City University of Hong Kong
Course Syllabus

offered by Division of Building Science and Technology
with effect from Semester A 2018/19

Part I Course Overview

Course Title:	Piped Services
Course Code:	BST12541
Course Duration:	1 semester
Credit Units:	3 credits
Level:	A1
Proposed Area: *(for GE courses only)*	☐ Arts and Humanities ☐ 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)*	BST12512 Fluid Science
Equivalent Courses: *(Course Code and Title)*	BST22541 Piped Services
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

This course aims to

1. provide students with fundamental knowledge of system components, working principles, and erection considerations of water supply services, sanitation and drainage systems;
2. enable students to recognize energy saving principles in water supply services, and drainage systems.

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*	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	***A2***	***A3***
1.	apply basic principles, pipe sizing calculations, relevant standards and legislative requirements to the design and installation of cold water supply systems with due consideration to energy and saving.	20%	✓	✓	✓
2.	apply basic principles, pipe sizing calculations, relevant standards and legislative requirements to the design and installation of hot water supply systems with due consideration to energy and saving.	20%	✓	✓	✓
3.	apply basic principles, pipe sizing calculations, relevant standards and legislative requirements to the design and installation of flushing water supply systems with due consideration to energy and saving.	20%	✓	✓	✓
4.	apply basic principles, pipe sizing calculations, relevant standards and legislative requirements to the design and installation of above ground drainage systems.	20%	✓	✓	✓
5.	apply basic principles, pipe sizing calculations, relevant standards and legislative requirements to the design and installation of underground drainage systems with due consideration to energy and saving.	20%	✓	✓	✓
	** 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.)

Teaching pattern: 3 hours per week

Students are required to download notes, tutorial materials and supportive reading notes from the University's Web. They should also read the recommended text books, search further references, government regulations and codes for the relevant teaching and learning sessions. Group assignments are used for students to practice on their learning and test is used to assess students' performance.

1. Scheduled notes are prepared for students to build up and read before classes.
2. Field trip and observation report and sharing sessions enable students to reveal, apply and compare systems in understanding and applying energy saving consideration.
3. The set up assist in-depth learning and progression to advance stage with self-motivated discovery in planned subjects in the scheduled course activities

TLA	Brief Description	CILO No.					Hours/week (if applicable)
		1	2	3	4	5	
Lecture	Theory and application (Class size not more than 100, one additional class will be allowed when exceeding 100 equally split. Tutorial class size is limited to group of less than equal to 30)	✓	✓	✓	✓	✓	35
Virtual Tour	Introduction & understanding the basic	✓	✓	✓	✓		3
Assignment	Apply the theory in assignment	✓	✓	✓	✓		
Test	Mid- term test	✓	✓	✓	✓		1

4. Assessment Tasks/Activities (ATs)

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

Coursework: 40%
Examination: 60% Duration of examination: 2.5 hours

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

1. An **Assignment** is a study and investigation report containing observations, findings, comparison, application and reflection of learning regarding to a detailed study of the relevant CILO and subject related.
2. The **Virtual tour plus observation report** is for self-reflection and demonstration for students' ability in modernizing after learning the basic area.
3. A **Test** is set in the form of short and calculation questions.
4. An **Examination** consists of long questions and case/calculation problems.

Assessment Tasks/Activities	CILO No.					Weighting*	Remarks
	1	2	3	4	5		
Continuous Assessment: 40%							
Assignment	✓	✓	✓	✓	✓	15%	
Observation report	✓	✓	✓	✓		10%	
Test	✓	✓	✓	✓		15%	
Examination: 60% (duration: 2.5 hr.)							
Examination	✓	✓	✓	✓	✓	60%	
** The weightings should add up to 100%.*						100%	

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)
1. Assignment and log report submission	Content assessment and evaluate active participation in Tutorial session	Excellent A+ Good A, A-	Good B+ Medium B, B-	Average C+, C Below average C-	Below average D	Cannot demonstrate F
2. Mid-term test	Marking the returned answer script*	Excellent A+ Good A, A-	Good B+ Medium B, B-	Average C+, C Below average C-	Below average D	Partial answer F
3. Examination	Marking the returned answer script*	Excellent A+ Good A, A-	Good B+ Medium B, B-	Average C+, C Below average C-	Below average D	Partial answer F

* Based on the divisional marking criteria and grading criteria

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

1. Keyword Syllabus

- Sanitary appliances: understanding the types, and application.
- Cold and flushing water supply systems: basic system configuration, components, details and calculation.
- Hot water supply systems: basic system configuration, components, details and calculation.
- Pumps: fundamental and their applications.
- Above ground drainage system: pipework systems, trap, pipe materials and accessories, sizing and calculation.
- Rainwater system: basic concept and calculation.
- Underground drainage systems: system types, components; details, basement system and sewage lifting fundamental.

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.)

1.	Trevor, R. D. (2003). *A Plumbing Encyclopaedia*. 3rd ed. Wiley-Blackwell.
2.	Payne, R. (1982). *Drainage and Sanitation*. UK: Longman Group United Kingdom.
3.	Blower G. J. (2006). *Plumbing: Mechanical Services: Book One*. 5th ed. Prentice Hall.
4.	Wise, A. F. E. and Swaffield J. A. (2002). *Water Sanitary and Waste Service for Buildings*. 5th ed. Butterworth-Heinemann.
5.	Hall, F. (1987). *Plumbing Technology*. 2nd Rev Ed. Longman

2.2 Additional Readings

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

1.	CIBSE guide C, E and G.
2.	The Institute of Plumbing – Plumbing Engineering Design Guide 1998 and 2002 versions