

UNIVERSITY OF ULSTER

REPORT OF A MEETING OF THE REVALIDATION PANEL FOR UNIT 4G: FdENG CIVIL ENGINEERING AT BELFAST METROPOLITAN COLLEGE (MILLFIELD CAMPUS)

10 April 2018

PANEL:	Professor R Fee, Associate Dean (Education), Faculty of Arts, Humanities and Social Sciences, Ulster University [Chair] Dr N Blair, Associate Head of School of the Built Environment, Faculty of Computing, Engineering and the Built Environment, Ulster University Dr C Ó Dónaill, Senior Lecturer, School of Irish Language and Literature, Faculty of Arts, Humanities and Social Sciences Ms K Blair, Student Representative, Belfast Metropolitan College Mr N Prior, Principal Lecturer, School of Learning and Teaching Manager, Nottingham Trent University Dr S Mitchell, Senior Lecturer, School of Civil Engineering and Surveying, Portsmouth University
IN ATTENDANCE:	Mrs M Paris, Subject Partnership Manager, Faculty of Computing, Engineering and the Built Environment, Ulster University Mrs A Garland, Academic Policy and Standards Officer, Academic Office, Ulster University

1 INTRODUCTION

The Panel met to consider the revalidation of FdEng Civil Engineering (with Certificate of Higher Education exit award) to be offered in full-time and part-time mode at Belfast Metropolitan College's Millfield campus.

On the morning of the meeting, the external panel members undertook a tour of the facilities available to support the provision, including Student Support, CADD laboratories, workshops and the Library.

The Panel initially met with the Curriculum Quality Assurance and Performance Development Manager (Ms L Lavery), the Director of Curriculum (Mr J Hegarty), the Curriculum Area Manager for Construction and Built Environment (Ms F Dempsey), Head of Department of Science, Engineering and Construction (Mr C Corken), the Course Director (Mr T Close), a representative from the Institution of Civil Engineers (Ms J Green) and a representative from Atkins (Mr M Harvie). The programme was then discussed in more detail with the Course Team.

2 DOCUMENTATION

The Panel received the following documentation in advance of the meeting:

- (i) course submission;

- (ii) Guidelines for Revalidation Panels;
- (iii) the QAA Characteristics Statement for Foundation Degrees (2015);
- (iv) the QAA Foundation degree Qualification Benchmark (2010);
- (v) the QAA Subject Benchmark Statement for Engineering (2015);
- (vi) the external examiner report for 2016/17;
- (vii) a statement from the Subject Partnership Manager;
- (viii) preliminary comments from one of the external panel members;
- (ix) Academic Office notes.

3 BACKGROUND

The FdEng Civil Engineering, offered by the College's Department of Science, Engineering and Construction, was validated by Ulster University in 2016. At the time of validation, the curriculum was the same as that offered by North West Regional College, although a subject network was not formed. The programme was approved for two years (intakes 2016 and 2017) as the Evaluation Panel had significant concerns in relation to the resourcing of the programme and in order to encourage the Team to take ownership of the provision. The Course Team at Belfast Metropolitan College have since reflected on the content and delivery of the provision and, with significant engagement and input from employers, have brought forward a redesigned curriculum for revalidation.

The following articulation routes to Ulster University Honours degrees will be available to graduates of the FdEng Civil Engineering:

BEng Hons Civil Engineering (Full-time) (Jordanstown campus) [a graduate must have achieved an overall mark of 55% and a minimum of 55% in all taught Level 5 modules for Year 2 entry] [*Note: this may vary from year to year*];

BSc Hons Civil Engineering (Geoinformatics) (Full-time) (Jordanstown campus) [a graduate must have achieved an overall mark of 45% and a minimum of 45% in all taught Level 5 modules for Year 2 entry] [*Note: this may vary from year to year*].

4 MEETING WITH SENIOR STAFF

4.1 PROPOSED TWO-YEAR, THREE-SEMESTER MODE

The Panel noted that a two-year, three-semester mode of delivery was being proposed, along with full-time and standard part-time modes. The Chair of the Panel advised the College senior staff that, owing to the high number of early leavers and poor success rate of students on this mode of study in Foundation degrees across all colleges, it had been agreed by the University's Academic Standards and Quality Enhancement Committee, at its meeting in March 2018, that the two-year, three-semester model of Foundation degrees should be phased out by Faculties and that the University would no longer be validating this mode of delivery. The senior staff expressed both surprise and concern regarding this decision and highlighted the importance to employers of shortening the overall length of the degree. The Subject Partnership Manager advised that all students currently on the two-year, three-semester mode of study on Foundation degrees across the colleges would be transferring to the standard part-time mode.

Mr Hegarty, Chair of the Curriculum Group for the Six Colleges, was concerned that the Foundation degree would become an unattractive option if the length of time taken to complete it was too long. The employer representatives stated that a solution was needed

urgently as the duration of the standard part-time route would result in employers seeking graduates from outside of Northern Ireland. The Subject Partnership Manager pointed out that Foundation degree graduates progressing to Honours degrees at Ulster University were exempt from the placement year. The College senior staff expressed their desire for a 2 + 1 articulation model, which was normal practice in Scotland and England, rather than the University's 2 + 2 model.

The senior staff enquired if the University was proposing an alternative to the two-year, three-semester model but was advised by the Chair that no alternative was being proposed at this time. The University, the six colleges and employers did however need to engage in discussion to develop a model that worked in terms of shortening the length of time taken to complete the Foundation degree but with a manageable workload and enhanced support for students.

4.2 EMPLOYER-INFORMED CURRICULUM

The Panel asked the senior staff to explain how the design of the programme had been informed by the views and needs of employers. Ms Green from the Institution of Civil Engineers (ICE) advised that a number of years ago a skills barometer survey had been undertaken and that the results had indicated a shortage of graduates with civil engineering skills. Based on these results, ICE established a group of employers to address these needs, which comprised 23 civil engineering employers, as well as Ulster University representatives. Apprenticeships up to Level 7 had been discussed by a sub-group of this employer group.

In terms of curriculum design, members of the Course Team had discussed which modules would be suitable for each level of study, taking into account the skills and qualities sought by employers. A curriculum had been designed that aligned to the University's new Curriculum Design Principles and mapped to the University's Honours degrees to which students could progress. The requirements of the Joint Board of Moderators (JBM) had also been taken into consideration. The Employer Liaison Group had been consulted regarding the curriculum and guest lectures and talks by employers had been incorporated into the programme.

4.3 COHORT SIZES

The Panel enquired if the projected student numbers had also been informed by discussion with employers and was advised that each year a survey was sent to employers to gauge how many full-time and part-time places they would need. A number of students currently on the College's Level 3 provision would also be progressing to the Foundation degree. The Panel was satisfied that there was sufficient demand for the programme and the Subject Partnership Manager confirmed that the Faculty would support maximum cohort sizes of 20 full-time students and 20 part-time students.

5 MEETING WITH STUDENTS

The Panel met with a group of six students, comprising two first years and four second year students.

5.1 REASONS FOR CHOOSING THE COURSE

The Panel asked the students why they had chosen this course. One student stated that she had returned to study as a mature student and that this course would provide her with the skills to be able to contribute in a worthwhile way to the community. The student stated that she was enjoying the course very much and undertook additional reading for classes. The student praised the knowledge and support of the tutors.

5.2 STUDENT SUPPORT

The Panel noted the large number of independent study hours stated for each module and enquired how students were supported with regard to their independent study. The students explained that the independent study time was spent on assignments and that they received support from each other. The Panel enquired if students received sufficient support from staff and was informed that there were times when students had emailed tutors about an issue but had not received a reply.

In response to a question from the Panel, the students advised that they were allocated a personal tutor with whom they could discuss any issues that arose, but that they could also talk to any member of staff if they had a problem.

5.3 ASSESSMENT AND WORKLOAD

The Panel enquired if the students understood how the different pieces of assessment for a module fitted together and they confirmed that they did. The second year students reported that they were finding their second year much more difficult than first year as whilst on placement they were also required to complete a number of assignments for other modules. The students explained that, in addition to the Work-based Learning module in semester 2, there was also a 10-credit point module along with two long-thin modules. The Panel noted that semester 2 of Year 2 had been revised for revalidation to comprise the Work-based Learning module and two long-thin modules.

In response to a question from the Panel, the students reported that they did not always receive feedback on assignments and that they would welcome more feedback.

5.4 PLACEMENT

The second year students reported that they were enjoying their placements and were finding them very beneficial. The students advised that they were required to undertake 32 hours of placement per week for 13 weeks and attend College each Tuesday from 9.30am until 5.30pm for classes. They stated that they found this workload very intensive and that they used leave from placement to complete their assignments.

5.5 SUGGESTIONS FOR IMPROVEMENT

The students stated that they would welcome more time spent on AutoCAD and civil engineering technologies. One of the first year students advised that in first semester AutoCAD had mostly been self-taught during the independent study time but that it had been better explained by the tutor in second semester.

5.6 ASPIRATIONS

The Panel enquired about the students' aspirations and was advised that they were aiming to become Chartered Engineers and wished to progress to complete an Honours degree either at Ulster University or Queen's University Belfast.

The Chair thanked the students for taking the time to meet with the Panel and commended their obvious determination and ambition.

6 MEETING WITH COURSE TEAM

The Panel met with the Course Team to discuss the programme in more detail.

6.1 RECENT AND PROPOSED CHANGES

The Team was asked by the Panel to outline the changes to the provision since its evaluation in 2016. The Panel was advised that when the programme was evaluated, the College had adopted the curriculum from North West Regional College. For this revalidation, however, the Team had taken ownership of the modules and the curriculum had been extensively revised, and new modules introduced, in collaboration with employers.

6.2 CONTENT

The Panel was of the view that the content appeared light in terms of structural design. The Team stated that this subject area was covered in the *Mathematics and Structures* module in Year 1 and in the *Further Mathematics for Civil Engineers* module in Year 2. The Team was satisfied that students on the Foundation degree would cover the same amount of structural design as Level 4 students on the University's Honours degree. The Team explained that the programme aimed to cover a wide range of civil engineering aspects in order to provide as much background as possible for students before they embarked on their placements. The Panel was of the view that the area of structural design should be reinforced within the programme and that computer structural design should be incorporated.

6.3 STRUCTURE

The Panel asked the Team to explain the rationale for the use of long-thin modules and noted that *Fluids Mechanics and Water Engineering* and *Further Mathematics for Civil Engineers* were presented as long-thin modules taken over two semesters in the full-time mode in Year 2 but were completed in one semester in the part-time mode. Given that the students had reported a heavy workload in Year 2 semester 2, the Panel enquired if one of the long-thin modules could be completed in the first semester, leaving the *Work Based Learning* module and only one other 20-point module in the second semester. The Team explained that the mathematics module in Foundation degrees would typically be taken as a long-thin module and that the *Further Mathematics for Civil Engineers* module was spread across two semesters to provide more time for students to digest the content. Furthermore, with a long-thin module, a student who was absent for a day would not miss as much as the module was taught at a slower pace. The Team was of the view that the long-thin module enabled students to build their confidence and provided more time to prepare for the examination.

The Team advised that another reason for delivering two long-thin modules alongside the *Work Based Learning* module was that throughout the duration of the placement, students attended the College one day per week and preferred to study two subjects on this day rather than have a full day of one subject. In addition, the use of the long-thin modules meant that students had taken half of these modules prior to commencing the placement and were therefore able to contextualise their learning while on placement. The content of the two long thin modules in Year 2, semester 2 (*Fluids Mechanics and Water Engineering* and *Further Mathematics for Civil Engineers*) was complementary.

The Panel queried why the long-thin *CADD and Graphical Communication* module in Year 1 was presented as long-thin. The Team explained that in semester 1 the focus of this module was on graphically combining information and drawings and that this was further developed in semester 2 with the introduction of 3D skills. The long-thin nature of the module permitted gradual progression through the content of the module and allowed more time for students to embed their learning.

The Panel was satisfied that there was a clear rationale for the structure and design of the programme.

6.4 ASSESSMENT

6.4.1 Assessment Strategy

The Panel wished to explore the general principles of assessment. The Team explained that the aim was to have one examination at the end of each semester and that the remainder of assessment comprised pieces of coursework scheduled throughout the semester. The exception to this principle was Year 2, semester 2 at the end of which there were two examinations. The Team explained that the examinations provided rigour in the mathematical-based subjects and ensured that students were well prepared for progression to Honours degrees.

6.4.2 Design of Assessment

The Panel enquired what general principles had been adopted by the Team in the design of assignments. The Team stated that often the content of a module was informed by the assessment and that some modules were suited to assessment by coursework, while other modules were more suited to assessment by examination.

The Panel noted that all modules had a value of 20 credit points and enquired how the Team ensured equitable balance across the modules in terms of assessment. The Panel was advised that the assessment load across that modules had been considered by the Team as a whole and that staff had endeavoured to specify equitable word lengths across the modules. Some members of the Team also taught on other courses and were able to bring this experience to the design of the assessment for this programme.

The Panel stated that the JBM might require the inclusion of more examinations. The Team stated that students preferred continuous assessment and that the assessment had been designed in accordance with JBM guidance and the University assessment criteria. The assessment for the *Surveying for Civil Engineers* module included two two-hour open book class tests which students did not find as stressful as formal examinations, but were an effective means of enabling staff to judge students' ability.

6.4.3 Examinations

The Panel noted that the split in the assessment between coursework and examination was 60% coursework, 40% examination for the Level 4 *Mathematics and Structures* module but 50% coursework, 50% examination for the Level 5 *Further Mathematics for Civil Engineers* module and queried the rationale for the different approach at the different levels. The Team explained that initially the split between coursework and examination had varied across modules, but that the decision had been taken that examinations in first year should have a lower weighting than examinations in second year. In second year, the split between coursework and examination was equal, which was more in line with the weighting of examinations in University Honours degrees to which students could progress.

The Panel noted the variation in the duration and number of questions in the Level 5 examinations. The *Further Mathematics for Civil Engineers* module had a three hour examination with students being required to answer four out of six questions, while the *Fluid Mechanics and Water Engineering* module had a two hour examination with students required to answer four questions out of five and *Civil Engineering Management and Measurement* had a two-hour examination requiring students to answer four questions, one on each of the four themes studied in the module. The Panel enquired how the difference between the three hour and the two hour examinations was explained to students and the rationale for the different number of questions in the examinations. The Team stated that the external examiner had advised that a question on every topic covered in the module should be given in the examination. The Panel queried why all of the examinations were not the same duration and was advised that students tended to find mathematics the most difficult subject and consequently performed more poorly in this module. In the past students had reported that they had not had sufficient time to finish the mathematics examination. The rationale for the three-hour examination in the *Further Mathematics for Civil Engineers* module was, therefore, to allow students extra time to complete it.

6.5 MAPPING OF MODULES TO PROGRAMME LEARNING OUTCOMES

The Panel noted that the programme learning outcome map was very densely populated and queried why many of the modules assessed a large number of the programme learning outcomes. The Team explained that a number of the programme learning outcomes were written in broad terms, which resulted in them being applicable to a number of modules. The Team, however, undertook to review the mapping of the programme learning outcomes to the modules.

6.6 JBM REQUIREMENTS

The Panel queried whether some of the P, S and C allocation for JBM threads had been mapped correctly and was of the view that they were not reflected in the content, learning outcomes or assessments of modules. The Panel therefore asked the Team to review the allocation and mapping of the JBM threads and to ensure that these were appropriately reflected in the module descriptions.

6.7 STUDENT SUPPORT FOR INDEPENDENT LEARNING

The Panel reported that the students had indicated that they would welcome more support with their independent learning and study and that emails to staff were not always

answered. The Panel therefore enquired what support and guidance was given to students to enable effective independent learning. The Team advised that tutorial sessions were held each week, with a maximum of 13 students in each class. During these sessions students received academic and pastoral support. All module descriptions, lecture notes and reading lists were available on Blackboard and a large number of resources were held in the library. The Team stated that student attendance at classes was monitored using ClickView.

In addition to support from tutors, students were supported by their peers and were able to keep in touch with each other using social media. There was also a formal process in place whereby second year students mentored first years and within each school there was a widening participation team who offered additional support for students.

6.8 PHYSICAL RESOURCES

During the tour of facilities, the Panel had noted that some items of equipment were not yet in place and sought assurance from the Team that all of the resources required to support the provision would be in place prior to the September 2018 intake. The Team assured the Panel that business cases had been signed off, tenders had been awarded and that it was anticipated that the outstanding equipment would be delivered within six weeks. The Panel was advised that there had been significant investment in equipment and the reconfiguration of space and that additional laptops and CADD workstations would be made available for students over the next 18 months.

The Panel was of the view that the laboratory resources were commendable but enquired if Team members were confident that appropriate equipment was available to underpin all areas of the subject that were taught within the programme. The Team stated that its ambition had been to create a civil engineering laboratory and that equipment at Jordanstown and North West Regional College had been replicated. The Team had ensured that the equipment was appropriate for the delivery and assessment of the course.

The Panel was of the view that physical rather than theoretical demonstrations were much more beneficial for students. The Team informed the panel that site visits to, for example, Creagh Concrete had been incorporated into the delivery of the programme to provide the opportunity for students to see different work environments. Students also had opportunities to visit construction sites and the many live projects being carried out in the city centre within walking distance from the College. These visits were often incorporated into the assessment of modules.

6.9 STAFF DEVELOPMENT AND SCHOLARSHIP

The Panel enquired how Team members kept up-to-date with current developments in their subject areas and was informed that there was a significant budget allocated across schools for staff development, such as attending conferences, study and attending staff development activities at the University. Staff were encouraged to partake in these activities in addition to training provided by industry.

The Team explained that their scholarly activity focused more on developing projects for added-value rather than pure academic research and gave examples of how a qualification in CADD and BIM had been developed for employees at Creagh Concrete and Team members' involvement in real life projects. The Panel was informed that staff

were members of the Higher Education Academy and that staff engagement and awareness had been commended by QAA.

7 CONCLUSIONS

The Panel commended the following aspects of the provision:

- (i) the extent of employer networks and their engagement in the design and delivery of the programme;
- (ii) the support for students at pre-enrolment stage and in general;
- (iii) the forward-thinking programme with a very clear vision and positive outlook;
- (iv) the exemplary partnership with the Subject Partnership Manager evidenced by the coherent team approach to curriculum design.

The Panel agreed to recommend to the Academic Standards and Quality Enhancement Committee that the programme be reapproved for a period of five years (intakes 2018 – 2022), subject to the conditions and recommendations of the Panel being addressed, and a satisfactory response and revised submission being forwarded to the Academic Office by 31 May 2018 for approval by the Chair of the Panel.

Conditions

- (i) that the College ensure that all physical resources required to support the delivery of the programme are in place by the end of August 2018;
- (ii) that all of the points raised by the Academic Office in the Appendix be addressed.

Strong Recommendation

- (i) that the teaching input be mapped against all modules for both modes of study in order to ensure sufficient human resources are in place to support the delivery of the programme and that this be kept under review by the Faculty.

Recommendations

- (i) that the resources and activity available to support staff development be kept under review;
- (ii) that the Team keep under review liaison with JBM, particularly with regard to mapping back against former modules, due to the importance of output in JBM assessment;
- (iii) that the Team keep under review the potential for more creative use of VLEs, particularly for student support and engagement.

8 APPRECIATION

The Chair of the Panel thanked the College staff for their hospitality and the Panel members, in particular the external Panel members, for their valuable contribution to the revalidation exercise.

The Head of Department thanked the Panel members for their constructive comments, the Subject Partnership Manager, Ms M Paris, for her support and the Course Team members for their enthusiasm and commitment.