VALIDATION REPORT

1.	Title of Programme(s): (incl. Award Type and Specify Embedded Exit Awards)	Master of Science in Building Information Modelling and Digital Leadership Postgraduate Diploma in Science in Building Information Modelling (BIM) and Digital Leadership (60 credit Major Award) Certificate in Building Information Modelling (BIM) and Digital Leadership (30 credit Minor Award).
2.	NFQ Level(s)/ No. ECTS:	90 ECTS, 60 ECTS, 30 ECTS
3.	Duration:	2 Years, 1 year, 1 year
4.	ISCED Code:	0730 - Architecture & Construction
5.	School / Centre:	School of Engineering
6.	Department:	Building and Civil
7.	Type of Review:	New Programme Validation
8.	Date of Review:	16th February, 2022
9.	Delivery Mode:	Blended
10.	Panel Members:	Dr Joe Harrington, Head of School of Building & Civil Engineering, MTU Cork (Chair) Dr Derek Sinnott, Senior Lecturer, Department of Built Environment, Waterford Institute of Technology Dr Mark Shelbourn, Head of Department Built Environment & Associate Professor at Birmingham City University Ms Stephanie Niland, Lead MEP Coordinator, Kirby Group Engineering Ms Carmel Brennan, Head of Academic Quality, GMIT (Secretary)
11.	Proposing Staff:	Prof Graham Heaslip Ms Mary Rogers Dr Mark Kelly Mr Andy McNamara Mr Gerard Nicholson Mr Jimmy Fahy Mr Mark Costello Dr Martin Taggart Ms Michelle Fahey Dr Wayne Gibbons
12.	Programme Rationale:	The World Economic Forum (WEF) has identified the need for the construction sector to drive a transformation that will initiate a mindset 'breakthrough' in relation to

		technology, materials, and tools; processes and operations; strategy and business model. The WEF presented a vision of 'building in a virtual world' where automation, robotics, connected systems and cloud technology permeate daily life and industries of all kinds resulting in digital technologies replacing manual work and Artificial Intelligence (AI) led design and engineering processes. Building Information Modelling (BIM) is identified not only as a key enabler for collaboration and efficiency but also as a facilitator to utilise other exciting technological applications (3D printing, robotics, augmented and virtual realities and artificial intelligence) in these possible future scenarios. The digital transition presents enormous challenges for the built environment sector, which is further accentuated by the ongoing talent shortage resulting from a failure to innovate, competition from other industries, conservative work cultures and ongoing image difficulties. In Ireland, the recent publication of 'Building Future Skills: The Demand for Skills in Ireland's Built Environment Sector to 2030' (National Skills Council/Expert Group on Future Skills Needs, 2020) has identified the increasing importance of BIM and digital construction which is creating an urgent need for additional upskilling and retraining to respond to these trends. The report found that the top three roles that were most difficult to recruit were Quantity Surveyors, BIM Operators/Experts and Mechanical or Electrical Engineers. The higher education sector has a responsibility to respond to these trends, particularly in relation to graduate competency, knowledge, and skills. Key to this will be ongoing professional development and upskilling of industry stakeholders across all built environment disciplines. The M.Sc. in BIM and Digital Leadership will address some key challenges outlined in the 'Economic Analysis of Productivity in the Irish Construction Sector' report (KPMG, Future Analytics and TU Dublin, 2020), which identified a worryingly low uptake of education and training for digital transformation. This reflects a broader trend across the EU, where the there is a recognition that the sector is not digitising at the same speed as major construction markets (EC, 2019). This programme will target stakeholders across the whole built environment value chain, to provide support and empower them to lead the transition towards a digitalised built environment.

13.	Proposed Student Intake:	20
14.	Stakeholder Engagement:	Liaison with the industry at the GMIT International Construction Management Conference, the CitA/GMIT/CIOB/IGBC and various stakeholder meetings has identified significant interest in this programme within the built environment sector in Ireland. This will be further enhanced by the Digital Academy for a Sustainable Built Environment (DASBE) project, which is a Human Capital Initiative (HCI) Pillar 3 funded project led by a consortium of the Technology University of the Shannon: Midlands Midwest, Galway-Mayo Institute of Technology, the Irish Green Building Council, and the Tipperary Energy Agency (see https://dasbe.ie/).
15.	Graduate Demand/Employment:	This M.Sc. addresses a significant gap in relation to digital leadership, sustainability and evolving technological applications. It will provide graduates with a unique set of competences that will enable them to support and lead the transition towards a digitally enabled built environment sector. Employment opportunities across all phases of the supply chain i.e., from planning, to design, construction, operation, and end-of-life.
16.	Entry Requirements, Access, Transfer & Progression:	Candidates must hold a cognate level 8 Bachelor (Honours) degree with a minimum grade classification of H2.2 or equivalent e.g., Civil Engineering, Construction Management, Architectural Technology, Architecture, Construction Economics and Surveying, Quantity Surveying, Building Information Modelling etc. The proposers also stipulated applicants must be able to demonstrate a high level of competency in BIM related software and must have completed accredited CAD/BIM Level 8 modules. Candidates may be required to attend an interview or to produce an e-portfolio of relevant evidence for review before entry on to the course. However, this report requires the proposers to reconsider the necessity for BIM competency as part of the entry requirements as it is considered to be limiting and unnecessary. For candidates who do not meet the H2.2 performance standard in a Level 8 award, the Recognition of Prior Learning (RPL) process can be used to establish equivalence. GMIT is committed to the principles of transparency, equity, and fairness in the RPL process and to the principle of valuing all learning regardless of the mode or place of its

		acquisition. The GMIT Academic Code of Practice No. 6 outlines the policies and procedures for the Recognition of Prior Learning. Guidance for applicants is provided on www.myexperience.ie English Language Requirements will be as determined by GMIT and as published in the Access, Transfer and Progression code. Further details on English language requirements are available at http://www.gmit.ie/international/english-language-requirements-0 Candidates may also apply for advanced entry through the RPL process i.e., for students who may have completed equivalent studies
17.	Programme Structure:	The structure of the programme has been designed to create an innovative and dynamic learning environment for learners who will support and lead the transition towards a digitalised built environment. The programme contains the following options for the learner: 1. Certificate in Building Information Modelling (BIM) and Digital Leadership (30 credit Minor Award). 2. Postgraduate Diploma in Science in Building Information Modelling (BIM) and Digital Leadership (60 credit Major Award). 3. M.Sc. in Building Information Modelling (BIM) and Digital Leadership (90 credit Major Award). The Certificate consists of one mandatory 15-credit module, 'BIM and Digital Leadership' and a choice between one of the two 15-credit elective modules 'BIM for Sustainability' and 'Visual Programming for Digital Construction. The Postgraduate Diploma requires the addition of a mandatory 30-credit module, 'Build Digital Applied Work-Based Research' module, which will carry out a detailed study on the opportunities and challenges of embedding digitalisation principles within a real-world project or organisational context. This module will be supported by a suite of applied work-based research learning units to ensure that the module develops a research-informed evidence base. The M.Sc. requires the addition of a mandatory 30-credit module, 'Build Digital Minor Thesis' that will again, build on the 'Build Digital Applied WorkBased Research' module. This capstone element provides an opportunity for learners to undertake a significant research study, which will contribute to the continuously evolving pragmatic evidence-base guiding the transition towards a transparent, collaborative, and productive built environment.

18.	Learning, Teaching & Assessment Strategies:	The teaching and learning strategy will provide a creative and participatory learning environment to empower students to become leaders in the transition towards a collaborative and digitalized built environment. The programme will employ a consistent pedagogical approach that will ensure a balance between online and face-to-face participatory workshops, online resources, mentoring, peer learning, contextualized work-based learning, and self-directed independent study. The use of a variety of well-designed resources and media (audio, videos, transcripts etc.) will aim to formulate a personalized learning approach to learning. Key to this will be encouraging social discourse through peer and group learning to catalyse knowledge construction, development of critical thinking skills and the building of a community. Students will be encouraged to take responsibility for their own academic and personal development within a supportive learning environment and community of practice.
19.	Resource Implications:	The resources required for the programme are as follows: A dedicated programme coordinator (2 hours per week) for the duration of the M.Sc. 1. The BIM and Digital Leadership mandatory module will require a module coordinator(s) (6 hours per week) and 2-3 guest speakers each week (9 hours per week) for the duration of the module. 2. The Build Digital Applied Research Project mandatory module will require a module facilitator (6 hours per week for an 8-week period), 1 guest speaker (2 hours) for Weeks 1-4, and individual supervision at 0.5 hours per week for an 8-week period i.e., April to June (6 weeks) and September (2 weeks). Independent learning takes place between June and September with a draft submission due on September 1st, Final submission will be mid-September. 3. The BIM for Sustainability elective module will require a module coordinator (6 hours per week) and one guest speaker (3 hours) each week for the duration of the module. The Visual Programming for Digital Construction module will require a module coordinator (6 hours per week) and one guest speaker (3 hours) each week for the duration of the module. 4. The Minor Thesis mandatory module will require a module coordinator (6 hours per week), 4 guest speakers in total (8 hours) and individual supervision (0.5 hours per supervisor per week). This gives a total of 17 hours/week for the BIM and Digital Leadership mandatory module, 11 hours/week each for the

		BIM for Sustainability and Visual Programming for Digital Construction elective modules, 7 hours/week (not including individual supervision) for an 8-week period, 6.5 hours/week (not including individual supervision) for the Minor Thesis. IT support will also be required for the BIM for Sustainability and Visual Programming for Digital Construction Laboratory Workshops.
20.	Synergies with Existing Programmes:	This programme is part of a suite of educational offerings, which are being developed as part of the Human Capital Initiative (HCI) funded project 'Digital Academy for a Sustainable Built Environment' or 'DASBE'. GMIT have already commenced a complementary programme, the M.Sc. in Circular Economy Leadership for the Built Environment, in September 2021. This programme also directly responds to GMIT's involvement in the Build Digital Project and more particularly to the Sustainability Pillar, which GMIT will lead over the next five years.
21.	Findings and Recommendations:	Commendations: 1. There is evidence of extensive engagement with industry in relation to the development of the programme and wide support is obvious in the letters received from industry. 2. The documentation presented to the panel was of high quality and there was evidence of extensive research and reflection informing the programme development. 3. This is an innovative programme in an Irish context, and it is timely for the development of the industry which is currently experiencing a transformative change. 4. It is encouraging to see the commitment of the Institute, School and Department teams to the development, delivery and resourcing of this contemporary programme.
		Conditions: 1. Review and revise the assessment design for the 15 ECTS modules to ensure that each assessment within a module scaffolds the others. Ensure by doing this that there is appropriate robustness in the assessment of the modules and that it is clear that the students meet all the module learning outcomes. 2. Review the entry requirements for the programme in respect of the need for competency in BIM at level 8, given the focus of the programme on developing leadership in the industry.

		Recommendations: 1. Clarify in the documentation the strategy proposed in relation to establishing the programme, growing demand and sustaining the programme through future collaboration nationally and internationally. 2. Revise the title of the 'Minor Thesis' to more accurately reflect the output of the module. Consider whether alternative outputs could be produced for this module, giving students choice and increased opportunity to excel. 3. Ensure that there is a tri-partite agreement in place to ensure that employers and students are clear about expectations and responsibilities prior to the work-based project commencing. 4. Clarify that students will be onsite for facilitated workshops, but they will have access to virtual desktops to complete project work. 5. Ensure that there are key points of contact for the students for each module and the programme, and that this is clearly communicated to students. 6. Ensure that the Programme Board is continuously informed of changes and developments in the industry and that the programme content evolves as required remaining relevant. 7. Develop a plan to ensure that staff with appropriate knowledge and experience are available to provide student supervision, and that first time supervisors are appropriately trained, mentored and supported. 8. Ensure that the mapping of modules against Programme Learning Outcomes is correct in all instances. 9. Ensure that the elective rule is included on the Approved Programme Schedule and clarify how the award will be classified. 10. Review the reading lists for each module to ensure a consistent and appropriate approach to the volume of essential and recommended reading.	
22.	FAO: Academic Council:	Approved:	
		Approved subject to conditions and/or recommended changes:	X
		Not approved at this time:	
	Signed:		
		Chair	Secretary