

**City University of Hong Kong
Course Syllabus**

**offered by Division of Building Science and Technology
with effect from Semester A 2020/21**

Part I Course Overview

Course Title: Structures I

Course Code: BST12345

Course Duration: 1 semester

Credit Units: 3 credit units

Level: A1

Arts and Humanities

Proposed Area:
(for GE courses only)

Study of Societies, Social and Business Organisations

Science and Technology

Medium of Instruction: English

Medium of Assessment: English

Prerequisites:
(Course Code and Title) Nil

Precursors:
(Course Code and Title) Nil

Equivalent Courses:
(Course Code and Title) Nil

Exclusive Courses:
(Course Code and Title) Nil

Part II Course Details

1. Abstract

(A 150-word description about the course)

This course is a foundation course for further engineering related courses, such as Structures II, Temporary Works Design and Geotechnical Engineering. This course covers fundamental concepts of statics, equilibrium of rigid bodies and force analysis of pin-jointed frameworks. Students should also acquire an ability to analyse simple structures manually or by means of simple computer software.

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	Understanding basic concepts of various types of structures	40%	✓		
2.	Apply basic mechanics to statics of rigid bodies	25%		✓	
3.	Analyse simple pin-jointed structures using manual methods.	25%		✓	
4.	Analyse simple structures using computer software.	10%			✓
		100%			

* If weighting is assigned to CILOs, they should add up to 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	
Lecture	Lectures provide an efficient and systematic delivery of the basic principles and concepts to students.	✓	✓	✓	2 hrs per week for 13 weeks
Tutorials	Tutorials are used to facilitate the learning and applications of some important and complicated concepts.	✓	✓	✓	2 hrs per week for 7weeks
Online, independent study	Students are required to prepare for classes by watching pre-lecture videos and completing online quizzes.	✓	✓	✓	

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.			Weighting*	Remarks
	1	2	3		
Continuous Assessment: <u>40%</u>					
Quizzes/Assignments	✓	✓	✓	40%	
Examination: <u>60%</u> (duration: 2.5 hours)					
* The weightings should add up to 100%.				100%	

Note: A student must obtain a minimum mark of 35 in coursework (Quizzes) and examination and an overall mark of 40 to pass the course.

Open-book quiz / online quiz are designed to continuously assess students' understanding of various basic concepts and their ability to apply to simple problems; it also provides instructors an important channel for giving feedback to students. Assignments are used to reinforce what students learnt in class.

The examination (open-book) involving conceptual questions, calculation and case studies (except multiple-choice questions) are designed to assess students' overall capacity in applying the basic concepts of structures.

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)	Failure (F)
Quizzes / Assignments	Ability to understand various basic concepts and apply them to simple problems.	High	Significant	Moderate	Basic	Not even reaching marginal level
Examination	Overall capacity in applying the basic concepts of structures.	High	Significant	Moderate	Basic	Not even reaching marginal level

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.)

Newton's Law of motions; Fundamental concepts of static equilibrium: Forces and force systems, conditions of equilibrium, with particular reference to coplanar force systems and structures; Determination of forces in statically determinate, pin-jointed frameworks caused by direct loading and wind loading.

Basic features of various structural forms;

Basic concepts of structural elements: tension, compression, bending and shear;

Application of simple structural computer software.

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.)

Nil

2.2 Additional Readings

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

1.	Derek Seward (1994) <i>Understanding Structures: analysis, materials, design</i> , Basingstoke, Hants: Macmillan.
2.	John Case, Lord Chilver, Carl T.F. Ross. (1999) <i>Strength of materials and structures</i> . 4th ed. London: Arnold.
3.	J L Meriam and L G Kraige (2015) <i>Engineering Mechanics: Statics</i> 8 th edition. Hoboken, NJ : Wiley