Subject Description Form

Subject Code	BRE470
Subject Title	Information Technology and Building Information Modelling for Construction
Credit Value	3
Level	4
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This subject is intended to develop an understanding of the practical application of computer systems and packages in building life cycle process and the application of building information modelling (BIM) in construction.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. understand and demonstrate knowledge of building life cycle process. b. understand and demonstrate knowledge of the application of computer systems and BIM in various procurement stages of a building project. c. appraise commercially available and tailor-made computer packages and BIM application in building life cycle process.
Subject Synopsis/ Indicative Syllabus	The process of building life cycle. Identifying the benefits of construction IT/ BIM applications. The appraisal of CAD/BIM systems in design communication and drawing production. The application of construction IT/ BIM packages in cost planning and preliminary estimating. The application of construction IT/BIM in the preparation of tender, measurement and production documents. Computerized estimating, bidding and tender appraisal. The application of IT/BIM in post-contract cost control, valuation, interim payment and final project account. Computerized construction management in project planning, information control, materials control, progress control and quality assurance. The application of IT/BIM in property and facility management.

<table>
<tr><td>Teaching/Learning Methodology</td><td>Lectures and workshops will be run throughout the semester period. A lecture schedule outlining the topics to be covered will be distributed to students in the first lecture of the semester. In the workshop periods, students will be required to assess and use the systems and to prepare group assignments.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td></td><td></td><td></td></tr>
<tr><td>1. Coursework</td><td>50%</td><td>√</td><td>√</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td>2. Examination</td><td>50%</td><td>√</td><td>√</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td>100%</td><td colspan="6"></td></tr>
</table>
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Coursework and examination will each constitute 50% of the overall assessment for the subject. The coursework mark will be based on the assignments, presentation and discussion.

The examination will be based on a 2 hours examination gearing towards the materials covered in the lecture periods and background readings. Coursework by assignment and group projects will be set to assess the students' abilities and skills required in this subject.
</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lectures</td><td>26 Hrs.</td></tr>
<tr><td>▪ Tutorials / Laboratory sessions</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Self learning and recommended reading</td><td>80 Hrs.</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total student study effort</td><td>119 Hrs.</td></tr>
</table>
</td></tr>
<tr><td>Reading List and References</td><td>ASCE Journal of Computing in Civil Engineering (http://www.asce.org).

Automation in Construction. An International Research Journal. (http://www.elsevier.com/locate/autocon).

Bryde, D., Broquetas, M. and Volm, J.M. (2013). The Project Benefits of Building Information Modelling (BIM), International Journal of Project Management, Volume 31, Number 7, pp. 971-980.</td></tr>
</table>

Construction Industry Council (2014/15), Roadmap / Standard for Building Information Modelling in Hong Kong's Construction Industry.

Eastman, C., Eastman, C.M., Teicholz, P., Sacks, R. and Liston, K. (2011). BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors, John Wiley & Sons.

Electronic Journal of Information Technology in Construction (http://*www.itcon.org)*.

Wong, K.D. (2003). *Construction Integrated Management System for Contractors*, Journal of Building and Construction Management, Volume 8, Number 1, pp. 12-18, ISSN 102419540.

Wong, K.D. (2006). *Use of Smart Card for Enhancing Construction Site Human Resources Management*, Journal of Building and Construction Management. Volume 10, Number 1, p. 63-68, ISSN 1024-9540.

Wong, K.D. (2008). *HKSAR Government Roadmap in Construction IT and BIM Research*, Proceedings of the "Construction Information Management Forum 2008", 19 November 2008, Guangzhou, pp. 10-24.

Wong, K.D. et al (2009). *Comparative Roles of Major Stakeholders for the Implementation of BIM in Various Countries*", Proceedings of the Changing Roles Conference 2009, 5-9 October 2009, The Netherlands, pp. 23-33, ISBN 978-90-9024641-3.

Wong, K.D. et al (2009). *Attributes of Building Information Modelling and its Development in Hong Kong*, HKIE Transactions, Volume 16, Number 2, June, pp. 38-45, ISSN 1023-697x.

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Wong, K.D. et al (2013). *Implementation of Web-based Construction Project Management System in China Projects by Hong Kong Developers*, Journal of Construction Innovation: Information, Process and Management, Volume 13, January, pp. 26-49, DOI/10.1108/14714171311296048.

Wong, K.D. et al (2013). *Building Information Modelling (BIM) for Sustainable Building Design*, Facilities, Volume 31, Issue No 2/4, April, pp. 138-157, ISSN 0263-2772.