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:	Theory of Plates and Shells
Course Code:	CA6007
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)*	BC6007 Theory of Plates and Shells
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

The course provides enhanced knowledge in solid mechanics and advanced structural mechanics.

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 and exploit various modelling avenues for structural engineering components and obtaining exact and/or approximate solutions;		✓	✓	
2.	enrich research capability in plates and shells; and			✓	
3.	apply the theory of plates and shells in engineering designs.				✓
		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	
Lectures	Theory, concepts and problem solving	✓	✓	✓	
Tutorials	Theory, concepts and problem solving	✓	✓	✓	

Semester Hours:	3 hours per week
Lecture/Tutorial/Laboratory Mix:	Lecture (Mix); Tutorial (Mix); Laboratory (Mix)
	3 hrs per week including lectures and tutorials

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%					
Test and/or assignments	✓	✓	✓	50%	
Examination: 50% (duration: 2 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)
Test and/or assignments	CAPACITY for SELF-DIRECTED LEARNING to understand the principles of plates and shells	High	Significant	Moderate	Basic	Not even reaching marginal levels
Examination	ABILITY to UNDERSTAND the taught methodology and procedures in using the modelling and calculation techniques. ABILITY to APPLY the scientific techniques in solving theoretical and application problems in fluid mechanic.	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.)

Variational principles: strain energy, Lagrange method, Ritz method, Galerkin method, Levy's method, Kantorovich method. Rectangular plates: bending of plates, simply supported plates, Navier solution, clamped plates, vibration and buckling of plates. Circular plates: plates in polar coordinates, simply supported and clamped circular plates, vibration and buckling of circular plates. Theory of shells, cylindrical shells, shallow and deep shells. Symplectic method for plates and shells.

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.	A.C. Ugural, Stresses in Plates and Shells, McGraw-Hill International Edition, 1999. ISBN: 0-07-116793-5.
2.	S. Timoshenko and S. Woinowsky-Kreiger, Theory of Plates and Shells, McGraw-Hill Education, 1969, ISBN: 0070858209.
3.	J.S. Rao, Dynamics of Plates, Narosa Publishing House, 1999, ISBN: 81-7319-250-2.