CA3704: CONSTRUCTION ENGINEERING

Effective Term
Semester A 2022/23

Part I Course Overview

Course Title
Construction Engineering

Subject Code
CA - Civil and Architectural Engineering
Course Number
3704

Academic Unit
Architecture and Civil Engineering (CA)

College/School
College of Engineering (EG)

Course Duration
One Semester

Credit Units
3

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

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract
The course aims to provide the knowledge of the methods of construction for super structure and foundation.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Evaluate the performance requirements of buildings and their elements;	20	x		
2	Discover and implement alternative technical solutions and design satisfactory forms to match performance requirements;	20		x	
3	Appraise construction methods for high rise structures;	30		x	
4	Choose appropriate construction methods for foundations.	30		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.

Teaching and Learning Activities (TLAs)

	TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture	Construction technologies for reinforced concrete buildings, slope protection and foundation	1, 2, 3, 4	2 hours/week
2	Tutorial	Discussion on tutorial questions	1, 2, 3, 4	1 hour/week for 12 weeks

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Mid-term Test	1, 2	25	
2	Coursework	1, 3, 4	25	

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

3

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

Mid-term Test

Criterion

ABLITY in APPLY the introduced construction methods and technologies with attentions to the documentation of discovery made during study.

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Below standard

Assessment Task

Coursework

Criterion

ABLITY in APPLY the introduced methods and technologies in the areas of building and foundation construction.

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Below standard

Assessment Task

Examination

Criterion

ABILITY in APPLY the introduced methods and technologies in the areas of building and foundation construction.

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Below standard

Part III Other Information

Keyword Syllabus

Multi-story construction; Pre-cast units; Pre-stressing and post-tensioning; Reinforced concrete construction; Steel structure construction; Temporary works; Temporary and permanent lateral support system; Dewatering; Construction of foundation.

Reading List

Compulsory Readings

	Title
1	Nil

Additional Readings

	Title
1	Andres, C.K. and Smith, R.C., Principles and Practices of Heavy Construction, Prentice Hall, 1998.
2	Barry, R., Construction of Buildings, Vol. 2-5, Oxford, Blackwell Science Inc, 1996.
3	Bowles, J.E., Foundation Analysis and Design, 4th Edition, McGraw Hill, Book Company, 1988.
4	Chudley, R., Construction Technology, Volumes 1-4, Longman, 1983.
5	Institution of Structural Engineers, Standard Method of Detailing Structural Concrete, 1989.
6	Lin, Michael C.H., Construction Technology for Tall Buildings, World Scientific, 4th Edition, 2012.
7	Peurifoy, R.L., Ledbetter, W.B. and Schexnayder, C.J., Construction Planning, Equipment, and Methods, Fifth Edition, The MacGraw-Hill Companies, Inc., 1996.
8	Tomlinson, M.J., Foundation Design and Construction, Longman, 6th Ed., 1996.