES WALSH	Fundamental	5.0	4.50	4.50	100.0	0.0	
MECH6009	Engineering Mechanics (Approved)	DES WALSH	Fundamental	5.0	5.00	0.00	20.0	80.0	
PHYS6003	Engineering Physics 1 (Approved)	Donagh OMahony	Fundamental	5.0	4.00	3.00	50.0	50.0	
MATH6005	Engineering Maths 101 (Approved)	David Goulding	Fundamental	5.0	4.00	4.00	30.0	70.0	
CHEM6001	Engineering Chemistry (Approved)	Donagh OMahony	Fundamental	5.0	4.00	4.00	100.0	0.0	

Stage 1 / Semester 2

Mandatory									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
MATH6031	Engineering Computing 1 (Approved)	David Goulding	Fundamental	5.0	4.00	3.00	100.0	0.0	
MATH6006	Engineering Maths 102 (Approved)	David Goulding	Fundamental	5.0	4.00	4.00	30.0	70.0	
CIVL6006	Mechanics of Materials (Approved)	DES WALSH	Fundamental	5.0	4.00	0.00	20.0	80.0	
CIVL6013	Properties of Materials (Approved)	DES WALSH	Fundamental	5.0	4.00	0.00	30.0	70.0	
DESI6031	AEC Design Thinking (Approved)	DES WALSH	Fundamental	5.0	4.00	4.00	100.0	0.0	
Elective									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
INTR6021	3D Built Environment Modelling (Approved)	DES WALSH	Fundamental	5.0	3.50	2.50	100.0	0.0	
FREE6001	Free Choice Module (Approved)	PAUL GALLAGHER	N/A	5.0	4.00	0.00	50.0	50.0	

NOTE: The module Collaborative BIM 1(INTR7018) was added as an elective to all 3 programmes in Stage 1/Semester 2 after the panel documentation had been circulated.

APPENDIX 2 - SEMESTER SCHEDULES

Stage 2 for The MEng in Structural Engineering, the MEng in Civil Engineering (Environment and Energy) and the BEng(Hons) in Structural Engineering

Stage 2 / Semester 1

Mandatory									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
MATH7006	Engineering Mathematics 211 (Approved)	David Goulding	Intermediate	5.0	4.00	0.00	30.0	70.0	
CIVL6031	Health and Safety - Built Env (Approved)	DES WALSH	Fundamental	5.0	4.00	3.00	100.0	0.0	
CIVL7012	Soil Mechanics and Geology (Approved)	DES WALSH	Intermediate	5.0	4.25	2.75	35.0	65.0	
CIVL7034	Solid Mechanics and Structures (Approved)	DES WALSH	Intermediate	5.0	4.00	4.00	50.0	50.0	
CIVL7026	Reinforced Concrete Design (Approved)	DES WALSH	Intermediate	5.0	5.00	3.50	100.0	0.0	
Elective									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
MATH7015	Numerical Methods 1 (Approved)	David Goulding	Intermediate	5.0	4.00	4.00	100.0	0.0	
FREE6001	Free Choice Module (Approved)	PAUL GALLAGHER	N/A	5.0	4.00	0.00	50.0	50.0	

Stage 2 / Semester 2

Mandatory									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
MECH7006	Fluid Mechanics (Approved)	GER KELLY	Intermediate	5.0	4.00	0.00	30.0	70.0	
CIVL7035	Land Surveying Data Capture (Approved)	DES WALSH	Intermediate	5.0	4.50	4.00	50.0	50.0	
CIVL7027	Civil & Struc Eng Construction (Approved)	DES WALSH	Intermediate	5.0	4.00	2.00	25.0	75.0	
CIVL7036	Structural Analysis of Beams & (Approved)	DES WALSH	Intermediate	5.0	4.50	4.50	100.0	0.0	
CIVL7003	Communication (Approved)	DES WALSH	Intermediate	5.0	3.00	3.00	100.0	0.0	
CIVL7028	Struct Steel & Timber Design (Approved)	DES WALSH	Intermediate	5.0	5.00	3.50	100.0	0.0	

APPENDIX 2 - SEMESTER SCHEDULES

Stage 3 for The MEng in Structural Engineering, the MEng in Civil Engineering (Environment and Energy) and the BEng(Hons) in Structural Engineering

Stage 3 / Semester 1

Mandatory									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
MATH8003	Engineering Mathematics 311 (Approved)	David Goulding	Advanced	5.0	4.00	3.00	30.0	70.0	
CIVL8033	Water Services Engineering (Approved)	DES WALSH	Advanced	5.0	4.00	2.50	25.0	75.0	
CIVL8007	Engineer in Society (Approved)	DES WALSH	Advanced	5.0	3.00	2.50	100.0	0.0	
CIVL8034	Structural Modelling (Approved)	DES WALSH	Advanced	5.0	4.50	4.50	50.0	50.0	
CIVL8036	RC Design & Concrete Technology (Approved)	DES WALSH	Advanced	5.0	5.00	3.00	100.0	0.0	
Elective									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
CIVL8011	Harbour & Coastal Engineering (Approved)	DES WALSH	Advanced	5.0	4.00	0.00	30.0	70.0	
INTR6016	Introductory GIS (Approved)	DES WALSH	Fundamental	5.0	4.00	2.50	100.0	0.0	
FREE6001	Free Choice Module (Approved)	PAUL GALLAGHER	N/A	5.0	4.00	0.00	50.0	50.0	

Stage 3 / Semester 2

Mandatory									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
CIVL8035	River Basin Engineering (Approved)	DES WALSH	Advanced	5.0	4.00	2.00	100.0	0.0	
CIVL8027	Steel & Timber Design Studio (Approved)	DES WALSH	Advanced	5.0	4.50	2.50	100.0	0.0	
STAT8005	Statistics for Engineering (Approved)	David Goulding	Advanced	5.0	4.00	0.00	100.0	0.0	
CIVL8008	Environmental & Energy Eng (Approved)	DES WALSH	Advanced	5.0	4.00	2.00	30.0	70.0	
CIVL8010	Geotechnical Engineering (Approved)	DES WALSH	Advanced	5.0	4.00	4.00	35.0	65.0	
CIVL8031	AEC Project & Contract Mgmt (Approved)	DES WALSH	Advanced	5.0	4.00	4.00	100.0	0.0	

APPENDIX 2 - SEMESTER SCHEDULES

Stage 4 for the BEng (Hons) in Structural Engineering

Stage 4 / Semester 1

Mandatory									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
INTR8016	Project - Research Phase (Approved)	Donagh OMahony	Advanced	5.0	0.25	0.00	100.0	0.0	
CIVL8009	Foundation Engineering (Approved)	DES WALSH	Advanced	5.0	4.00	4.00	30.0	70.0	
INTR8032	Interdisciplinary Project (Approved)	JOSEPH HARRINGTON	Advanced	5.0	4.00	4.00	100.0	0.0	
CIVL8038	Adv. Struct. Design & Fire Eng (Approved)	DES WALSH	Advanced	5.0	5.00	5.00	40.0	60.0	
Elective									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
CIVL8039	Advanced Structural Analysis (Approved)	DES WALSH	Advanced	5.0	4.50	4.50	50.0	50.0	
CIVL8032	Prestressed Concrete and Mason (Approved)	DES WALSH	Advanced	5.0	4.00	2.50	25.0	75.0	
CIVL8011	Harbour & Coastal Engineering (Approved)	DES WALSH	Advanced	5.0	4.00	0.00	30.0	70.0	
FREE6001	Free Choice Module (Approved)	PAUL GALLAGHER	N/A	5.0	4.00	0.00	50.0	50.0	

Stage 4 / Semester 2

Mandatory									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
No Code Yet	Work Placement in AEC (Draft)	DES WALSH	Advanced	10.0	0.73	0.00	100.0	0.0	
No Code Yet	Sustainable Infrastructure (Draft)	DES WALSH	Advanced	5.0	4.00	4.00	100.0	0.0	
CIVL8018	Structural Design Office (Approved)	DES WALSH	Advanced	5.0	4.00	2.00	100.0	0.0	
INTR8015	Project - Implementation Phase (Approved)	Donagh OMahony	Advanced	10.0	0.50	0.00	100.0	0.0	

APPENDIX 2 - SEMESTER SCHEDULES

Stage 4 for the MEng in Structural Engineering

Stage 4 / Semester 1

Mandatory									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
CIVL8009	Foundation Engineering (Approved)	DES WALSH	Advanced	5.0	4.00	4.00	30.0	70.0	
INTR8032	Interdisciplinary Project (Approved)	JOSEPH HARRINGTON	Advanced	5.0	4.00	4.00	100.0	0.0	
CIVL8038	Adv. Struct. Design & Fire Eng (Approved)	DES WALSH	Advanced	5.0	5.00	5.00	40.0	60.0	
CIVL8039	Advanced Structural Analysis (Approved)	DES WALSH	Advanced	5.0	4.50	4.50	50.0	50.0	
CIVL8032	Prestressed Concrete and Mason (Approved)	DES WALSH	Advanced	5.0	4.00	2.50	25.0	75.0	
INTR9005	Sustainability in Engineering (Approved)	DES WALSH	Expert	5.0	3.00	3.00	100.0	0.0	

Stage 4 / Semester 2

Mandatory									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
No Code Yet	Work Placement (MEng) (Draft)	DES WALSH	Advanced	30.0	1.25	0.00	100.0	0.0	

APPENDIX 2 - SEMESTER SCHEDULES

Stage 5 for the MEng in Structural Engineering

Stage 5 / Semester 1

Mandatory									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
INTR9006	Engineering Research Skills (Approved)	DES WALSH	Expert	5.0	2.00	2.00	100.0	0.0	
CIVL9001	Adv Geotech and Foundation Eng (Approved)	DES WALSH	Expert	5.0	3.00	3.00	100.0	0.0	
CIVL9005	Bridge Engineering (Approved)	DES WALSH	Expert	5.0	3.00	3.00	100.0	0.0	
CIVL9004	Structural Engineering (Approved)	DES WALSH	Expert	5.0	3.00	3.00	100.0	0.0	
MECH9001	Computational Solid Modelling (Approved)	MATTHEW COTTERELL	Expert	5.0	3.00	0.00	100.0	0.0	
Elective									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
INTR9017	Infrastructure Asset Mgmt (Approved)	DES WALSH	Expert	5.0	3.00	3.00	100.0	0.0	
INTR9007	Eng. Project Management (Approved)	DES WALSH	Expert	5.0	2.50	2.50	100.0	0.0	

Stage 5 / Semester 2

Mandatory									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
CIVL9003	Structural Design Office (Exp) (Approved)	DES WALSH	Expert	10.0	6.00	4.00	100.0	0.0	
No Code Yet	Eng. Project Realisation (Draft)	DES WALSH	Expert	20.0	0.50	0.50	100.0	0.0	

APPENDIX 2 - SEMESTER SCHEDULES

Stage 4 for the MEng in Civil Engineering (Environment and Energy)

Stage 4 / Semester 1

Mandatory									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
CIVL8009	Foundation Engineering (Approved)	DES WALSH	Advanced	5.0	4.00	4.00	30.0	70.0	
INTR8032	Interdisciplinary Project (Approved)	JOSEPH HARRINGTON	Advanced	5.0	4.00	4.00	100.0	0.0	
CIVL8011	Harbour & Coastal Engineering (Approved)	DES WALSH	Advanced	5.0	4.00	0.00	30.0	70.0	
CIVL9006	Biofuel and Biomass Technology (Approved)	DES WALSH	Expert	5.0	2.50	2.50	30.0	70.0	
ELEC9001	Energy Source Analysis (Approved)	MARTIN HILL	Expert	5.0	3.00	0.00	30.0	70.0	
INTR9005	Sustainability in Engineering (Approved)	DES WALSH	Expert	5.0	3.00	3.00	100.0	0.0	

Stage 4 / Semester 2

Mandatory									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
No Code Yet	Work Placement (MEng) (Draft)	DES WALSH	Advanced	30.0	1.25	0.00	100.0	0.0	

APPENDIX 2 - SEMESTER SCHEDULES

Stage 5 for the MEng in Civil Engineering (Environment and Energy)

Stage 5 / Semester 1

Mandatory									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
INTR9006	Engineering Research Skills (Approved)	DES WALSH	Expert	5.0	2.00	2.00	100.0	0.0	
CIVL9008	Advanced Hydro & Flood Control (Approved)	DES WALSH	Expert	5.0	3.00	2.50	100.0	0.0	
CIVL9011	Advanced Water Engineering (Approved)	DES WALSH	Expert	5.0	3.00	2.50	25.0	75.0	
CIVL9010	Adv Wastewater Treatment (Approved)	DES WALSH	Expert	5.0	3.00	2.50	100.0	0.0	
INTR9017	Infrastructure Asset Mgmt (Approved)	DES WALSH	Expert	5.0	3.00	3.00	100.0	0.0	
INTR9007	Eng. Project Management (Approved)	DES WALSH	Expert	5.0	2.50	2.50	100.0	0.0	

Stage 5 / Semester 2

Mandatory									
Mod Code	Module Title	Co-ordinator	Level	Credits	FT Contact Hours	PT Contact Hours	Course Work	Formal Exam	
No Code Yet	Infrastructure Design Office (Draft)	DES WALSH	Expert	10.0	6.00	4.00	100.0	0.0	
No Code Yet	Eng. Project Realisation (Draft)	DES WALSH	Expert	20.0	0.50	0.50	100.0	0.0	

APPENDIX 3 – PANEL TIMETABLE



Remote Validation Event for:

MEng in Structural Engineering (5 Year)
MEng in Civil Engineering (5 Year)
Restructuring of BEng(Hons) in Structural Engineering

Date: 19th June 2020
Modalities: Teams Meeting
Private Panel Meeting: [Link to Private Panel Meeting](#)
Meeting with Programme Team: [Link to Meeting with Proposers](#)

Panel Timetable

Date / Time	Session
Before Panel Meetings	Private Pre-Panel meeting - technical issues, meeting protocol, panel declarations on GDPR and conflict of interest, identification of key discussion areas, distribution of key questions. <i>Time and date to be agreed with panellists.</i>
2 pm to 2.15 pm	Private Panel Meeting
Friday 19th June 2.15 p - 3 pm	Panel Session 1 Need for programmes (inc. regulatory/professional context); prog. management arrangements; resourcing & facilities; award level & type; impact; access, transfer & progression. <u>May</u> include short <u>H&Q</u> presentation (max. 10 mins, e.g. PowerPoint) - Overall programme concept; intended graduate profile and typ. employment; award; prof. regulation/accreditation status; links/efficiencies with other prog's in School; staffing; resources & facilities.
3 pm - 3:30 pm	Break (with short private panel discussion if necessary)
3:30 pm – 5 pm	Panel Session 2 Programme Outcomes - aligning with Award standards and describing the graduate profile Programme structure and curriculum, subject mix and thematic strands; delivery modes and teaching, learning & assessment strategy (inc. any interim arrangements for remote delivery); learning experience & supports; programme-critical modules as relevant (esp. final year theses/projects, placement, key specialist or prof. dev. modules). Impact on the existing programmes.
5:00 – 5:30 pm	Private Panel close-out meeting
5:30 pm - 5:35 pm	Brief feedback to proposers