City University of Hong Kong
Course Syllabus

offered by Department of Architecture and Civil Engineering
with effect from Semester A 2017/18

Part I Course Overview

Course Title:	Water Resources Assessment and Management
Course Code:	CA6247
Course Duration:	1 Semester (Some courses offered in Summer Term may start a few weeks earlier than the normal University schedule. Please check the teaching schedules with CLs before registering for the courses.)
Credit Units:	3
Level:	P6
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: *(Course Code and Title)*	Nil
Precursors: *(Course Code and Title)*	Nil
Equivalent Courses: *(Course Code and Title)*	Nil
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

The course provides the principles essential for water resources assessment and management in coastal and inland aquatic systems including both surface and subsurface environments.

2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs	Weighting (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	Understand the physics of contaminant transport and mixing in coastal and inland aquatic systems;			✓	
2.	Understand the interaction between geochemistry and water quality in water bodies;			✓	
3.	Model and analyze data for environmental engineering/remediation and water resources assessment and management applications.			✓	
		100%			

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 self-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.

3. Teaching and Learning Activities (TLAs)
(TLAs designed to facilitate students' achievement of the CILOs.)

TLA	Brief Description	CILO No.			Hours / week (if applicable)
		1	2	3	
Lecture and tutorial	Lecture on the core materials related to contaminant transport, geochemical interactions, and modeling of environmental data	✓	✓	✓	2
Project/ Case Study	Case study or student project on topics related to water resources assessment and management	✓	✓	✓	1

Semester Hours:	3 hours per week
Lecture/Tutorial/Laboratory Mix:	Lecture (2); Tutorial (MIX); Laboratory (MIX)
	2 hrs Lecture and 1 hr for combined Tutorials and project sessions

4. Assessment Tasks/Activities
(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks / Activities	CILO No.			Weighting	Remarks
	1	2	3		
Continuous Assessment: 50%					
Assignment	✓	✓	✓	10%	
Project / Case Study	✓	✓	✓	30%	
Quiz	✓	✓	✓	10%	
Examination: 50% (duration: 3 hours)					
				100%	

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%

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)/ Pass (P) on P/F basis	Failure (F)
Assignment	ABILITY to PERFORM basic calculations essential for water resources assessment and management	High	Significant	Moderate	Basic	Not even reaching marginal levels
Project / Case Study	ABILITY to CONDUCT independent data analysis and/or modeling on complex problems	High	Significant	Moderate	Basic	Not even reaching marginal levels
Quiz	ABILITY to APPLY analysis techniques and/or theories at basic levels	High	Significant	Moderate	Basic	Not even reaching marginal levels
Examination	ABILITY to APPLY knowledge and skills acquired in the class to complex problems of water resources assessment and management SYSTEMATICALLY	High	Significant	Moderate	Basic	Not even reaching marginal levels

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus
(An indication of the key topics of the course.)

Water quality; diffusion and dispersion; fate and transport of pollutants; sorption; volatilization; stratifications; sediment-water interactions and exchanges; transport and transformation in porous media; geochemical cycling of nutrients; degradation and transformation of pollutants; modelling and management.

2. Reading List

2.1 Compulsory Readings
(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

1.	Nil

2.2 Additional Readings
(Additional references for students to learn to expand their knowledge about the subject.)

1.	Chrapra.C., "Surface water quality modeling," McGraw Hill, 1997
2.	Lerman, A. "Geochemcial processes water and sediment environments" John Wiley & Sons, 1979
3.	Fischer, H.B., et al., "Mixing in inland and coastal waters," Academic Press, 1979
4.	Schwarzenbach, R.P., et al., "Environmental organic chemistry" Wiley-Interscience, 2003