

City University of Hong Kong
Course Syllabus

offered by Department of Architecture and Civil Engineering
with effect from Semester A 2024 / 2025

Part I Course Overview

Course Title:	Fire Safety Engineering for Built Environment I
Course Code:	CA8019M
Course Duration:	1 Semester (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:	R8
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)	BC8019M Fire Safety Engineering for Built Environment I
Exclusive Courses: (Course Code and Title)	Nil

Part II Course Details

1. Abstract

This course aims to provide students with in-depth theoretical base for fire science, fire dynamics and fire modelling and to further the study on the fire properties of materials in building technology.

2. Course Intended Learning Outcomes (CILOs)

No.	CILOs	Weighting (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	A2	A3
1.	explore the in-depth knowledge in pyrolysis of solid, ignition phenomena, combustion mechanism, fire science and fire dynamics; list the fire characteristics and fire resistance properties of building material;				
2.	evaluate the application of the advanced development and researches in fire engineering to building fires;				
3.	apply the advanced development and researches techniques and mathematical models to solve fire engineering problems.				✓
		100%			

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 real-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. Learning and Teaching Activities (LTAs)

LTA	Brief Description	CILO No.			Hours/week (if applicable)
		1	2	3	
Lectures and Class Tests	Explore, evaluate and apply knowledge in pyrolysis, combustion and fire dynamics	✓	✓	✓	27
Presentation	Assignment Presentation			✓	12

Semester Hours:	hours per week
Lecture/Tutorial/Laboratory Mix:	Lecture (-); Tutorial (-); Laboratory (-)
	Lec/Tut/Self-learning mixed mode (total contact hours: 39 hours). The course will be offered outside Hong Kong.

4. Assessment Tasks/Activities (ATs)

Assessment Tasks/Activities	CILO No.			Weighting	Remarks
	1	2	3		
Continuous Assessment: 100%					
Assignments	✓	✓	✓	50%	
Class Tests	✓			30%	
Presentation		✓	✓	20%	
Examination: 0%					
				100%	

5. Assessment Rubrics

Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
Assignments	Ability to appreciate CILO 1 to 3	High	Significant	Moderate	Basic	Not even reaching marginal levels
Class Tests	Ability to appreciate CILO 1	High	Significant	Moderate	Basic	Not even reaching marginal levels
Presentation	Ability to appreciate CILO 2 to 3	High	Significant	Moderate	Basic	Not even reaching marginal levels

Applicable to students admitted from Semester A 2022/23 to Summer Term 2024

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
Assignments	Ability to appreciate CILO 1 to 3	High	Significant	Basic	Not even reaching marginal levels
Class Tests	Ability to appreciate CILO 1	High	Significant	Basic	Not even reaching marginal levels
Presentation	Ability to appreciate CILO 2 to 3	High	Significant	Basic	Not even reaching marginal levels

Part III Other Information

1. Keyword Syllabus

Fire processes. Thermochemistry. Premixed and diffused flames. Thermal decomposition. Combustion. Compartmental fires. Building fire modeling.

2. Reading List

2.1 Compulsory Readings

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

2.2 Additional Readings

1.	Drysdale, D. (2011) An Introduction to Fire Dynamics, John Wiley & Sons, 3rd Edition.
2.	Karlsson, B. and Quintiere, J.G., (1999) Enclosure Fire Dynamics, CRC Press, 1st Edition.
3.	Philip J. DiNenno (Ed.) (2002) The SFPE Handbook of Fire Protection Engineering, Society of Fire Protection Engineers, National Fire Protection Association, 3rd Edition.
4.	Yeoh, G.H. and Yuen, K.K. (2009) Computational Fluid Dynamics in Fire Engineering - Theory, Modeling & Practice, Elsevier.
5.	Yuen, R.K.K. (1998) Pyrolysis and Combustion of Wood in a Cone Calorimeter. PhD Thesis, University of New South Wales, Australia.