

Liverpool John Moores University

Title: ADVANCED MODELLING FOR CONSTRUCTION AND PROPERTY
Status: Definitive
Code: **7085BEPG** (119560)
Version Start Date: 01-08-2013

Owning School/Faculty: Built Environment
Teaching School/Faculty: Built Environment

Team	Leader
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Academic Level: FHEQ7 **Credit Value:** 10.00 **Total Delivered Hours:** 18.00
Total Learning Hours: 100 **Private Study:** 82

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Online	18.000

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	AS1	2500 WORD ESSAY	50.0	
Report	AS2	EVALUATIVE REPORT	50.0	

Aims

This module aims to introduce students to advanced modelling techniques for the construction and property industry.

Learning Outcomes

After completing the module the student should be able to:

- 1 Critically evaluate the principles of augmented reality systems and the elements required in order to design such systems.
- 2 Critically appraise the principles and benefits of building information models across all disciplines involved in the design and construction process, and throughout all phases of this process.
- 3 Consider the future possibilities of advanced modelling techniques and suggest future improvements to enhance the benefits for the construction and property industry.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

ESSAY	1	2
REPORT	3	

Outline Syllabus

Introduction to advanced modelling techniques used in the construction and property industry with particular focus on building information modelling and augmented reality.

Building information modelling; defining building information modelling and the many dimensions for use across all disciplines and throughout the design, construction and facility operation; its application throughout the project life cycle; software and standards; demonstration.

Augmented reality: comparison with other methods of representing reality; discussion of the importance to the construction and property industry; introduction of equipment and systems required for implementation (e.g. smart phones, headsets, global positioning, etc.); examples of augmented reality use and demonstration of system creation.

Different uses of advanced modelling at different stages of construction.

Future possibilities for technology application and the convergence of fields toward more effective tools in the construction and property industry.

Learning Activities

Online lectures, online demonstration.

References

Course Material	Book
Author	Borko Furht

Publishing Year	2011
Title	Handbook of Augmented Reality
Subtitle	
Edition	
Publisher	Springer
ISBN	1461400635

Course Material	Book
Author	Lester Madden
Publishing Year	2011
Title	Professional Augmented Reality Browsers for smart phones
Subtitle	
Edition	
Publisher	John Wiley & Sons
ISBN	1119992818

Course Material	Book
Author	Tony Mullen
Publishing Year	2011
Title	Prototyping Augmented Reality
Subtitle	
Edition	
Publisher	John Wiley & Sons
ISBN	1118036638

Course Material	Book
Author	Norman Fisher
Publishing Year	1997
Title	Project modelling in construction: seeing is believing
Subtitle	
Edition	
Publisher	Thomas Telford
ISBN	9780727725813

Course Material	Book
Author	J.A. Clarke.
Publishing Year	2001
Title	Energy simulation in building design
Subtitle	
Edition	2nd Edition
Publisher	Oxford: Butterworth-Heinemann
ISBN	0750650826

Course Material	Book
Author	Chuck Eastman
Publishing Year	2011

Title	BIM handbook: a guide to building information modeling for owners, managers designers, engineers, and contractors
Subtitle	
Edition	2nd Edition
Publisher	Hoboken, N.J.: Wiley
ISBN	9781118021675

Course Material	Book
Author	Randy Deutsch
Publishing Year	2011
Title	BIM and integrated design: strategies for architectural practice
Subtitle	
Edition	
Publisher	Hoboken, N.J.: Wiley
ISBN	9781118086490

Course Material	Book
Author	François Lévy
Publishing Year	2012
Title	BIM in small-scale sustainable design
Subtitle	
Edition	
Publisher	Hoboken, N.J.: Wiley
ISBN	9786613332400

Course Material	Book
Author	K. Pramod Reddy
Publishing Year	2012
Title	BIM for building owners and developers: making a business case for using BIM on projects
Subtitle	
Edition	
Publisher	Hoboken, N.J.: John Wiley & Sons
ISBN	9786613400826

Course Material	Book
Author	Mohd Fairuz Shiratuddin, Tulio Sulbaran, Shane Germany
Publishing Year	2010
Title	Introduction to ArchiCAD: a BIM application
Subtitle	
Edition	
Publisher	Clifton Park, N.Y.: Delmar Cengage Learning
ISBN	1428356649

Notes

Will introduce students to advanced modelling techniques including Building Information Modelling and Augmented Reality. The techniques used for each will be described in detail and examples given, along with insight into the converging future use of the technologies. Devices and systems required for implementing augmented reality systems including software, headsets, smart phones and methods of creating augmented reality environments will be discussed. Students will also receive a practical training in latest software packages including ArchiCAD, Revit and AutoCAD.