Subject Description Form

Subject Code	BRE361
Subject Title	Construction Technology & Materials II
Credit Value	3
Level	3
Pre-requisite	BRE261 or equivalent
Objectives	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. 2. To facilitate an understanding of the centrality of technological decision making in the context of the planning and execution of construction projects. 3. To provide the necessary skills facilitating evaluation of technical solutions and alternatives for construction operations.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: 1. possess knowledge of processes and methods for the planning and execution of construction projects. 2. possess knowledge of identifying appropriate construction materials for different applications. 3. apply the knowledge and methods for different types of construction. 4. solve identified technological problems in construction projects.
Subject Synopsis/ Indicative Syllabus	The overall process of a construction project. - Construction materials: non-ferrous metals, structural use of timber, glazing materials, behaviour of construction materials at fire - Sub-structure construction: deep foundations including pile foundations and caissons, basement's construction. - Super-structure construction: structural materials, reinforcement concrete structures, steel structures, introduction to composite building systems. - System formworks & falsework - Precast Concrete - Claddings and curtain walls - Environmental and safety issues in construction process. - Construction equipment economy - Machine productivity - Earthwork
Teaching/Learning Methodology	Interactive Lectures will enable students to: 1. understand the working processes of high-rise buildings from sub-structure to super-structure. 2. analyse and compare alternatives on structural design of buildings and construction processes. 3. apply the theories and concepts in compliance with environmental and safety constraints. Tutorials 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.

Assessment Methods in Alignment with Intended Learning Outcomes

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 %						

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

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.

Mid-Term Test with multiple choice and short questions is for assessing students' general understandings of the subject content.

Students' overall understanding of the subject will be assessed in the examination on both the theoretical knowledge and practical application.

Students must pass both the continuous assessment elements (Coursework and Mid-term) and the end-of-term examination in order to pass the subject.

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

Recommended :

Chew, Y.L.M. (2012) *Construction Technology for Tall Buildings*. 4th edition Singapore: Singapore University Press.

Chudley, R. (2006) *Advanced Construction Technology* (Rev. ed.) 4th edition, Longman.

Foster J.S. & Greeno R., (2007) *Structure & Fabric – Part II*, 7th edition, Mitchell, Pearson Prentice Hall.

	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.