Subject Description Form

Subject Code	CSE565
Subject Title	Construction Technology
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	Construction works are relatively complex and are completed through the combined efforts of different trades. To resolve a construction dispute, it is essential to understand both the operation and technologies involved. The objectives of this subject are to facilitate students to understand different types of construction works and the sequence of construction operations.
Intended Learning Outcomes	Upon completion of the subject, students will be able: a. to apply the different construction techniques to formulate effective solutions to construction practice in Hong Kong; b. to identify technological considerations on demolition, maintenance and repair of buildings; c. to work with others in group works and take responsibility for an agreed area of shared activities; and d. to have creative and critical thinking and ability to work independently.
Subject Synopsis/ Indicative Syllabus	**Keyword Syllabus** i) Introduction The parties: client, architect, consultants, contractor and government officers; types of main contractors and sub-contractors; site supervision on substructure and superstructure works. ii) Earthworks Advanced techniques and plants used in excavating and transporting soil or rock; methods in dumping/compacting earth. iii) Basement Construction Basic construction methods - top down and bottom up methods; retaining wall systems and modern water-tight systems; layout of shoring system for large and small site.

	iv) <u>Substructure</u> Shallow foundations – from simple footing to raft foundation; Piled foundations – displacement/replacement piles; pile loading tests, coring and latest advances in pile tests; acceptance criteria. v) <u>Reinforced Concrete, Pre-stressed Concrete and Pre-cast Concrete</u> Reinforced concrete – ready mixed concrete, in-situ concrete, quality control; formwork, propping, vibration and compaction, coring tests; Pre-stressed concrete - pre-tensioning and post-tensioning concrete; applications on bridge structures; Pre-cast concrete - production, erection and handling procedure. vi) <u>Structural Steelwork</u> Material specifications and fabrications; connections – different types and testing techniques; erection - methods of handling and procedures on erection; methods on fire protection. vii) <u>Demolition work</u> Methods of demolition; procedures of demolition work; safety measures. viii) <u>Maintenance and repair</u> Visual inspection, advances on destructive and non-destructive testing techniques; repair of external façade; waterproofing; structural repair; -chemical treatment; desalination; re-alkalization.
Teaching/Learning Methodology	Lectures will provide updated knowledge relating to the construction practice in Hong Kong. There will be 3 assignments, 1 mid-term test and 1 case study. Case studies will be conducted in groups. Each and every student will have to present his/her part to the class. Independent study and associated reading will require students to conduct some problem-solving exercises independently.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)			
		a.	b.	c.	d.
Assignments 1 and 2	33.3%	✓		✓	
Assignment 3	16.7%	✓	✓	✓	
Mid-term test	25%	✓			✓
Case study	25%	✓	✓	✓	✓
Total	100 %				

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

Continuous assessment will be based on 3 assignments, 1 mid-term test and 1 case study.

Students must attain at least grade D in both coursework and final examination (whenever applicable) in order to attain a passing grade in the overall result.

Reading List and References

Essential Textbook

Construction Planning, Equipment, and Method, R.L. Peurifoy, C.J. Schexnayder and A. Shapira, McGraw Hill, 7th Edition, 2006.

Practice Notes, Construction Standards and Regulations.

Reference Textbook

Advanced Construction Technology, R. Chudley, Harlow, England, 1999.

Introduction to Civil Engineering Construction, 3rd Ed., R. Holmes, Reading: College of Estate Management, 1995.

Building Construction and Design, J.E. Ambrose, Van Nostrand Reinhold, New York, 1992.

Construction Technology for Tall Buildings, M.Y.L. Chew, Singapore University Press, 2001.