City University of Hong Kong
Course Syllabus

offered by Department of Architecture and Civil Engineering
with effect from Semester A 2017/18

Part I Course Overview

Course Title:	Building Science
Course Code:	CA2627
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:	B2
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)*	Nil
Equivalent Courses: *(Course Code and Title)*	BC2627/BC2627F/BC2627P Building Science
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

(A 150-word description about the course)

The course aims to develop understanding of fundamental knowledge of electrical sciences, photometry and acoustics as the foundation in the study of building services engineering and to apply them in the study of electrical building services, lighting design and acoustic design.

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.	develop understanding of the fundamental laws in electrical and electronic systems, indoor and outdoor lighting systems and acoustics systems;		✓		
2.	interpret and apply these basic theories in the study of electrical building services, lighting design and acoustic design;		✓		
3.	analyse the nature of light and sound with particular reference to practical situations;			✓	
4.	develop understanding of power distribution systems in buildings and electrical design in Hong Kong.			✓	
** 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	Explain key concepts in building science and its applications in architectural engineering systems.	✓	✓	✓	✓	
Laboratory	Practise the concepts in building science and discover the deviations between the theories and experiments.	✓	✓			

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

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	✓	✓	✓	✓	20%	
Laboratory Report	✓		✓		30%	
Examination: 50% (duration: 2 hours)						
					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	1. ABILITY to and ANALYSE and apply the understanding of light, sound and electrical and electronic systems in practical problems	High	Significant	Moderate	Basic	Not even reaching marginal levels
Laboratory Report	1. ABILITY to INTERPRET the fundamental laws in and DEVELOP the understanding on electrical building services, lighting and acoustic design	High	Significant	Moderate	Basic	Not even reaching marginal levels
Examination	1. ABILITY to and ANALYSE and apply the understanding of light, sound and electrical and electronic systems in practical problems	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.)

Circuit analysis, single phase and three phase systems, principles and characteristics of electrical d.c. and a.c. machines, electronic devices, logic circuits, power distribution in buildings, code of practices of electrical design in Hong Kong, photometry, eye and vision, interior lighting design, daylighting, properties of sound, ear and hearing, transmission of sound.

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.	Irwin, J. D. and Graf, E. R., Industrial Noise and Vibration Control, Englewood Cliffs, Prentice Hall, 1979.
2.	Pritchard, D. C., Lighting, 6th Ed, Longman, 1999.
3.	Hughes, Edward, Hughes Electrical and Electronic Technology, 9th Ed., Pearson, 2005.

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

1.	McMullan R., Environmental Science in Building, 5th Ed., Macmillian, 2002.
2.	Dorf, R.C., Svoboda, J.A., Introduction to Electric Circuits, 4th Edition, John Wiley & Sons, 1999
3.	Rizzoni, G., Principles and Applications of Electrical Engineering, 5th Edition, McGraw-Hill International, 2007
4.	Smith B. J., Phillips G. M. and Sweeney M. E., Environmental Science, Longman, 1983.
5.	EMSD, Code of Practice for the Electricity (Wiring) Regulations, 2003 Edition.
6.	Online Resources: http://www.heh.com/hehweb/domesticservices/supplyrulesandguidetoconnectionofsupply/index_en.htm
7.	On Resources: http://www.epd.gov.hk/epd/noise_education/web/ENG_EPD_HTML/m1/index.html