**City University of Hong Kong**
**Course Syllabus**

**offered by Department of Architecture and Civil Engineering**
**with effect from Semester A 2021/22**

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## Part I Course Overview

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| **Course Title:** | Construction Methods and Equipment |
| **Course Code:** | CA3703 |
| **Course Duration:** | 1 Semester<br>(Some courses offered in Summer Term may start a few weeks earlier than the normal University schedule. Please check the teaching schedules with CLs before registering for the courses.) |
| **Credit Units:** | 3 |
| **Level:** | B3 |
| **Proposed Area:**<br>*(for GE courses only)* | [] Arts and Humanities<br>[] Study of Societies, Social and Business Organisations<br>[] Science and Technology |
| **Medium of Instruction:** | English |
| **Medium of Assessment:** | English |
| **Prerequisites:**<br>*(Course Code and Title)* | Nil |
| **Precursors:**<br>*(Course Code and Title)* | Nil |
| **Equivalent Courses:**<br>*(Course Code and Title)* | BC3618 / CA3618 Construction Technology |
| **Exclusive Courses:**<br>*(Course Code and Title)* | CA3171 Construction Technology and Structural Planning |

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**Part II Course Details**

## 1. Abstract

*(A 150-word description about the course)*

The course aims to provide the knowledge of contemporary construction methods and equipment for building and civil structures. The provided knowledge will help the student to plan, implement, supervise and monitor various construction activities on site.

## 2. Course Intended Learning Outcomes (CILOs)

*(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)*

| No. | CILOs [#] | Weighting* (if applicable) | Discovery-enriched curriculum related learning outcomes (please tick where appropriate) | | |
|---|---|---|---|---|---|
| | | | *A1* | *A2* | *A3* |
| 1. | Describe the various procedures for building construction and infrastructure construction. | | | ✓ | |
| 2. | Describe the characteristics and operation principles of different equipment for typical activities on construction jobsites. | | | ✓ | |
| 3. | Describe the characteristics and operation principles of different equipment for typical activities on construction jobsites. | | | ✓ | |
| 4. | Perform planning, selection, and utilization of construction equipment in a cost-effective manner. | | | | ✓ |
| ** If weighting is assigned to CILOs, they should add up to 100%.* | | 100% | | | |

[#] *Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.*

*A1: Attitude*

*Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.*

*A2: Ability*

*Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.*

*A3: Accomplishments*

*Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.*

**3. Teaching and Learning Activities (TLAs)**
*(TLAs designed to facilitate students' achievement of the CILOs.)*

| TLA | Brief Description | CILO No. | | | | Hours / week (if applicable) |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | |
| Lecture | On topics related to construction methods and equipment. | ✓ | ✓ | ✓ | ✓ | |
| Tutorial | In class discussions and activities on problems related to lecture themes. | ✓ | ✓ | ✓ | ✓ | |

| | |
|---|---|
| Semester Hours: | 3 hours per week |
| Lecture/Tutorial/Laboratory Mix: | Lecture (2); Tutorial (1); Laboratory (0) |

**4. Assessment Tasks/Activities**
*(ATs are designed to assess how well the students achieve the CILOs.)*

| Assessment Tasks / Activities | CILO No. | | | | Weighting* | Remarks |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | | |
| Continuous Assessment: 50% | | | | | | |
| Mid-term Test | ✓ | ✓ | ✓ | ✓ | 25% | |
| Coursework | ✓ | ✓ | ✓ | ✓ | 25% | |
| Examination: 50% (duration: 2 hour(s)) | | | | | | |
| Examination | ✓ | ✓ | ✓ | ✓ | 50% | |
| * The weightings should add up to 100%. | | | | | 100% | |

To pass a course, a student must obtain minimum marks of 30% in both coursework and examination components, and an overall mark of at least 40%

**5. Assessment Rubrics**

*(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)*

| Assessment Task | Criterion | Excellent (A+, A, A-) | Good (B+, B, B-) | Fair (C+, C, C-) | Marginal (D)/ Pass (P) on P/F basis | Failure (F) |
|---|---|---|---|---|---|---|
| Mid-term Test | ABILITY to UNDERSTAND and APPLY theories and knowledge to topics related to construction methods and equipment | High | Significant | Moderate | Basic | Not even reaching marginal levels |
| Coursework | CAPACITY to EXPLORE, INVESTIGATE, and ORGANIZE knowledge and ideas in an independent fashion in various topics of construction methods and equipment | High | Significant | Moderate | Basic | Not even reaching marginal levels |
| Examination | ABILITY to UNDERSTAND and APPLY theories and knowledge to topics related to construction methods and equipment | High | Significant | Moderate | Basic | Not even reaching marginal levels |

**Part III Other Information** (more details can be provided separately in the teaching plan)

**1. Keyword Syllabus**
*(An indication of the key topics of the course.)*

Earth works, excavating equipment, loading and hauling equipment, compaction, material transportation, cranes, foundation system, piling, basement construction, framework construction, formwork system, prefabrication, civil infrastructure, roadwork, drainage work, geotechnical work and improvement, construction automation.

**2. Reading List**

**2.1 Compulsory Readings**
*(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)*

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|---|---|
| 1. | Nil |

**2.2 Additional Readings**
*(Additional references for students to learn to expand their knowledge about the subject.)*

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| 1. | Chew, M.Y.L., Construction Technology for Tall Building, 4rd Edition, Singapore University Press, 2012. |
| 2. | Edward, A., and Joseph I.. (2013). Fundamentals of Building Construction: Materials and Methods, 6th edition, Wiley. 2013. |
| 3. | Harris, F., Modern Construction and Ground Engineering Equipment and Methods, 2nd Edition, Wiley, 1996. |
| 4. | Andres, C.K. and Smith, R.C., Principles and Practices of Heavy Construction, Prentice Hall, 1998. |
| 5. | Peurifoy, R.L., Ledbetter, W.B. and Schexnayder, C.J., Construction Planning, Equipment, and Methods, 9th Edition, The MacGraw-Hill Companies, Inc., 2018. |
| 6. | Bernold, L.E., Construction Equipment and Methods: Planning, Innovation, Safety, Wiley. 2013. |
| 7. | Chudley, R., Building Construction Handbook, 3rd Edition, Butterworth-Heinemann Ltd., Oxford, 1990. |
| 8. | Wong, W.M.R., 15 Most Outstanding Projects in Hong Kong. China Trend Building Press, 1998. |
| 9. | http://www.cityu.edu.hk/CIVCAL/ |