

## Subject Description Form

<b>Subject Code</b>	BRE370
<b>Subject Title</b>	Intermediate Construction Technology & Materials
<b>Credit Value</b>	3
<b>Level</b>	3
<b>Pre-requisite</b>	BRE261 or equivalent
<b>Objectives</b>	<ol style="list-style-type: none"> <li>1. To identify and understand the range of building materials and advanced technologies that is available and appropriate for the construction of high-rise buildings.</li> <li>2. To facilitate an understanding of the centrality of technological decision making in the context of the planning and execution of construction projects.</li> <li>3. To provide the necessary skills facilitating evaluation of technical solutions and alternatives for construction operations.</li> </ol>
<b>Intended Learning Outcomes</b>	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> <li>1. possess knowledge of processes and methods for the planning and execution of construction projects.</li> <li>2. possess knowledge of identifying appropriate construction materials for different applications.</li> <li>3. apply the knowledge and methods for different types of construction.</li> <li>4. solve identified technological problems in construction projects.</li> </ol>
<b>Subject Synopsis/ Indicative Syllabus</b>	<p>The overall process of a construction project.</p> <ul style="list-style-type: none"> <li>- Construction materials: non-ferrous metals, structural use of timber, glazing materials, behaviour of construction materials at fire</li> <li>- Sub-structure construction: deep foundations including pile foundations and caissons, basement's construction.</li> <li>- Super-structure construction: structural materials, reinforcement concrete structures, steel structures, introduction to composite building systems.</li> <li>- System formworks &amp; falsework</li> <li>- Precast Concrete</li> <li>- Claddings and curtain walls</li> <li>- Environmental and safety issues in construction process.</li> <li>- Construction equipment economy</li> <li>- Machine productivity</li> <li>- Earthwork</li> </ul>
<b>Teaching/Learning Methodology</b>	<p><u>Interactive Lectures</u> will enable students to:</p> <ol style="list-style-type: none"> <li>1. understand the working processes of high-rise buildings from sub-structure to super-structure.</li> <li>2. analyse and compare alternatives on structural design of buildings and construction processes.</li> <li>3. apply the theories and concepts in compliance with environmental and safety constraints.</li> </ol> <p><u>Tutorials</u> will enable students to consolidate the knowledge and application of technological knowhow throughout the building production process via problem-solving assignments, case study and discussions.</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. Coursework	20%	✓	✓	✓	✓		
	2. Mid-term Test	20%		✓	✓	✓		
	3. Examination	60 %	✓	✓	✓	✓		
Total	100 %							
<p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p>Students could demonstrate their understandings on the subject through the preparation of coursework and/or presentation. Problem-based learning and case study approaches will be used.</p> <p>Mid-Term Test with multiple choice and short questions is for assessing students' general understandings of the subject content.</p> <p>Students' overall understanding of the subject will be assessed in the examination on both the theoretical knowledge and practical application.</p> <p>Students must pass both the continuous assessment elements (Coursework and Mid-term) and the end-of-term examination in order to pass the subject.</p>								
<b>Student Study Effort Expected</b>	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.					
<b>Reading List and References</b>	<p><b>Recommended :</b></p> <p>Chew, Y.L.M. (2012) <i>Construction Technology for Tall Buildings</i>. 4th 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. &amp; Greeno R., (2007) <i>Structure &amp; Fabric – Part II</i>, 7th edition, Mitchell, Pearson Prentice Hall.</p>							

**Supplementary:**

Allen E. (2009) *Fundamentals of Building Construction: Materials and Methods*. 5th Edition, John Wiley & Sons, New York.

Blanc, A. (1994) *Internal Components*, Mitchell, Longman.

BRE (British Research and Establishment) Digests.

Brookes A.J. & Meijs M. (2008), *Cladding of Buildings*, 4th Edition, Taylor & Francis.

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

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

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

Watts A., (2007), *Facades – Technical Review*, RIBA Publishing

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

Ascher K. (2011), *The Heights – Anatomy of a Skyscraper*, Penguin.