

CA6247: WATER RESOURCES ASSESSMENT AND MANAGEMENT

Effective Term

Semester A 2026/27

Part I Course Overview

Course Title

Water Resources Assessment and Management

Subject Code

CA - Civil and Architectural Engineering

Course Number

6247

Academic Unit

Architecture and Civil Engineering (CA)

College/School

College of Engineering (EG)

Course Duration

One Semester

Credit Units

3

Level

P5, P6 - Postgraduate 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 provides the principles essential for water resources assessment and management in buildings, urban cities and sustainability, and the application of these principles to design and develop innovative approaches to address urban water issues.

Course Intended Learning Outcomes (CILOs)

CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Explain the sources and characteristics of buildings and urban water sources, and water quality assessment		x	
2	Explain and design simple buildings and urban water management system		x	
3	Design innovative use cases for environmental engineering/remediation and water resources assessment and management applications		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 gain an understanding of the principles essential for water resources assessment and management in buildings and urban cities, and the application of these principles to design and develop innovative approaches to address water issues	1, 2, 3	2
2	Peer discussion	Students will engage in structured discussion with peers to design an innovative use case for environmental engineering/remediation and water resources assessment and management application	1, 2, 3	1

3	Readings	Students will develop and in-depth understanding of the concepts and topics discussed through the readings	1, 2, 3	
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Additional Information for LTAs

Semester Hours: 3 hours per week

Lecture/Tutorial/Laboratory Mix: Lecture (2); Project sessions (1)

2 hrs Lecture and 1 hr for project sessions

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("- " for nil entry)	Allow Use of GenAI?
1	Assignment	1, 2, 3	20	Students will complete one assignment to demonstrate their more in-depth understanding and mastery of the subject matter with more difficult exercises	Yes
2	Quizzes	1, 2, 3	45	Students will sit for quizzes to demonstrate their basic understanding and mastery of the subject matter	No
3	Group project	1, 2, 3	35	Students will complete one group project to demonstrate their in-depth understanding, mastery of the subject matter, and ability to apply the acquired skills to design innovative use case for environmental engineering/ remediation and water resources assessment and management application.	Yes

Continuous Assessment (%)

100

Minimum Continuous Assessment Passing Requirement (%)

40

Additional Information for ATs

To pass a course, a student must obtain a minimum mark of 30% in ALL assessment components AND an overall mark of at least 40%

Assessment Rubrics (AR)

Assessment Task

Assignment (Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

ABILITY to INVESTIGATE and APPLY acquired skills for problems or topics related to the subject matter

Excellent

High

Good

Significant

Fair

Moderate

Marginal

Basic

Failure

Not even reaching marginal levels

Assessment Task

Quizzes (Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

ABILITY to PERFORM and APPLY basic theories and calculations, and EXPLAIN key concepts and knowledge of the subject

Excellent

High

Good

Significant

Fair

Moderate

Marginal

Basic

Failure

Not even reaching marginal levels

Assessment Task

Group project (Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

ABILITY to APPLY knowledge and skills acquired in the class to CONDUCT independent problem analysis and design innovative solutions to urban water issues

Excellent

High

Good

Significant

Fair

Moderate

Marginal

Basic

Failure

Not even reaching marginal levels

Assessment Task

Assignment/quiz (Applicable to students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

ABILITY to PERFORM and APPLY basic theories and calculations related to water resources assessment and management

Excellent

High

Good

Significant

Fair

Basic

Failure

Not even reaching marginal levels

Assessment Task

Project/Case study (Applicable to students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

ABILITY to APPLY knowledge and skills acquired in the class to CONDUCT independent problem analysis and design innovative solutions to urban water issues

Excellent

High

Good

Significant

Fair

Basic

Failure

Not even reaching marginal levels

Part III Other Information

Keyword Syllabus

Building and urban water resources; water quality; water analysis; water management, conservation and reuse; building and urban-level engineering design

Reading List

Compulsory Readings

Title	
1	Nil

Additional Readings

Title	
1	Bogardi, J.J., et al., " Handbook of water resources management: discourses, concepts and examples", 1st edition Springer, 2021
2	Masters and Ela, "Introduction to Environmental Engineering and Science", 3rd edition, Prentice Hall, 2008.
3	Riffat, "Fundamentals of Wastewater Treatment and Engineering", 1st edition, CRC Press, 2012.