

Form 2B

City University of Hong Kong

Information on a Course

offered by Department of Architecture and Civil Engineering
with effect from Semester A in 2014/2015

Part I

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| 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 |
| Prerequisites: | Nil |
| Precursor: | Nil |
| Equivalent Courses: | BC6007 Theory of Plates and Shells |
| Exclusive Courses: | Nil |

Part II

Course Aims:

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

Course Intended Learning Outcomes (CILOs):

Upon successful completion of this course, students should be able to:

| No. | CILOs | Weighting (if applicable) |
|-----|--|---------------------------|
| 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. | --- |

Teaching and Learning Activities (TLAs):

(Indicative of likely activities and tasks designed to facilitate students' achievement of the CILOs. Final details will be provided to students in their first week of attendance in this course)

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

| CILO No. | TLAs | Total Hours (if applicable) |
|----------|---|-----------------------------|
| CILO 1 | <ul style="list-style-type: none"> Lectures and Tutorials: Modelling of structural engineering components and obtaining exact and/or approximate solutions | 30 |
| CILO 2 | <ul style="list-style-type: none"> Lectures and Tutorials: Research capability in plates and shells | 9 |

Assessment Tasks/Activities:

(Indicative of likely activities and tasks designed to assess how well the students achieve the CILOs. Final details will be provided to students in their first week of attendance in this course)

Coursework: 50%

Examination: 50% (Examination duration = 2 hours)

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%.

| CILO No. | Type of assessment tasks/activities | Weighting (if applicable) | Remarks |
|----------|--|---------------------------|---|
| CILO 1 | <ul style="list-style-type: none"> Examination: Questions to assess the capability of students to model structural engineering components and obtain exact and/or approximate solutions Assignment: Application of modelling examples of plates and shells | --- | <ul style="list-style-type: none"> Nil |
| CILO 2 | <ul style="list-style-type: none"> Examination: Questions to assess the capability of students to gain research capability in plates and shells Assignment: Application of examples of research in plates and shells | --- | <ul style="list-style-type: none"> Nil |

Grading of Student Achievement:

Grading Pattern:

Standard

Refer to Grading of Courses in the Academic Regulations for Taught Postgraduate Degrees.

Part III

Keyword Syllabus:

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.

Recommended Reading:

- **Texts:**
 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.
 - **Online Resources:**
 1. Nil
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