

Subject Description Form

Subject Code	BRE361
Subject Title	Construction Technology & Materials II
Credit Value	3
Level	3
Pre-requisite	BRE261 or equivalent
Objectives	<ol style="list-style-type: none"> 1. To identify and understand the range of building materials and advance technologies that is available and appropriate for the construction of contemporary buildings. 2. To facilitate an understanding of the centrality of technological decision making in the context of the wider construction process. 3. To provide the necessary skills to allow the evaluation of a range of technologies towards the adoption of an appropriate design and construction decision.
Intended Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> (1) possess knowledge of processes and methods for the development of construction projects. (2) possess knowledge of choices on applications of appropriate construction materials. (3) use the knowledge and methods for different types of construction. (4) solve the identified technological problems occurred during construction projects' processes. (5) apply the code of practice, environmental and safety issues into the construction processes.
Subject Synopsis/ Indicative Syllabus	<p>The overall process of a construction project.</p> <p>Site production: engineering approach in producing the site layout and site planning.</p> <p>Sub-structural construction: deep foundations including pile foundations and caissons, basement's construction.</p> <p>Construction materials: reinforced concrete, concrete mix, high strength concrete, self compaction concrete, high performance concrete, constructional metals, finishing materials.</p> <p>Super-structural construction: structural materials, reinforcement concrete structures, steel structures, composite building systems.</p> <p>Complex walls.</p> <p>System formworks.</p> <p>Environmental and safety issues in construction process.</p> <p>IT in construction process.</p>
Teaching/Learning Methodology	<p><u>Interactive Lectures</u> will enable students to:</p> <ol style="list-style-type: none"> 1. understand the working processes of high-rise buildings from sub-structure to super-structure. 2. analyse and compare alternatives in the process of building structures. 3. apply the theories and concepts to comply with environmental and safety constraints. <p><u>Tutorial</u> will enable students to consolidate the knowledge on technological methods throughout the building production process through problem-solving assignments, case study and discussions.</p>

Assessment Methods in Alignment with Intended Learning Outcomes	<table border="1"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th> <th rowspan="2">% weighting</th> <th colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>1. Coursework</td> <td>30 %</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>2. Examination</td> <td>70 %</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td></td> <td></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> </tbody> </table>	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)						1	2	3	4			1. Coursework	30 %	✓	✓	✓	✓			2. Examination	70 %	✓	✓	✓	✓											Total	100 %						
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<p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p>Students could demonstrate their understanding on the subject through the preparation of coursework and presentation. Problem-based learning and case study approach will be used.</p> <p>Students' overall understanding of the subject will be assessed in the examination, on both the theoretical knowledge and practical application.</p>																																															
Student Study Effort Expected	Class contact:																																														
	▪ Lecture						26 Hrs.																																								
	▪ Tutorial						13 Hrs.																																								
	Other student study effort:																																														
	▪ Self-development						60 Hrs.																																								
	▪ Coursework preparation						21 Hrs.																																								
	Total student study effort						120 Hrs.																																								
Reading List and References	<p>Recommended : Chew, Y.L.M. (2009) <i>Construction Technology for Tall Buildings</i>. 3rd edition Singapore: Singapore University Press.</p> <p>Chudley, R. (2006) <i>Advanced Construction Technology</i> (Rev. ed.) 4th Edition, Longman.</p> <p>Foster J.S. & Greeno R., (2007) <i>Structure & Fabric – Part II</i>, 7th Edition, Mitchell, Pearson Prentice Hall.</p> <p>Supplementary:</p> <p>Allen E. (2009) <i>Fundamentals of Building Construction: Materials and Methods</i>. 5th Edition, John Wiley & Sons, New York.</p> <p>Ambrose, J.E. (1992) <i>Building Construction and Design</i>. New York: Van Nostrand Reinhold.</p>																																														

Blanc, A. (1994) *Internal Components*, Mitchell, Longman.
BRE (British Research and Establishment) Digests.

Council on Tall Buildings and Urban Habitat (1995), *Architecture of Tall Buildings*, America: McGraw Hill.

Chudley, R. (2012) *Advanced Construction Technology*. Harlow, Pearson

Davies, V.J. and Tomasin, K. (1996) *Construction Safety Handbook*, 2nd Edition. London, Telford.

Illingworth, J.R. (2000) *Construction Methods and Planning*. 2nd Edition. London: E&FN Spon.

Mamlouk, M.S. (2011) *Materials for civil and construction engineers*. 3rd Edition. Prentice Hall

McEvoy, M. (1994) *External Components*. Mitchell, Longman.

Nunnally, S.W. (2011) *Construction Methods and Management*. 8th Edition. Prentice

Wong, W.M.R. (1998) *15 Most Outstanding Projects in Hong Kong*. Hong Kong: China Trend Building Press Ltd.

Wong, W.S. (1991) *Building Materials and Technology in Hong Kong*, All Arts Ltd.