

**City University of Hong Kong
Course Syllabus**

**offered by Department of Architecture and Civil Engineering
with effect from Semester A 2023/24**

Part I Course Overview

Course Title:	Indoor Environmental Quality
Course Code:	CA5248
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:	P5
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: <i>(Course Code and Title)</i>	Nil
Precursors: <i>(Course Code and Title)</i>	Nil
Equivalent Courses: <i>(Course Code and Title)</i>	Nil
Exclusive Courses: <i>(Course Code and Title)</i>	Nil

Part II Course Details

1. Abstract

The course provides students with an overview of the factors affecting the indoor environment concerning air quality, thermal comfort, lighting, and acoustics and an understanding of the impact of indoor environmental quality on building performance.

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.	identify the building systems and elements that affect the indoor environmental performance and the parameters that describe the indoor environmental performance		✓		
2.	understand the role of human factors in indoor environmental performance		✓		
3.	study with competence in the total indoor environmental quality concerning building performance			✓	
4.	understand the management of the indoor environment in high-performance buildings		✓		
		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 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	
Lectures; seminars	Introduce the essential concepts of interaction between humans and the indoor environment, indoor air quality assessment and enhancement, thermal comfort, lighting, and acoustics, and understanding of rating of indoor environmental performance in the engineering practice and development	✓	✓	✓	✓	2
Tutorials; site visits	Explore and discuss the contemporary trends, mechanisms, and concerns of construction projects and the built environment through hands-on exercises, case studies, or site visits.	✓	✓	✓	✓	1

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%	
Assignment	✓	✓	✓		25%	
Examination: 50% (duration: 2 hour(s))						
Examination	✓	✓	✓	✓	50%	
					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.)

Applicable to students admitted in Semester A 2022/23 and thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
Mid-term test	1. ABILITY to RECOGNIZE and EXPLAIN the key concepts, factors, mechanisms, and concerns of the indoor environmental quality	High	Significant	Basic	Not even reaching marginal levels
Assignment	1. CAPACITY to INQUIRE and ANALYSE the issues and relevant information and references for given building elements, systems, scenarios, and context. 2. ABILITY to PRODUCE and ARTICULATE rational, substantiated, and original discussion and/or suggestion	High	Significant	Basic	Not even reaching marginal levels
Examination	1. ABILITY to EXPLAIN and DISCUSS the key concepts, mechanisms, and concerns of the building elements and systems for indoor environmental quality	High	Significant	Basic	Not even reaching marginal levels

Applicable to students admitted before Semester A 2022/23

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	1. ABILITY to RECOGNIZE and EXPLAIN the key concepts, factors, mechanisms, and concerns of the indoor environmental quality	High	Significant	Moderate	Basic	Not even reaching marginal levels
Assignment	1. CAPACITY to INQUIRE and ANALYSE the issues and relevant information and references for given building elements, systems, scenarios, and context. 2. ABILITY to PRODUCE and ARTICULATE rational, substantiated, and original discussion and/or suggestion	High	Significant	Moderate	Basic	Not even reaching marginal levels

Examination	1. ABILITY to EXPLAIN and DISCUSS the key concepts, mechanisms, and concerns of the building elements and systems for indoor environmental quality	High	Significant	Moderate	Basic	Not even reaching marginal levels
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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.)

Interaction between humans and the indoor environment. Indoor air quality assessment and enhancement. Thermal comfort. Lighting. Acoustics. Introduction to rating of indoor environmental performance.

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.	Nil
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2.2 Additional Readings

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

1.	John M. Reynolds. An introduction to applied and environmental geophysics. (QC808.5 .R49 2011)
2.	Jiří Jaromír Klemeš. Assessing and measuring environmental impact and sustainability. (TD194.6 .A87 2015)
3.	M. Mehta, J Johnson and J Rocafort (1999). Architectural Acoustics, Principles and Design. (NA2800 .M45 1999)
4.	William J. Cavanaugh and Joseph A. Wilkes. Architectural acoustics: principles and practice. (NA2800 .A685 1999)
5.	M. Stiller. Quality Lighting for High Performance Buildings. (TH7975.D8 S75 2012)
6.	Philomena M. Bluysen. The indoor environment handbook: how to make buildings healthy and comfortable. (TH6024 .B58 2009)
7.	Liv Haselbach. The engineering guide to LEED-new construction: sustainable construction for engineers. (TH880 .H37 2008)
8.	Architectural Services Department, https://www.archsd.gov.hk/en/home.html
9.	Building Department, https://www.bd.gov.hk/en/index.html
10.	Environmental Protection Department, https://www.epd.gov.hk/epd/english/top.html