

## Subject Description Form

<b>Subject Code</b>	BRE398
<b>Subject Title</b>	Building Information Modeling (BIM)
<b>Credit Value</b>	3
<b>Level</b>	3
<b>Pre-requisite / Co-requisite/ Exclusion</b>	Nil
<b>Objectives</b>	<ol style="list-style-type: none"> <li>1. Provide students with an overview of the application of BIM in building lifecycle, especially in building engineering and construction management;</li> <li>2. Develop an understanding of the practical method to apply and operate BIM in contemporary building projects.</li> </ol>
<b>Intended Learning Outcomes</b>	<p><i>Students will demonstrate their ability to:-</i></p> <ol style="list-style-type: none"> <li>1. Understand the concept of BIM and the constituents of BIM models;</li> <li>2. Understand the functions and benefits of BIM in building engineering and construction management;</li> <li>3. Use some typical software packages to build or operate basic BIM models;</li> <li>4. Apply BIM technology to building projects so as to solve some problems occurring in building projects.</li> </ol>
<b>Subject Synopsis/ Indicative Syllabus</b>	<p>Emergence and development of BIM: background and development.            Basic concepts related to BIM: BIM, 4D, and construction virtual prototyping.            Functions and benefits of BIM: building lifecycle - design, tendering, construction, and maintenance.            Software packages for BIM: Autodesk Revit, and Catia - Dassault Systemes.            Practical method of applying BIM: barriers, principles, and a real-life case.            Some representative cases of adopting BIM: mega or complex building projects.</p>
<b>Teaching/Learning Methodology</b>	<p>Lectures and workshops will be delivered through the whole semester. Lectures will be used to introduce the basic concepts and functions of BIM and the method to employ BIM technology in building projects, and also to demonstrate some successful cases in which BIM has been adopted, while small group-based workshops will be applied into the study of software packages for BIM and project-based BIM application in different phases. Guest speakers will also be invited to give some seminars on the latest development and application of BIM technology.</p>

<b>Assessment Methods in Alignment with Intended Learning Outcomes</b>	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)				
			1	2	3	4	
	1.course work	40	√	√	√	√	
	2. exam	60	√	√	√		
	Total	100 %					
<p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p>Examination and coursework will constitute 60% and 40% of the overall mark for the subject respectively. Coursework mark will be based on presentation and exercises. Exercises will be conducted based on the application of BIM to different phases of building projects.</p>							
<b>Student Study Effort Expected</b>	Class contact:						
	▪ lectures						21Hrs.
	▪ tutorials						21Hrs.
	Other student study effort:						
	▪						Hrs.
	▪						Hrs.
Total student study effort							Hrs.
<b>Reading List and References</b>	<p>Eastman, C., Teicholz, P., Sacks, R. and Liston, K. (2008) <i>BIM handbook: a guide to building information modeling for owners, managers, designers, engineers, and contractors</i>, John Wiley and Sons.</p> <p>Eastman, C.M. (1999) <i>Building Product Models: Computer Environments Supporting Design and Construction</i>, CRC Press LLC.</p> <p>Elvin, G. (2007) <i>Integrated practice in architecture : mastering design-build, fast-track, and building information modeling</i>, John Wiley and Sons.</p> <p>Hardin, B. (2009) <i>BIM and Construction Management: Proven Tools, Methods, and Workflows</i>, John Wiley and Sons.</p> <p>Kymmell, W. (2008) <i>Building information modeling: planning and managing construction projects with 4D CAD and simulations</i>, McGraw-Hill.</p> <p>Smith, D.K. and Tardif, M. (2009) <i>Building information modeling: a strategic implementation guide for architects, engineers, constructors, and real estate asset managers</i>, John Wiley and Sons.</p> <p><b>Supplementary:</b></p> <p>Krygiel, E., Nies, B. and McDowell, S. (2008) <i>Green BIM: successful sustainable design with building information modeling</i>, John Wiley and Sons.</p>						