

**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:	Hydraulics and Hydrology
Course Code:	CA3677
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:	B3
Proposed Area: <i>(for GE courses only)</i>	<input type="checkbox"/> Arts and Humanities <input type="checkbox"/> Study of Societies, Social and Business Organisations <input type="checkbox"/> Science and Technology
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: <i>(Course Code and Title)</i>	Nil
Precursors: <i>(Course Code and Title)</i>	CA2675 Fluid Mechanics Students must have attempted (including class attendance, coursework submission, and examination) the precursor course(s) so identified.
Equivalent Courses: <i>(Course Code and Title)</i>	BC3677 Hydraulics and Hydrology
Exclusive Courses: <i>(Course Code and Title)</i>	Nil

Part II Course Details

1. Abstract

(A 150-word description about the course)

To introduce to the student the fundamentals of .fluid machinery, open channel flows and engineering hydrology

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.	Discover the application of fluid principles to hydraulic machineries and pipe systems	25%	✓	✓	
2.	Explore the principles of open channel flows and solve various open channel problems	25%		✓	
3.	Discover the fundamentals of engineering hydrology	25%	✓	✓	
4.	Carry out mass curves and rainfall analysis and hydrological design	25%			✓
* If weighting is assigned to CILOs, they should add up to 100%.		100%			

Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

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	4	
Lecture	Introducing theory, concepts and problem solving	✓	✓	✓	✓	
Tutorials	Putting theory and concepts into practice	✓	✓	✓	✓	

Semester Hours:	3 hours per week
Lecture/Tutorial/Laboratory Mix:	Lecture (2); Tutorial (1); Laboratory (0)
	2 hrs Lecture and 1 hr for combined Tutorials and Laboratory 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	4		
Continuous Assessment: 50%						
Laboratory Reports	✓	✓	✓	✓	5%	
Test and/or assignments	✓	✓	✓	✓	45%	
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)
Laboratory Reports	1.1 ABILITY to USE/APPLY the methodology and procedure with ACCURACY in using the experimental techniques	High	Significant	Moderate	Basic	Not even reaching marginal levels
Test and/or assignments	2.1 CAPACITY for SELF-DIRECTED LEARNING to understand the principles of hydraulics and hydrology	High	Significant	Moderate	Basic	Not even reaching marginal levels
Examination	3.1 ABILITY to UNDERSTAND the taught methodology and procedures in using the modelling and calculation techniques 3.2 ABILITY to APPLY the scientific techniques in solving theoretical and application problems	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.)

Hydraulic machinery, open channel flow, Manning's equation, critical flow, hydraulic jump, engineering hydrology, mass curves and rainfall analysis and hydrological design.

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
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2.2 Additional Readings

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

1.	Yunus A. Cengel and John M. Cimbala, Fluid Mechanics Fundamentals and Applications, 2nd edition, McGraw Hill Higher Education, New York, 2010. ISBN: 978-007-128421-9.
2.	Terry W. Sturm, Open Channel Flow, 2nd edition, McGraw Hill Higher Education, New York, 2010. ISBN: 978-007-126793-9
3.	John E Gribbin, Introduction to Hydraulics and Hydrology: With Applications for Stormwater Management, ISBN-13: 9780766827943.
4.	Gupta, Ram S., Hydrology and Hydraulic Systems, Prospect Heights, Waveland press, 2nd Edition.
5.	Warren Viessman, Jr. and Gary L. Lewis, Introduction to Hydrology, Upper Saddle River, NJ, Prentice Hall, 5th Edition.