CA3214: CONSTRUCTION ECONOMICS

Effective Term
Semester A 2022/23

Part I Course Overview

Course Title
Construction Economics

Subject Code
CA - Civil and Architectural Engineering
Course Number
3214

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
BC3214/BC3214F/BC3214P Construction Economics

Exclusive Courses
Nil

Part II Course Details

Abstract
The course aims to equip students with the skills and knowledge of construction economics.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	analyze the clients' needs and motivation in construction development;		x	x	
2	perform a series skills on:- pricing and cost estimating technique, tendering process, cost planning and budgeting, project cost control and monitoring, risk management, and cost modeling in construction cost forecast;		x	x	
3	critically appraise various forms of procurement, explore the principles underlying for selection of appropriate procurement systems and discover their impacts on the success of a project;		x	x	
4	discover and explore the cost implications on design variables and construction methods.		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.

Teaching and Learning Activities (TLAs)

	TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture	1. (a) Introduction to construction economic; & (b) analyse the client's needs and motivation. 2. Series skills on (a) pricing and cost estimating technique, (b) tendering process, (c) cost planning and budgeting, (d) project cost control and monitoring, (e) bidding strategy, (f) risk management, (g) life cycle costing, & (h) cost modeling in construction cost forecast and cash flow forecast. 3. (a) Introduction to various forms of procurement, (b) analyse the principles underlying for selection of appropriate procurement systems, & (c) assess their impacts on the success of a project, 4. Introduction to the cost implication on design variables and construction methods.	1, 2, 3, 4	24

2	Tutorial	1. (a) Introduction to construction economic; & (b) analyse the client's needs and motivation. 2. Series skills on (a) pricing and cost estimating technique, (b) tendering process, (c) cost planning and budgeting, (d) project cost control and monitoring, (e) bidding strategy, (f) risk management, (g) life cycle costing, & (h) cost modeling in construction cost forecast and cash flow forecast. 3. hypothetic question(s) in these areas - request students to explore the principles and provide solution 4. hypothetic question(s) in these areas – students will be accorded opportunity of discovery in exploring the cost implication on design variables and construction method.	1, 2, 3, 4	15

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Assignment	1, 2, 3, 4	30	
2	Mid-term Test/ Quiz	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

Assignment

Criterion
Request students to give advice on scenario cast to test the ability to solve the construction economic issues. Discovery based coursework to be embraced.

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
Mid-term Test/ Quiz

Criterion
Testing the students ability of understanding of the basic principles

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
Scenario type of examination question enable students can illustrate their ability to analysis/discover and make recommendation in different construction economic case

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

- Procurement Strategies: procurement methodologies; traditional method; management contracting; construction management; design and build, partnering and the like.
- Design economics: cost planning; cost models. Cost appraisal for alternative design.
- Cost in use: cost-benefit studies.
- Project control cost and monitoring: system and design.

Reading List

Compulsory Readings

	Title
1	Nil

Additional Readings

	Title
1	Ferry, D.J. & Brandon, P.S. (1999), Cost Planning of Buildings, 7th ed. Blackwell Science. (TH437.F47 1999)
2	Kirkham,R.J. (2007), Ferry and Brandon’ s cost planning of Buildings, Blackwell, Oxford, UK. (TH435.F36 2007)
3	Flanagan, R., Norman, G. & Robinson, L.(1989), Life Cycle Costing - Theory and Practice, BSP Professional Books. (TH435.L54)
4	Smith, A.J. (1995), Estimating, Tendering and Bidding for Construction Work, Macmillian.
5	Raftery, J. (1991), Principles of Building Economics, BSP Professional Books. (TH435.R25 1991)
6	Stone, P.A. (1980), Building Design Evaluation: Costs-in-use, E & F N Spon. (TH435.S83 1980)
7	Brandon, P.S. (1987), Building Cost Modelling & Computers, E & F N Spon. (TH435.B8435)
8	Flanagan, R., Norman, G. & Furbur, J.D. (1983), Life Cycle Costing for Construction, R.I.C.S. Surveyors Publications. (TH435.F54)
9	Kelly, J. & Male, S.(1993),Value Management in Design & Construction, E & F N Spon. (TH438.K43 1993)
10	Official course website at Blackboard