MODULE SPECIFICATION FORM

| Module Title: Building Information Modelling | Level: 6 | Credit Value: 20 |

| Module code: AUR606 | Cost Centre: GABE | JACS3 code: K100 |

| Trimester(s) in which to be offered: 1&2 | With effect from: September 2018 |

| *Office use only:*
To be completed by AQSU: | Date approved: September 2015
Date revised: March 2018
Version no: 4 |

| New: | Title of module being replaced (if any): |

| Originating Academic School:
Applied Science, Computing & Engineering | Module Leader: Dr Colin Stuhlfelder |

| Module duration
(total hours): 200

Scheduled learning 48
& teaching hours
Independent study hours: 152

Placement hours: 0 | Status: Core |

| Programme(s) in which to be offered:

BSc (Hons) Construction Technology
BSc Civil Engineering Studies
BSc (Hons) Construction Management | Pre-requisites per programme (between levels): None |

Module Aims: The module aims to engage students in the history, application and expected development of project management and Building Information Modelling (BIM) in the United Kingdom and beyond. These methods being tools for managing the full cycle of inception, design, construction and onwards through the management of completed project through to its eventual adaptation and deconstruction.

Students will engage with schemes considered to reflect good practice and exemplars of construction project management and BIM in order to appreciate its widest benefits, as well as considering the barriers to the effective digitisation of the design, construction management and facilities management of schemes and projects.

Intended Learning Outcomes:

At the end of this module, students will be able to:

1. Critically compare and contrast current regulation and application of national and international approaches to Building Information Modelling (KS1, KS3, KS4, KS5, KS6, KS9, KS10);
2. Apply independently directed research methodologies and problem solving techniques to critically analyse existing case studies in order to assess current and future applications and trends for Building Information Modelling (KS1, KS3, KS4, KS5, KS6, KS9, KS10);
3. Synthesise the findings of relevant research and assumptions against a negotiated project example (KS1, KS2, KS3, KS4, KS5, KS6, KS9, and KS10).

Key skills for employability

1. Written, oral and media communication skills
2. Leadership, team working and networking skills
3. Opportunity, creativity and problem solving skills
4. Information technology skills and digital literacy
5. Information management skills
6. Research skills
7. Intercultural and sustainability skills
8. Career management skills
9. Learning to learn (managing personal and professional development, self-management)
10. Numeracy

Assessment: All assessments will be based on developing an understanding of project management and BIM leading to the application of this understanding to a negotiated case study based either on a reported example or an active project.

This will include a comparative study between UK and another nation/region's approach to BIM, an evaluation of current and future trends, and the application of this information to the formation of a theoretical BIM plan.

The modules will assess Learning Outcomes at multiple points as the assignments are cumulative tasks and it would not aid progression if outcomes relating to project management/BIM advancements were not considered for each response.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting	Duration (if exam)	Word count (or equivalent if appropriate)
1	1	Presentation	20%	N/A	1,000
2	2	Essay	30%	N/A	1,000
3	1, 2 & 3	Project	50%	N/A	2,000

Learning and Teaching Strategies: Learning will be based around a planned lecture series introducing the topic of project management leading to programmed CAD lab sessions and reviews. The reviews assess group and student progress through the stages of their responses to set project briefs in a context where all students are able to observe developments and learn not only from their own feedback, but also to contribute to and develop from the feedback received by their peers.

Students will explore the concept BIM processes, people and information that effect a collaboration and sharing of data amongst the project team, supported by IT.

Delivery will be supplemented with opportunities for group and individual seminars and tutorials. Furthermore guest lecturers to bring specific topic expertise into the lecture series will be encouraged, either from within the University or through the professional network related to the Built Environment. Where possible site visits will also be organised for students to meet professionals from across the sector and to experience live projects.

Syllabus outline:
- Staged evaluation of the progressive levels of BIM, including the history of project management, digital drawing and project techniques and onwards to the future predicted trends related to the subject.
- Evaluations of reported case studies from the UK and beyond will include consideration of how these techniques could be applied to projects students are aware of or have actively been involved with in order to underpin the theory included in the module, together with reference to health and safety aspects, sustainable considerations and commercial awareness, with the scope for practical application.
- Theory relating to BIM as a digital process will be supplemented with CAD laboratory sessions where the practical application of key stages will be addressed using relevant models. This will include using CAD programs to understand parametric modelling, interoperability, collaboration formats etc.

Bibliography:

Essential reading:

Hardin, B & McCool, D (2015) *BIM and Construction Management: Proven Tools, Methods and Workflows*, Sussex Sybex.

Race, S. (2013) *BIM Demystified*, London :RIBA

Most reading will be related to specific software and students will be directed to the appropriate resources depending on what software is current.

Furthermore most CAD guides are either an integrated part of the software itself, or are a web resource.

Other indicative reading:
http://expeditionworkshed.org/search/sketches
Other indicative reading will be made available via the VLE.

Other sources:
www.ice.org.uk
www.istructe.org.uk
www.theihe.org.uk
www.ciht.org.uk
www.ihsti.com