

# CA1167: ENGINEERING COMMUNICATION

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## Effective Term

Semester A 2023/24

## Part I Course Overview

### Course Title

Engineering Communication

### Subject Code

CA - Civil and Architectural Engineering

### Course Number

1167

### 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 fundamental knowledge of visual and graphical communication methods and techniques used in architecture / engineering / building industry; introduce technique of report writing together with graphical presentation

using computer aided drafting software; and provide the ability to locate retrieval and apply technical information in fundamental architecture / engineering communications.

### Course Intended Learning Outcomes (CILOs)

CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	apply the drawing practice used in construction	40		
2	communicate through technical drawings using computer application	30	x	
3	communicate in an multi-disciplinary environment through building information modeling application	15	x	
4	communicate through technical reports	15		

#### 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 and Hands-on	Lectures and Hands-on: Construction drawing standards and the principles of orthographic projection. Practice in 2D & 3D drawings by hand. Allow students to discover factors to be considered in using drawings as a means of engineering communication.	1 6
2	Lectures and Hands-on	Lectures and Hands-on: The use of computer application for producing 2D and 3D technical drawings. Allow students to master the state-of-the-art computer-aided design application.	2 9

3	Lectures and Hands-on	Lectures and Hands-on: Converting (and extracting) structural and non-structural information to (and from) the building information modeling (BIM) through computer application. Allow students to be familiar with the innovative BIM application.	3	12
4	Lectures and Hands-on	Lectures and Hands-on: fundamentals of report writing for engineering and construction.	4	12

**Assessment Tasks / Activities (ATs)**

ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Quiz - 1	1, 4	15
2	Quiz - 2	2	15
3	Integrated Design Project focusing on report writing, AutoCAD and BIM	1, 2, 3, 4	70

**Continuous Assessment (%)**

100

**Examination (%)**

0

**Assessment Rubrics (AR)****Assessment Task**

Quiz - 1

**Criterion**

Ability to apply the drawing practice used in architecture / construction and the fundamentals of report writing for engineering and construction.

**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

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**Assessment Task**

Quiz - 2

**Criterion**

Ability to communicate through technical drawings using computer application.

**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

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**Assessment Task**

Integrated Design Project focusing on report writing, AutoCAD and BIM

**Criterion**

Ability to communicate in a multi-disciplinary environment through BIM application, technical drawings using computer applications and reports.

**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

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## Part III Other Information

### Keyword Syllabus

Nature of architecture / engineering / construction communications and the range of methods used; The use of technical drawings as an architecture / engineering communication technique and method; Engineering communication through report writing; Types of technical drawings and the principles of orthographic projection; Computer aided design; The basic concept of Building Information Modeling (BIM); BIM-based computer-aided design.

### Reading List

#### Compulsory Readings

Title	
1	Anderson, P. V., Technical communication: a reader-centered approach. Boston, MA: Wadsworth, c2011. 7th ed. (CityU Library, Circulation Collection PE1475 .A628 2011)
2	Styles, K., Architectural Press 1986, Working Drawings Handbook 2nd Edition.
3	Smith, Dana K., Hoboken, N.J. : Wiley 2009, Building information modeling : a strategic implementation guide for architects, engineers, constructors, and real estate asset managers.

#### Additional Readings

Title	
1	Walesh, S. G., Engineering your future: the professional practice of engineering. Hoboken, N.J.: J. Wiley & Sons, c2012. (CityU Library, Circulation Collection T56.8 .W36 2012)
2	Alder, A., Architectural Press 1988, New Metric Handbook. (NA2590.N488)
3	Paul F. Aubin, Clifton Park 2012, Revit Architecture. (NA2728 .A825)
4	Ray-Jones, A. RIBA Publications 1976, CI/SfB Construction Indexing Manual
5	Porter, T. et. All, Butterworth Architects 1988, Manual of Graphic Techniques: for architects, graphics designers and artists. vol.1-4.
6	Reekie, F., Edward Arnold Press 1976, Draughtsmanship: architectural and building graphics.
7	Kymmell, Willem, New York: McGraw-Hill 2008, Building information modeling : planning and managing construction projects with 4D CAD and simulations.