CA4617: TEMPORARY WORKS DESIGN

Effective Term
Semester A 2024/25

Part I Course Overview

Course Title
Temporary Works Design

Subject Code
CA - Civil and Architectural Engineering
Course Number
4617

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
CA2673 Engineering Mechanics; or CA3632 Mechanics of Structures & Materials; or CA3703 Construction Methods and Equipment; or CA3704Construction Engineering

Students must have attempted (including class attendance, coursework submission, and examination) the precursor course(s) so identified.

Equivalent Courses
BC4617/BC4617F/BC4617P Temporary Works Design

Exclusive Courses
Nil

Part II Course Details

Abstract

The course aims to provide students with the knowledge and ability in appreciating different types of falsework and formwork and enable students to design falsework and formwork for building construction.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	identify alternative solutions to formwork and falsework design;		x		
2	design temporary support systems and prepare temporary works details;			x	x
3	apply the specific formwork and falsework systems for difficult site conditions;			x	
4	discovery of safety related construction problems and sequence of work.		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.

Learning and Teaching Activities (LTAs)

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture	Students will engage in lecture activities about the formwork systems; loading and moment diagrams; structural use of timber; concrete pressure; wall form and decking design; sequence of construction; safety use of formwork and village-type houses construction	1, 2, 3, 4	2 hours/week

2	Tutorial	Students will expand and consolidate their knowledge on topics by proposing alternative formwork systems and conducting temporary work projects design with submission calculation and detail drawings.	1, 2, 3, 4	1 hour/week

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Assignment	1, 2, 3, 4	20	
2	Project Submission	1, 2, 3, 4	20	
3	In-class assignment (Quiz)	1, 2	20	

Continuous Assessment (%)

60

Examination (%)

40

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

Assignment

Criterion

1.1 ABILITY to DISCUSS alternative solutions to formwork and falsework design
1.2 ABILITY to RECOGNIZE safety related construction problems and sequence of work

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task
Project Submission

Criterion
2.1 ABILITY to DISCUSS alternative solutions to formwork and falsework design
2.2 ABILITY to DESIGN temporary support systems and prepare temporary works details
2.3 ABILITY to APPLY knowledge of specific formwork and falsework systems for difficult site conditions
2.4 ABILITY to RECOGNIZE safety related construction problems and sequence of work

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
In-class assignment (Quiz)

Criterion
3.1 ABILITY to APPLY loading, bending moment diagram, concrete pressure diagram

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
Examination

Criterion

4.1 ABILITY to APPLY knowledge of formwork4.2 ABILITY to DESIGN temporary support systems

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Part III Other Information

Keyword Syllabus

Introduction to formwork and falsework; temporary work systems and site restraints; types and materials of formwork; special, and proprietary forms. Concrete pressure on forms. Loading and moment on formwork. Types of beam form, decking and column formwork. Design of Decking. Falsework design; effects of wind load, falsework on soil. The use and applications of special forms. Discovery of safety related construction problem and sequence of work.

Reading List

Compulsory Readings

	Title
1	Nil

Additional Readings

	Title
1	Irwin, A.W. 1983, Falsework: a Handbook of Design and Practice, Granada, London.
2	Richardson, J.G. 1977, Formwork Construction and Practice. Slough: Cement and Concrete Association.
3	The Concrete Society 2012, Formwork: A Guide to Good Practice. Thomas Telford Ltd. United Kingdom.
4	British Standards Institution 1996 BS5975: Code of Practice for Falsework. BSI, United Kingdom.
5	British Standards Institution 1991, BS5268: Structural Use of Timber Part 2: Code of Practice for Permissible Stress Design, Materials and Workmanship. BSI, United Kingdom.
6	CIRIA Report 108, 1985. Concrete Pressure on Formwork. Construction Industry Research and Information Association.
7	Buildings Department 2004, Code of Practice on Wind Effects in Hong Kong, The Government of the Hong Kong Special Administrative Region. Hong Kong