

CA3401: CONSTRUCTION MANAGEMENT AND ECONOMICS

Effective Term

Semester A 2024/25

Part I Course Overview

Course Title

Construction Management and Economics

Subject Code

CA - Civil and Architectural Engineering

Course Number

3401

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

This course aims to provide students with the body of knowledge on the essential management principles, theories and techniques relevant to the construction industry. Students shall be given an exposure of the construction managerial, economic and production problems, and relevant concepts and methodologies from theoretical and practical perspectives. The students are expected to demonstrate the applications of basic project management techniques upon the completion of this course.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Elaborate on the features of an organization and the environment in which it operates;			x	
2	Explain the roles and functions of managers and the management and economic concepts in the context of construction;		x		
3	Apply planning and control techniques in managing construction projects.			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 formal lectures to obtain knowledge about the key principles, theories and tools for construction management and economics.	1, 2, 3	2 hours/week
2	Hand-on exercise	Students will engage in discussion about the lecture concepts, practice what they learned by solving the problems in construction management and economics individually, and improve their knowledge by engaging in group presentations.	1, 2, 3	1 hours/week

3	Project	Students will participate in groups taking on the role of a project manager for planning a series of tasks under a given scenario by application of suitable tools with reasonable assumptions.	3	
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Assessment Tasks / Activities (ATs)

ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Mid term test	1, 2, 3	25
2	Assignment / Project	3	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

1.1 CAPACITY to DISCUSS the organization, management and economics concepts in construction

1.2 ABILITY to USE the scientific techniques in solving construction management and economics problems

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

Assignment

Criterion

2.1 ABILITY to APPLY suitable techniques to plan a construction project

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

3.1 CAPACITY to RELATE and EXPLAIN the management and economic theories and principles to construction project management, and DISCUSS the organization, management and economics concepts in construction

3.2 ABILITY to USE the scientific techniques in solving construction management and economics problems

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

Basic of management, roles and functions of managers, organizational structure, project planning and scheduling, project control, network based planning; resource allocation and levelling, motivation, decision making, project objectives and constraints, construction economics.

Reading List

Compulsory Readings

Title	
1	Harris, F. & McCaffer, R. (2006), 'Modern Construction Management', 6th ed, Blackwell Science.

Additional Readings

Title	
1	Callahan, M.T., Quackenbush, P.G. & Rowings, J.E. (1992) 'Construction Project Scheduling', McGraw Hill, (TH438 .C26)
2	Barrie, D.S. & Paulson, B.C. (1984), 'Professional Construction Management', McGraw Hill, (TH438 .B23)
3	Calvert, R.E. (1995), 'Introduction to Building Management', 6th ed, Butterworth-Heinemann. (HD9715.A2 C34)
4	C.I.O.B. (1980), 'The Practice of Site Management', 2nd ed, Institute of Building. (TH438 .P69)
5	C.I.O.B. (2010), 'Code of practice for project management for construction and development', 4th ed, Wiley-Blackwell. (TH438 .C626)
6	Fryer, B. (1990), 'The Practice of Construction Managementt', 3rd ed, BSP Professional Books, (TA190 .F79)
7	Harris, F. & McCaffer, R. (2006), 'Modern Construction Management', 6th ed, Blackwell Science. (HD9715.A2 H35)
8	Mawdesley, M., Askew, W. & O'Reilly, M. (1997), 'Planning and Controlling Construction Projects : the best laid plans', Longman. (TA190 .M389)
9	Murdoch, J. & Hughes, W. (2000), 'Construction Contracts: Law and Management', 3rd ed, Spon Press, (KD1641 .M87)
10	Oxley, R. & Poskitt, J. (1996), 'Management Techniques Applied to the Construction Industry', 5th ed, Blackwell Science. (TH438 .O95)
11	Stoner, J.A.F. & Freeman, R.E. (1995), 'Management', 6th ed, Prentice Hall. (HD31 .S6963)
12	Hofstadler C. et al., (2021), 'Chances and risks in construction management and economics: a systemic approach to dealing with models and uncertainties' , Cham, Switzerland : Springer.