GE2327: GREEN AND INTELLIGENT BUILDINGS

Effective Term Semester A 2024/25

Part I Course Overview

Course Title Green and Intelligent Buildings

Subject Code GE - Gateway Education Course Number 2327

Academic Unit Architecture and Civil Engineering (CA)

College/School College of Engineering (EG)

Course Duration One Semester

Credit Units

Level B1, B2, B3, B4 - Bachelor's Degree

GE Area (Primary) Area 3 - Science and Technology

Medium of Instruction English

Medium of Assessment English

Prerequisites Nil

Precursors

Nil

Equivalent Courses Nil

Exclusive Courses Nil

Part II Course Details

Abstract

Intelligent Green Building integrating green building design and intelligent technology is a global trend at the present time. Intelligent Buildings require cooperation between traditional building trades; building automation; Green Building specialists; experts in new technologies like lighting control, digital signage, and intelligent bathrooms; and Information Technology specialists to integrate building systems and enterprise information systems. Governments in the world are proposing different incentive schemes to promote it and industries are ready to take benefits. Therefore, the course should be of interested to students from all disciplines.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Identify the important factors in the implementation of intelligent green buildings for quality living in harmony with nature.	20	x		
2	Evaluate the environmental impact of the absence of green building concepts and the incentives schemes of governments.	30	X	x	
3	Describe the relationship between high rise building and global environmental problems in terms of energy and comfort.	20	X		
4	Analyse the intrinsic relationships among economic development, environmental protection and social development in the implementation of green building development.	30	X	x	

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.

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lectures	Students will engage in formal lectures to gain the fundamental knowledge, current practices and cutting- edges technologies in green and intelligent building area.	1, 2, 3, 4	

Learning and Teaching Activities (LTAs)

2	Tutorials	Students will engage in interactions and discussions on green and intelligent building topics.	1, 2, 3, 4	
3	Group project	Students will participate in groups to develop green and intelligent solutions for the local built environment.	1, 2, 3, 4	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Group project report	1, 2, 3, 4	30	
2	Group project oral presentation	1, 2, 3, 4	20	

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

2

Additional Information for ATs

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%.

Assessment Rubrics (AR)

Assessment Task

Group project report and oral presentation

Criterion

ABILITY to ANALYSE, SYNTHESIS and INTEGRATE the knowledge in green and intelligent buildings. ABILITY to DEMONSTRATE critical thinking in the project. ABILITY to PRESENT the project.

Excellent (A+, A, A-)

Very High/high

Good (B+, B, B-)

Above average

Fair (C+, C, C-) Average

Marginal (D) Below Average/low

Failure (F) Very low

Assessment Task

Examination

Criterion ABILITY to DEMONSTRATE the CILOs 1 to 4.

Excellent (A+, A, A-) Very High/high

Good (B+, B, B-) Above average

Fair (C+, C, C-) Average

Marginal (D) Below Average/low

Failure (F) Very low

Part III Other Information

Keyword Syllabus

Global environmental problem, inter-relationship between high rise building and pollution, Green buildings; intelligent buildings; carbon calculation; energy audit; drivers and incentive schemes; American Labelling; Hong Kong Labelling; 3-star Green Building Labelling; other green building assessment methods; intelligent building index; intelligent devices; energy bench marking; life cycle costing.

Reading List

Compulsory Readings

	Fitle
1	vil

Additional Readings

	Title
1	Green Building: Principles and Practices in Residential Construction (Go Green with Renewable Energy Resources by Abe Kruger and Carl Seville(Jan 3, 2012)
2	Green Building A to Z: Understanding the Language of Green Building by Jerry Yudelson(Oct 1, 2007)
3	Green from the Ground Up: Sustainable, Healthy, and Energy-Efficient Home Construction (Builder's Guide) by David Johnston and Scott Gibson(Apr 1, 2008)
4	Prefabulous + Sustainable: Building and Customizing an Affordable, Energy-Efficient Home by Sheri Koones and Robert Redford(Apr 1, 2010)

Annex (for GE courses only)

A. Please specify the Gateway Education Programme Intended Learning Outcomes (PILOs) that the course is aligned to and relate them to the CILOs stated in Part II, Section 2 of this form:

Please indicate which CILO(s) is/are related to this PILO, if any (can be more than one CILOs in each PILO)

PILO 1: Demonstrate the capacity for self-directed learning

1, 2, 3, 4

PILO 2: Explain the basic methodologies and techniques of inquiry of the arts and humanities, social sciences, business, and science and technology

2, 3

PILO 3: Demonstrate critical thinking skills

2, 3, 4

PILO 4: Interpret information and numerical data

4

PILO 5: Produce structured, well-organised and fluent text

4

PILO 10: Demonstrate the attitude and/or ability to accomplish discovery and/or innovation

2, 3, 4

B. Please select an assessment task for collecting evidence of student achievement for quality assurance purposes. Please retain at least one sample of student achievement across a period of three years.

Selected Assessment Task

Site Visit Report