

**PROGRAMMATIC REVIEW**  
**SCHOOL OF BUILDING AND CIVIL ENGINEERING**  
**ACADEMIC YEAR 2018/2019**  
**Phase 2: Programme Review**

**PROGRAMME PANEL REPORT**

School: School of Building and Civil Engineering  
Department: Department of Civil, Structural & Environmental Engineering  
DATE: 9<sup>th</sup> & 10<sup>th</sup> May 2019

**PROGRAMMES SUBMITTED FOR REVIEW**

**PROGRAMME PROPOSED FOR RE-VALIDATION**

- Engineering Common Entry

*Undergraduate Major Awards:*

- Higher Certificate in Engineering in Civil Engineering
- Bachelor of Engineering in Engineering in Civil Engineering
- Bachelor of Engineering in Environmental Engineering
- Bachelor of Engineering (Honours) in Structural Engineering

*Postgraduate Major Awards:*

- Postgraduate Diploma in Engineering in Structural Engineering
- Master of Engineering in Structural Engineering
- Postgraduate Diploma in Engineering in Civil Engineering (Environment and Energy)
- Master of Engineering in Civil Engineering (Environment and Energy)

*Special Purpose / Minor Awards*

- Certificate in Building Information Modelling Technologies (SPA, re-designated to Minor award)

## PROGRAMME REVIEW PANEL MEMBERSHIP

<b>Name</b>	<b>Position</b>	<b>Organisation</b>	<b>Panel Role</b>
Prof. Mark Richardson	Professor Emeritus	UCD	External Academic, Chair
Dr. Paul Archbold	Lecturer	Athlone Institute of Technology	External Academic
Mr. Ger Dennehy	Director of Pharmaceutical Division	John Sisk & Sons	External Industry
Mr. Niall Fitzgerald	Partner	Horgan Lynch	External Industry
Dr. Donagh O'Mahony	Head of Department	Dept. of Physical Sciences	Internal Academic

## PROGRAMME REPRESENTATION

### Programme Staff

<b>Staff Member</b>	<b>Qualifications/ Memberships</b>	<b>Programme Management (2018/19)</b>
J.R. Harrington	BE, MS, PhD, Eurlng, PE, CEng, FIEI	Head of School of Building and Civil Engineering
D.J. Walsh	BE, MSc, DIC, Eurlng, CEng, MIEI	Head of Department of Civil, Structural and Environmental Engineering
D. Barnett	BE, MEngSc, CEng, FIEI	BEng in Environmental Engineering – Year Coordinator, Year 3
T.K. Buckley	BE, MEngSc, MBA	BEng in Civil Engineering BEng in Environmental Engineering - Year Coordinator, Year 1
S.Carroll	BEng (Ord.), BEng (Hons.), MEng, CEng, MIEI	
D.D. Cadogan	BE, Eurlng, CEng, MIEI	BEng in Civil Engineering & BEng in Environmental Engineering - Course Coordinator
D.J. Coleman	BE, MEngSc, CEng, MIEI	Engineering Common Entry and BEng (Hons.) in Structural Engineering - Year Coordinator, Year 1
S.O. Corcoran	BA, BAI, MSc, MIEI	
N.M. Hurley	BE, MSc, CEng, MIEI	

V. Jaksic	BEng, MEng, MEngSc, PhD	BEng in Civil Engineering – Year Coordinator, Year 3
T. McKenna	Dip. Eng., BE, MEngSc, CEng, MIStructE	BEng (Hons.) in Structural Engineering -Year Coordinator, Year 3
M. Moloney	BE, PhD, CEng, FIEI	Department Health & Safety Coordinator
J.J. Murphy	BE, MEngSc, EurIng, CEng, MIEI, MIStructE	MEng in Structural Engineering - Course Coordinator BEng (Hons.) in Structural Engineering -Year Coordinator, Year 2
J. O’Byrne	Dip. Eng., BEng (Hons.), CEng, MIEI	BEng in Civil Engineering BEng in Environmental Engineering - Year Coordinator, Year 2
L. O’Driscoll	BE, MEngSc, CEng, MIEI	MEng in Civil Engineering (Environment and Energy) - Course Coordinator
B.D. O’Rourke	BSc (Eng), MEngSc, Dip Eng, CEng, MIEI	BEng (Hons.) in Structural Eng. & Engineering Common Entry - Course Coordinator
N.M. Power	Dip. Eng., BEng (Hons.), PhD, MIEI	CIT Research Postgraduate Board SIRIG Representative
K.Ruane (NP)	BE, MSc, CEng MIEI, MIStructE, MICE	Department Health & Safety Auditor

## Learner Representatives

Erin O'Connor	DSE4	BEng(Hons) Structural, Year 4
Simon Purcell	DSE4	BEng(Hons) Structural, Year 4
Amy Meanwell	DSE3	BEng(Hons) Structural, Year 3
Darragh Mc Guirk	DSE2	BEng(Hons) Structural, Year 2
Shane O'Donovan	CE3	BEng Civil, Year 3
Michael Clifford	CE2	BEng Civil, Year 2
Bronagh McGrath	EE3	BEng Environmental, Year 3
Charles Russell	EE2	BEng Environmental, Year 2
Callum O'Brien (NA)	EE1	BEng Environmental, Year 1
Donol Og Coleman (NA)	Common	Engineering Common Entry
Colm Eoin McSweeney	Common	Engineering Common Entry
Cormac MacMurchu	DSE5	MEng Structural

## Graduates

Ross O'Sullivan	BEng(Hons) Structural 2013, MEng(Civil) 2015, current PhD student	PhD student
Dr. Aidan Ware	BEng(Hons) Structural 2012, PhD 2016	Project Engineer, RPS Group
Edward Hurley	BEng Civil 2015, Cert. in BIM Technologies 2017	Denis O'Sullivan & Associates
John Billot	BEng Environmental 2016	Materials Engineer, DePuy Synthes
Brian Byrd	BEng Civil 2014, BEng(Hons) Structural 2016	Design Engineer, RPS Group
Caoimhe Marley	BEng(Hons) Structural, 2018	SISK
Eoin Costelloe	MEng (Structural), 2018	PM Group

## External Stakeholders - Employers

Mr. David Keating	Facilities Capital Investment Manager	Eriva
Mr. John Lee	Director	Malachy Walsh & Partners
Mr. Grellan McGrath	Director	RPS Group
Mr. Barry Williams	Associate	Mott MacDonald

## A. PROGRAMME SUMMARY AND MAJOR CHANGES PROPOSED

### 1. Programme(s) Summary (All Programmes)

The Department of Civil, Structural and Environmental Engineering offers undergraduate Level 7 BEng awards in Civil Engineering and in Environmental Engineering, a Level 8 BEng(Hons.) award in Structural Engineering as well as two taught Level 9 MEng programmes, an MEng in Structural Engineering and an MEng in Civil Engineering (Environment and Energy) – both taught MEng programmes are currently 90 credit add-on programmes. Research programmes at Level 9 (Masters) and Level 10 (PhD) are also available in these disciplines. A Special Purpose Award (SPA), Certificate in Building Information Modelling Technologies, is also delivered. Additionally, the Department provides Continuing Professional Development (CPD) single module certification in Building Regulatory Engineering, Fire Safety Engineering, Fire Safety Certification and in Digital Land Surveying – these CPD offerings are delivered by both on-campus attendance and by online delivery modes.

The Department currently has permission to develop a 60 credit add-on BSc(Hons.) in Building Information Modelling and Management, building on the experience of and demand for the SPA programme, and it is the intention to seek final validation in the coming months. It is also the intention of the Department to shortly seek approval for the conversion of the 240 credit BEng(Hons.) plus 90 credit add-on MEng programmes to an integrated Masters format, reflecting trends across the engineering educational sector related to revised accreditation criteria in respect of the educational requirement for chartered engineers.

Since 2009 the Faculty of Engineering and Science has offered a Common Engineering Entry programme. This programme is managed and administered by the Department of Civil, Structural and Environmental Engineering. One year in duration, the programme exposes students to a range of engineering disciplines before they select a discipline specific engineering in Year 2 of their studies. Students who successfully complete the programme are guaranteed progression to Year 2 of the BEng (Hons.) programmes in Structural Engineering, Mechanical Engineering, Biomedical Engineering or Chemical and Biopharmaceutical Engineering. CIT Academic Council has endorsed a proposal by the Faculty, subject to the appropriate QA process, for the Year 2 choice to be extended to include the BEng (Hons.) in Sustainable Energy Engineering programme.

## 2. Major Changes Now Proposed

### 2.1. BEng Civil Engineering & BEng Environmental Engineering

#### ***BEng Civil Engineering & BEng Environmental Engineering***

The primary module changes in the B.Eng. Civil Engineering programme is as follows:

In the Mathematics stream it is proposed to replace *MATH6015 Technological Mathematics 2* with new module *Introductory Calculus*. The content and learning of the new module is not significantly different, however the opportunity has been taken to use a 100% continuous assessment provision. In the Engineering Practice and Management stream *CIVL7025 Practical Land Surveying* is to be replaced by *CIVL7005 Digital Land Surveying and GPS*. In the Mechanics and Structures stream *CIVL7017 Structural Analysis* is replaced by new module *Structural Analysis of Beams and Frames*. Placement is now a mandatory 5 credit module *PLAC7015 Work Placement for Engineering and Construction* in Stage 3.

The B.Eng. Environmental Programme shows the same changes regarding the Mathematics module in stage 1; the replaced Land Surveying module in Stage 2; and the now mandatory 5 credit placement in Stage 3.

### 2.2. BEng (Hons) Structural Engineering

#### ***BEng (Hons) Structural Engineering***

New modules are introduced across the majority of the eight streams that define the Structural Engineering programme, much of which is driven by the inclusion of the 15 credit mandatory placement.

*Project and Work Placement* stream: A 15 credit mandatory module *Work Placement* is now introduced in Semester 6 with module content previously in this semester being relocated or removed as appropriate. In order to accommodate the extended placement module, some content has been relocated while the 3 modules now allocated to Weeks 1-6 of the semester are those with a mathematical/design/technology focus. Student and staff workload will increase for Weeks 1-6 (“Short-Fat”) but it is intended that the concentrated delivery of the selected material will work well for modules with a statistical and design code learner content.

*Solid Mechanics and Structures* stream: Four new modules replacing existing similar modules but with an emphasis on digital technology post first year. Reflecting the current use of digital technology in professional practice, the emphasise now shifts from the heavy burden of manual calculation analysis to development of analytical techniques allied to validation. To this end the four modules *CIVL7033 Structures and Modelling*, *CIVL7017 Structural Analysis*, *CIVL8021 Theory of Structures*, *CIVL8002 Advanced Theory of Structures* are replaced with corresponding new modules *Solid Mechanics and Structures*, *Structural Analysis of Beams and Frames*, *Structural Modelling*, *Advanced Structural Analysis*.

*Structural Design* stream: The two existing modules for steel/timber design (CIVL7028, CIVL8027) now have an increased emphasis on concept design. Reinforced concrete design and concrete technology are to be delivered in a new module *RC Design and Concrete Technology* in Semester 6. This will incorporate and replace material previously delivered in the two modules CIVL7004 *Concrete Technology* and CIVL 8026 *RC and Masonry and Design*, while selecting the concrete technology material to be covered at advanced rather than intermediate level. In this realignment of material, the two new modules *Prestressed Concrete and Masonry Design* and *Advanced Structural Design and Fire* will supersede CIVL8026 *RC and Masonry Design* and CIVL8001 *Advanced Structural Design*. Furthermore, there is a knock-on effect of introducing a new *Interdisciplinary Studio* module (see below), allowing some revision to the CIVL8018 *Structural Design Office* module.

*Water and Environmental Engineering* stream: Consideration has been given to facilitating students in the programme who may desire a greater focus on environmental engineering in their learning portfolio. To this end new modules *Water Services Engineering* and *River Basin Engineering* will replace the CIVL8023 *Water Engineering* and CIVL8022 *Wastewater Engineering* modules, while existing modules CIVL8008 *Environmental and Energy Engineering* and CIVL8011 *Harbour and Coastal Engineering* will now be offered as “coupled” electives in Stage 3 and 4.

*Materials and Geotechnical Engineering* stream: Since the previous Programmatic Review there has been a change in the Year 1 teaching of properties of materials to allow a greater focus on content for structural engineering students, rather than taking a general engineering module on materials. The timing of the delivery of two modules related to foundation and geotechnical engineering (CIVL8009 and CIVL8010) has been revised to better prepare students to use the learning in the CIVL8018 *Structural Design Office* module in Semester 8.

*Engineering Practice and Management* stream. A new *Interdisciplinary Studio* module (with an emphasis on BIM) is being introduced in Semester 7 and will be mandatory for final year Level 8 students in structural engineering, architectural technology and interior architecture, while it will be offered as an elective to final year Level 8 construction management and quantity surveying students. Multi-disciplinary content has been moved from the CIVL8018 *Structural Design Office* module to the *Interdisciplinary Studio* module. Reflecting significant technological developments, land surveying modules CIVL6028 *Introductory Land Surveying* and CIVL7024 *Land Surveying Control* have been consolidated into a single new module *Land Surveying Data Capture*. A new module *AEC Project and Construction Management* will consolidate material previously delivered in modules CIVL8006 *Contract Management & Project* and CIVL8014 *Construction Management & Leadership*.

*Communications and Engineering for Society* stream: Year 1 module CIVL6014 *Engineering Presentation* will be superseded by a new module *Design Graphics*. This will better align with preparation for modules DSEI6031 *AEC Design Thinking* and INTR6021 *3D Built Environmental Modelling* (elective), introduced since the last Programmatic Review.

## B. PANEL FINDINGS AND RECOMMENDATIONS

### 1. OVERALL RECOMMENDATION TO ACADEMIC COUNCIL ON REVALIDATION

Contingent upon confirmation of the successful completion of the internal programme and module moderation process, the Panel **recommends to Academic Council that the listed programmes be revalidated** for five years or until the next Programmatic Review, whichever is sooner, with effect from Academic Year 2019/2020.

No Panel conditions are attached to this recommendation.

*Action taken on Phase 1 requirements:* The Panel noted that the Phase 1 requirement in relation to a consistent approach to work placement across the School is being addressed as far as is possible across a multi-disciplinary school. The approach regarding the engineering programmes in the Department is consistent with that in sister engineering departments of the Institute. The Phase 1 requirement relating to investment in facilities will be ongoing.

*Action taken on Phase 1 recommendations:* The Panel noted that the Phase 1 recommendation in respect of the School leveraging its multidisciplinary strength to integrate interdisciplinary learning through joint projects across programmes has been met. A new Interdisciplinary Studio module has been designed. It will be mandatory for final year Level 8 students in structural engineering, architectural technology and interior architecture. It will be offered as an elective to final year Level 8 construction management and quantity surveying students. Multi-disciplinary content has been moved from other modules to enhance the student learning. All other recommendations will be ongoing.

### 2. GENERAL

The Panel commends the high quality of the documentation provided for the review and the comprehensive nature of the answers to their questions during discussions with staff, with widespread engagement by staff members in the process. Student, graduate and employer representatives engaged enthusiastically with the review process and endorsed the quality of the learning experience and graduate attributes.

The Panel commends the experienced and dedicated staff delivering these programmes to a widely-recognised and accredited high standard.

The Panel commends the joined-up thinking in programme and module design, updating processes, delivery methods and assessment. Clear evidence of keeping module content and teaching/learning methods state-of-the art was evident. Attention to detail was apparent. Commendable examples of these aspects include:

- Detailed marking schemes & marking rubrics are used across the Department.
- A new module on Design Thinking has been introduced. The IT infrastructure supporting this has been funded internally, driven by staff initiatives.
- Digitisation is now an integral part of the learning experience from Year 1 CAD on through 3D built environment modelling, BIM for infrastructure, Digital Land Surveying &



GPS, use of drones. Digital material is more to the fore in the new programme without losing the core theory content.

- Strong engagement with TEL department at CIT with video tutorial development embedded within teaching modes.
- Strong outreach leadership and involvement, for example iWish and EYF.
- Strong departmental involvement in CIT hosting the international European First Year Experience Conference 2019.
- Reflection pieces now part of several modules.
- Emphasis on calculation by hand in Year 1 with ongoing emphasis on cross-referencing calculations with drawings.
- Use of continuous assessment in support of Year 1 students working to improve their mathematical ability.
- Greater use of continuous assessment for design-based modules with (at least) generalised feedback. (It was commented by staff that the provision of timely feedback is challenging given semester workload).
- Specialist software labs are now left open for students to access outside of timetabled hours.
- Strong engagement with ALC & AnSEO at CIT
- Participation of high-profile graduates in motivating students to achieve their full potential.
- Strong inter stage engagement (e.g. 4<sup>th</sup> years supervising 2<sup>nd</sup> years).
- Planning and Development module has a strong emphasis on sustainability, UN SDGs are referenced in Year 1 and throughout the programme (but could be further embedded).

### 3. ENTRANT AND GRADUATE PROFILE, AWARD AND PROFESSIONAL ENVIRONMENT

Feedback from students, graduates and employers was generally very positive.

Students noted that course content generally met expectations. Programme development, from Year 1 to Year 4 (graduate build-up) was noted as well-structured from both the 1st and 4th year perspectives with Year 2 students commenting that the development was apparent from 2nd year as to how learning and skills development was planned. The Departmental learning environment is excellent and there were no areas that students perceived as missing. Regarding common entry, while it was agreed that it is not specifically biased towards one programme area in Year 1, students effectively have to make a decision quite early in Year 1 as to which programme stream they will choose.

Graduates commended the excellent lecturing staff but, on reflection, noted that more critical negative feedback from lecturing staff in relation to technical writing and presentation skills would be welcomed to better prepare them for practice.

Aspects of mandatory work placement was discussed. It was generally agreed that a mandatory placement would benefit the students. Some Year 2 students have previously taken placement as an elective, but commented that better learning would be achieved by taking placement later in the programme when more content has been mastered. It was generally

felt that placement assessment in June, from a start in March, is probably too early as students may not have acquired sufficient on-the-job learning by then. A longer placement duration should be considered if possible. Generally, students felt well prepared for placement but currently there does not appear to be a structured engagement process with the Careers Office on CV and interview preparation. Presentation by Year 3 students of their placement experience to Year 1 students in the CIT module (Sem 1) is effective and beneficial for both cohorts of students involved but would possibly be more effective if presented later in Year 1.

The balance of CA and end of semester exams was generally satisfactory, particularly for subjects such as mathematics. It was commented however that weighting of assessments did not necessarily always match the relative workload. Some congestion of CA and end of semester exams was noted. When asked what would improve the student experience at CIT, the main comment related to better access to IT infrastructure, rooms for study.

It was commented also that there should be better opportunity for environmental engineering placements for environmental engineering students. This matter is covered under Section 4.

In talking to graduates and employers, while the developments in relation to new technologies (digitisation) were seen as important for inclusion in the programmes, the importance of core skills such as surveying, load calculations, etc was emphasised strongly throughout. The importance of introducing BIM was emphasised by several graduate and employer personnel. From an employment perspective, it was commented that the distinction between engineer & technician is becoming less apparent and the implications for Level 6/7 programmes should be considered. Regarding work placement, it was noted that weekly reporting is a robust assessment process, it may place a burden on the industrial supervisor but is important for QA oversight. Good engagement with CIT staff for placement organisation over the years was noted. There was not a general consensus on the optimum minimum period for placement, generally it was felt that 8 weeks too short for bigger organisations but longer placement durations may place an extra workload on some employers. Periods ranging from a minimum of 10 weeks and up to 20 weeks were mentioned.

### **3.1 Recommendation:**

The Department is encouraged to respond to an industry demand for Level 8 graduates with qualifications specifically related to BIM and associated technologies.

### **3.2 Recommendation:**

The Department should engage actively with the School Industry Advisory Board to gauge the significance of the changing landscape for employment at technician and graduate engineer level in respect of the role that digitisation (BIM) may play in a future rebalancing of the education needs at Level 7 and Level 8 in the Department's programmes

## **4. PROGRAMME OPERATION AND PERFORMANCE**

The Panel commends the clear organisational structures that are in place in relation to programme delivery and the management oversight providing direction and guidance. There

is evidence of a clear system for ensuring that all staff are kept informed of changes to CIT academic policy, regulations, etc.

Programme development methodology is evidently of high quality. The use of thematic streams crosscut the stage-by-stage learning challenges. Updating and changes to programmes are informed by extensive discussion of learning outcome coverage between staff delivering the streams and engagement between staff delivering on different programmes across various streams.

Proposed changes to modules that are delivered to multiple programmes is overseen by the Office of Quality Enhancement through various levels of academic management (Department, School, Faculty). There is a robust system in place, underpinned by the Registrar's Office oversight.

Quality assurance includes the Programme Boards that provide the opportunity for students to comment on module content delivered and quality of delivery. There is a second reader system for project module oversight. The low rate of exam appeals is testament to consistent quality of assessment.

There is a very active Programme and Year Co-ordinator structure, embracing both pastoral and operational roles. This significant contribution in terms of time and commitment by staff is critical to the evident successful delivery of the programmes. Additionally, non-coordinator staff appeared to take an active interest in helping each student achieve their potential.

The Common Engineering Entry system initiated 10 years ago has proven to be a popular mode of entry and aligns with the government's preferred option of allowing second level students to postpone their third level specialisation until after admission to third level. The structure of five common modules across Semester 1 and three across semester two is balanced by more electives aligning with programme streams in Year 2 onwards. Students effectively decide in Semester 2 on which programme they will follow in Year 2. There is strong guidance to students on their future specialisation, including engagement in Year 1 with guest lecturers (graduates, various engineering sector employers) and site visits (with travel support from AnSEO). The Creativity, Innovation and Teamwork module also contributes to helping students to make their informed choice.

Despite the success of the Common Engineering Entry, direct entry is still available in parallel to the Department's undergraduate programmes. The Department defended this on the grounds that discontinuing these CAO gateways would lose programme identity at CAO entry with negative impact on uptake and the future development by the Department of an integrated M.Eng. programme, in response to professional body requirements. The Panel is disappointed in the failure of the third level sector to make meaningful progress on reducing the CAO gateways to a smaller number of generic entry points (e.g. common engineering entry as a sole option), however this is a matter for the sector to address and no recommendation is made at Departmental level in this review.

The Panel note the Department's intention to seek approval for the conversion of the 240 credit BEng(Hons.) plus 90 credit add-on MEng programmes to an integrated Masters format. This is seen as a logical response to a master's degree now being the professional body's educational requirement for chartered engineer qualification. However, the Panel is

concerned that the development of an integrated MEng is being introduced as a specialisation, without a suite of progression paths leading into it. There should be a clear structure of progressive specialisation for high-achieving Level 7 who wish to progress to Level 8 and perhaps Level 9. However, the Level 7 students in Environmental Engineering seem to be getting left behind in these developments. The Panel was not clear on the distinctiveness of the BEng in Environmental Engineering compared to BEng in Civil Engineering for three reasons. Firstly, there is considerable overlap in the content of the programmes. Secondly, Environmental Engineering students reported difficulty in obtaining work placement in 'environmental' as opposed to 'civil engineering' internships. Thirdly there is no Level 8 progression programme in Environmental Engineering at CIT for high-achieving graduates of the Level 7 Environmental Engineering programme even though they could conceivably study for a master's programme later in CIT - MEng in Civil Engineering (Environmental and Energy). Such students currently find that their Level 8 studies would have to be in another institution if they wanted to specialise in Environmental Engineering. Admittance to such Level 8 programmes in another institution might not be on favourable terms regarding admission to the final or penultimate year of the programme, possibly leading to 3 years more of study.

#### 4.1 Recommendation:

In the context of any development of new integrated masters, a particular study should be made of the Department's provision for progression by those who enrol on the Department's existing programmes. In particular, the anomalous situation should be examined whereby good provision has been made for progression by those pursuing a career in 'civil/structural' engineering but not in 'environmental' engineering. Currently there is significant overlap between the Level 7 programme content in Civil Engineering and that in Environmental Engineering - there should be a clearer distinction, including progressive specialisation for those with ability to progress from Level 7 to 8 to 9.

## 5. PROPOSED PROGRAMME SPECIFICATION (INCL. DELIVERY AND ASSESSMENT)

The Panel discussed various aspects of the proposed programme with the teaching staff and, in general, was very satisfied with the methodology and rationale for the proposed changes.

**Placement organisation:** The panel commends the move to a mandatory 5 and 15 credit placements in the level 7 and level 8 programmes, respectively. The utilization of a weekly online journal completed by the student and monitored by the host and departmental supervisors is commendable, as is the scoring rubric for guiding external supervisors in their evaluation of student performance.

**Assessment:** The panel commends the detailed and generally well-structured assessment plans prepared in their report. The Department has proposed to maintain an 80% formal end of semester assessment, on some modules, in particular for Stage 1 modules (e.g. Mechanics). It is noted that this allows students who have not previously studied a subject the chance to "catch up" during the semester.

**Interdisciplinary Studio:** The Panel commends the inclusion of the semester collaborative project involving students from different programmes (Architecture, Engineering & Construction). It is clear that this has required considerable and ongoing collaboration required

between departments. The module will require significant oversight, in particular for its early years of operation but it appears adequately resourced from a supervisory perspective.

#### **5.1 Recommendation**

Students on placement should have the option to defer their report/presentation to the Autumn Board to allow for extended induction or training periods at the beginning of placement. The Department needs to clarify what is the alternative for students that cannot secure an external placement (e.g. CIT-based work experience).

#### **5.2 Recommendation**

The Department should also ensure that students are well matched to their placement hosts in terms of the placement duration expectations of both the host and student. The Department should survey the demand for extended placement amongst employers and ensure that differing placement durations can be accommodated by various sectors.

#### **5.3 Recommendation**

The Department should check and put in place measures (e.g. stage meetings) to continuously monitor assessment schedules to ensure that assessment pinch-points do not occur, i.e. to avoid multiple assessments near report hand-up dates.

## **6. MODULES**

There is clear evidence that module content is state-of-the-art. A major strength of the Department is that lecturers have professional experience and ongoing close engagement with industry. Approximately 90% of lecturers are currently members of relevant professional and learned bodies (Engineers Ireland, Institution of Civil Engineers, Institution of Structural Engineers, Irish Concrete Society). Several staff hold chair positions in professional bodies including national regulatory and advisory bodies (eg. NSAI). Staff are actively engaged in CPD. The relevance of programme and module content is also underpinned by the existence of an active School Industry Advisory Board, which meets once per semester.

The recommendation of the Panel to revalidate the programmes under review is contingent on the successful completion of the subsequent internal programme and module moderation process carried out by, or on behalf of, the CIT Registrar's Office.

## **7. DEROGATION SOUGHT**

The panel support the request from the Department to derogate from the Institute's policy in relation to free module electives in each semester of its programmes. The panel supports the Departmental proposal to limit free choice elective choice to 5 ECTS per stage of programme.

## C. PROGRAMME FINALISATION

### 1. IMPLEMENTATION OF PANEL REQUIREMENTS & RECOMMENDATIONS

Requirement(s)	Department Response
No Requirements	

Recommendation(s)	Department Response
3.1 (Industry demand for BIM graduates)	The Department has progressed the development and validation process for a Level 8 Building Information Modelling and Management programme. It is expected that the programme will be offered in 2019/20.
3.2 (Industry Advisory Board)	The School/Department will continue to explore these matters with the Industry Advisory Board.
4.1 (Environmental Engineering)	The Department intends to progress proposals for an Integrated Masters approach in 2019/20. This recommendation will be considered during that process.
5.1 & 5.2 (Work Placement)	The Department Work Placement Handbook, which details the department process and procedures around WP, is currently being updated to reflect the new mandatory placement module. These recommendations will be addressed in the updated Handbook.
5.3 (Assessment Schedules)	Assessment Schedules for each year of each programme were included in the Programmatic Review submission. The schedules informed changes and updates to module during the programmatic review process. The Department will continue to use the Year Coordinator programme management structure to seek to ensure that assessments are delivered as planned and that pinch points are avoided.

### 2. MODULE AND PROGRAMME MODERATION

#### C.2.1 Completion of Programme and Module Moderation

*Completed*

Appendix A – Timetable of Phase 2 Meetings

<b>Thursday, May 9th, 2019</b>	
10.00 am - 10.30	Private Panel Meeting including Presentation by the Office of the Registrar & Vice President for Academic Affairs, CIT
10.30 am - 11.00 am	Plenary Session - School Overview & Phase 1 Requirements
11.00 am - 11.15 am	<b>Coffee</b>
11.20 am - 12.30 pm	Department Overview Presentation / Discussion
12.30 pm - 1.00pm	Meet with Students
1.00 pm - 2.00 pm	<b>Private Panel Lunch</b>
2.00 pm - 3.30 pm	Meeting with Department Teams re Programme Operation and Performance
3.30 pm - 3.45 pm	<b>Private Panel Meeting (Tea/Coffee)</b>
3.45 pm - 5.30 pm	Meet with Department Teams re Proposed Changes to Programme Structures
5.30 pm - 6.00 pm	Meet with Recent Graduates / Employers
8pm	Panel Dinner -
<b>Friday, May 10th, 2019</b>	
9.00 am - 9.15 am	Private Panel Meeting - Emerging Themes
9.15am - 11.15 am	Meet with Department Teams re General Review of Modules
11.15 am - 11.45 am	<b>Private Panel Meeting (Tea/Coffee)</b>
11.45 pm - 12.45 pm	Sub-panel meetings to draft outline Reports
12.45 pm - 1.15 pm	<b>Private Panel Lunch</b>
1.15 pm - 1.45 pm	Feedback to overall Panel - Themes
1.45pm - 2.00 pm	Feedback to School and Department Management

## Appendix B Phase 1 Requirements and Recommendations

### Phase 1 Requirements

1. The Panel is putting forward a requirement in terms of facilities. The School is very conscious of the need to improve its facilities in support of student learning and research, especially in engineering studies. Significant progress should be achieved in the short to medium term. This will require support directly from the Institute and the emerging MTU. However, the School also needs to leverage both competitive research funding and from its strong links with industry in a mutually beneficial partnership. Regional test facility capacity should be grown through equipment acquisition and replacement funded from a combination of industry sponsorship and industry partnership in applied research grants proposals.
2. The Panel is putting forward a requirement in terms of work placement structure across the School. The introduction of mandatory work placement is taking place in succession to existing electives but should not be allowed to grow organically programme-by-programme. In consultation with stakeholders, not least the School's Industry Advisory Panel, a School-wide systematic approach to guidelines, learning outcomes and ECTS weighting should be developed to ensure that the proposed increased level and scope of Industrial Placement is consistent across programmes from the perspective of the student, host organisation, module co-ordinators, School-based and employer-based supervisors. An integrated approach to the learning outcomes across the programmes should be considered, transferring existing learning outcomes from other modules where possible to avoid inefficient use of student workload and over-assessment of selected outcomes. Consideration needs to be given to achievement of learning outcomes for students who cannot be placed for extenuating reasons.

### Recommendations

1. The Panel recommends that the School leverage its multidisciplinary strength to integrate interdisciplinary learning through joint projects across programmes at an appropriate level of learning per programme through formal alignment of such activities in relevant module descriptors across programmes. This should be done in a way that integrates or transfers learning outcomes from other modules to enhance the student learning experience without adding to overall student and staff workload in achieving these outcomes.
2. The Panel notes the commitment to staff development and commends the supports for research development. The Panel recommends establishment of a mentoring programme for research and postgraduate supervision to support new research supervisors.
3. In the migration to a Technological University, research development needs to be complimented by ongoing recognition, development and reward of teaching excellence. The Panel recommends well-publicised supports for scholarship in teaching and learning through formalising communities of practice with support from the TLU.
4. The Panel recommends that the School develop a more ambitious and comprehensive International Strategy for students and staff with the assistance of the CIT International Office. This will require strategic planning in targeting specific countries and partners to internationalise the student experience. This includes increasing the attractiveness of the programmes to the growing number of mobile international students in an increasingly competitive market and increasing the demand from Irish students to travel abroad during their studies (ERASMUS, Study abroad, placement, study tours etc.). Increased staff mobility should be considered in a synergistic way to grow collaboration opportunities in support of this strategy.



5. The Panel recommends a review of retention strategy. The School should build on the current excellent actions to develop a more comprehensive and co-ordinated approach to achieving the ambitious stated target of achieving a 50% improvement. These actions should particularly focus on supporting career guidance professionals in advising secondary school leavers on programme selection and student support for those with low scores in particular Leaving Certificate key subjects in the first semester of Year 1.
6. The Panel recommends a review of experiential learning across all programmes with a view to strengthening the effectiveness of existing good practice in respect of field and sites visits. These activities and the assessment of related learning should be formally scheduled into module descriptors in all cases where their timely use can deeply enhance achievement of the module's learning outcomes.
7. The Panel recommends that the School consider part-time participation and provision across all programmes, targeted for mature learners. All disciplines should consider in Phase 2 how their programmes and modules could be delivered to better suit part-time participants, including the increased use of eLearning, without diminishing the holistic student learning experience of the full-time class cohort.
8. The Panel recommend co-ordination of continuous assessment at programme level, both in respect of learning outcomes being assessed and the submission deadlines of assignments worth a significant proportion of the module's marks. A full schedule of all assessment work, including submission and feedback dates, for each semester of each programme should be prepared to guard against any unreasonably high spikes in week-by-week student workload. Using one submission to address multiple learning outcomes across different modules should be considered, to potentially reduce the volume of assessments.
9. The Panel recommend a more structured approach to student learning from continuous assessment through improved timeliness of feedback. Division of form of assessment of each learning outcome, through either end-of-semester examination or continuous assessment, should be based on a clear distinction between an assessment tool and a learning tool.
10. In the case of continuous assessment, the assignment should be graded and feedback comments provided prior to the next relevant assessment of the learning outcome, be that by end-of-semester examination or another relevant continuous assessment task.
11. The Panel recommends a review of student learning costs in the ever-evolving learning environment. A review should be conducted in respect of controlling to an agreed acceptable level the personal financial outlay by students on non-discretionary spending required for independent study (e.g. higher than average laptop specifications, cutting edge software, materials, printing costs etc). This particularly applies to studio-based teaching and learning.