APPROVED

INTR8031: Project BIM+M

Module Details

Module Code:	INTR8031
Title:	Project BIM+M APPROVED
Long Title:	Project BIM+M
NFQ Level:	Advanced
Valid From:	Semester 1 - 2019/20 (September 2019)
Duration:	1 Semester
Credits:	10
Field of Study:	5213 - Interdisciplinary Engineering
Module Delivered in:	2 programme(s)
Module Description:	Development of the build environment continues to be executed within an increasingly complex context. Effective communication and collaboration between the increasing variety of specialist professions across the Architectural, Engineering and Construction (AEC) sector is crucial to successful development of a universally designed, sustainable and resilient built environment. Building Information Modelling (BIM) represents a panacea to the problematic silo-based traditional approach to AEC projects. It is widely accepted that BIM comprises three primary pillars, namely, people, process and technology. This module will adopt a project-based learning approach in facilitating learners in the exploration of the contribution of such pillars in supporting collaborative and effective realisation of AEC projects. Learners will collaboratively undertake a multi-disciplinary AEC project where research and learning are shared within the safe confines of a cooperative learning environment, free of the risks of financial, legal, or professional risks inherent of industry. Learners will be supported in such collaborative activity by developing intrapersonal skills (e.g reflection), interpersonal skills (e.g. communication, team work), and leveraging the latest digital technologies in accordance with industry best practice processes.

Learning Outcomes

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

#	Learning Outcome Description
LO1	Apply the skills required for team members in effectively executing multidisciplinary AEC projects.
LO2	Develop the Employer's Information Requirements (EIR) for a proposed building or element of infrastructure.
LO3	Develop a BIM Execution Plan (BEP) and subsequent Master Information Delivery Plan (MIDP) in response to an EIR.
LO4	In accordance with industry BIM standards and project specific BEP, apply appropriate information authoring,modelling and management technologies to create and validate coordinated multidisciplinary models.
LO5	Reflect on and evaluate project work in order to identify enabling/obstructive methodologies and behaviours in attaining optimum design performance in terms of product, process, technology and people.

Dependencies

Module Recommendations

Incompatible Modules

No incompatible modules listed

Co-requisite Modules

No Co-requisite modules listed

Requirements

No requirements listed

Indicative Content

Collaborative Culture
Effective multidisciplinary AEC project delivery via immersion within a culture of knowledge sharing, information sharing, collaboration, and integrated project delivery using a real-world context within a safe educational setting.

Leveraging Digital Technology
Both multi-disciplinary and discipline specific software is evaluated and applied where appropriate to support the collaborative teams working within industry recognised lean processes.

Reflection
Collaborative processes will evolve over time, while supporting digital technologies are likely to experience ongoing and potentially significant evolution. Consequently, the ability of individuals and teams to reflect on existing practices and subsequently develop new practices will be increasingly significant.

Module Content & Assessment

Assessment Breakdown	%
Coursework	100.00%

Assessments

Coursework

Assessment Type	Reflective Journal	**% of Total Mark**	25
Timing	Every Week	**Learning Outcomes**	5

Assessment Description
Online/hardcopy reflective journal to be updated on a weekly basis, identifying and evaluating the student's key learning outcomes from experiences in group-based BIM projects. In week 12, students will be required to present a reflective report which includes reflection on and evaluation of project work, identification of enabling/obstructive methodologies and behaviours in attaining optimum performance in terms of product, process, technology and people.

Assessment Type	Project	**% of Total Mark**	10
Timing	Week 2	**Learning Outcomes**	1,2

Assessment Description
In the context of a group-based project, develop the Employer's Information Requirements (EIR) for a proposed building or element of infrastructure.

Assessment Type	Project	**% of Total Mark**	15
Timing	Week 4	**Learning Outcomes**	1,3

Assessment Description
In the context of a group-based project, develop a BIM Execution Plan (BEP) and subsequent Master Information Delivery Plan (MIDP) in response to an EIR for a building or element of infrastructure.

Assessment Type	Project	**% of Total Mark**	50
Timing	Sem End	**Learning Outcomes**	1,4

Assessment Description
The collaborative group-based design project will include key considerations of the design,
construction, and operation stages. Products of the process, which may include sketches, 3D information-centric models, schedules, 3D/4D/5D/6D simulations, shall be presented with in a

Common Data Environment (CDE). Upon completion of the project work, each team is required to deliver an oral presentation on their project work.

No End of Module Formal Examination

Reassessment Requirement
Repeat the module *The assessment of this module is inextricably linked to the delivery. The student must reattend the module in its entirety in order to be reassessed.*

Module Workload

Workload: Full Time					
Workload Type	*Contact Type*	*Workload Description*	*Frequency*	*Average Weekly Learner Workload*	*Hours*
Lecture	Contact	Delivery of module content.	Every Week	1.00	1
Lecturer-Supervised Learning (Contact)	Contact	Project work.	Every Week	4.00	4
Independent & Directed Learning (Non-contact)	Non Contact	Project work.	Every Week	9.00	9
				Total Hours	14.00
				Total Weekly Learner Workload	14.00
				Total Weekly Contact Hours	5.00

Workload: Part Time					
Workload Type	*Contact Type*	*Workload Description*	*Frequency*	*Average Weekly Learner Workload*	*Hours*
Lecture	Contact	Delivery of module content.	Every Week	1.00	1
Lecturer-Supervised Learning (Contact)	Contact	Project work.	Every Week	4.00	4
Independent & Directed Learning (Non-contact)	Non Contact	Project work.	Every Week	9.00	9
				Total Hours	14.00
				Total Weekly Learner Workload	14.00
				Total Weekly Contact Hours	5.00

Module Resources

Recommended Book Resources

Rafael Sacks, Chuck Eastman, Ghang Lee, Paul Teicholz. (2018), BIM Handbook: A Guide to Building Information Modeling for Owners, Designers, Engineers, Third. John Wiley & Sons, [ISBN: 978111928753].

Dominik Holzer. (2016), The BIM Manager's Handbook: Guidance for Professionals in Architecture, Engineering, and Construction, First. John Wiley & Sons, [ISBN: 1118982428].

This module does not have any article/paper resources

Other Resources

Website, RIAI BIM Pack, Ireland, RIAI,
http://www.riai.ie/consumer_services/wor king_with_an_architect_-_larger_projects /building_information_modelling_bim/

Website, Scottish Futures Trust,. Building Information Modelling, UK,
https://bimportal.scottishfuturestrust.o rg.uk/

Website, Autodesk,. Autodesk Education Community,
http://www.autodesk.com/education/home

Guidance Document, CIF BIM Starter Pack, Construction Industry Federation (CIF), 2018,
https://cif.ie/wp-content/uploads/2018/1 1/BIM-Starter-Pack-LBIC-CIF-ZZ-XX-GD-Z-0 003.pdf

Standard, ISO 19650-1:2018 Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information modelling - Part 1: Concepts and p, International Standards Organisation (ISO).

Standard, ISO 19650-2:2018 Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information modelling - Part 2: Delivery phase, International Standards Organisation (ISO).

Standard, BS 7000-4:2013 Design management systems. Guide to managing design in construction, UK, BSi.

Standard, BS/PAS 1192 Series of Standards, UK, BSi.

Module Delivered in

Programme Code	Programme	Semester	Delivery
CR_CBIMM_8	Bachelor of Science (Honours) in Building Information Modelling and Management	-1	Group Elective 2
CR_CABIM_8	Certificate in Applied Building Information Modelling and Management	-1	Mandatory