

Behaviour and Design of Steel Members (CIEE 716 / IMSC017)

Semester Syllabus

Part 1: Course Information

Instructor Information

Instructor: Dr. Lam Chi Chiu

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Course Description

This course is designed to introduce the behaviour and design of steel structural members according to the limit states design concept. The behaviour and design of the following topics will be discussed: (1) Steelmaking, Steel Properties, Design Philosophy, (2) Torsion of beam (St. Venant torsion, warping torsion of W-shapes, solution of torsion problem), (3) Beam (Beam classifications - Bending moment and shear capacity. Lateral torsional buckling), (4) Plate Girders (Local buckling, plastic action and moment redistribution, lateral buckling under uniform moment and special loading cases, inelastic effects, elastic and inelastic shear behaviour of plate girder), (5) Axially Loaded Members (Elastic and inelastic buckling theories, effect of residual stresses and initial curvature, local buckling), (6) Beam-Columns (In-plane behaviour, ultimate strength, out-of-plane behaviour, elastic and inelastic stability, local buckling). Students are expected to obtain advance knowledge about the design and failure mode of steel structural members after finished this course.

Prerequisite

None

Course Duration

42 contact hours, 3 hours per week (3-credit course)

Credit: 3

Compulsory/elective course: Elective

Part 2: Course Objectives

1. Introduce students to steel member behaviour and design.
2. Introduce students to understand the behaviour and failure mode of different types of steel members and to understand the numerical/theoretical background of design equations and procedures.

Part 3: Major Assessment Methods

Homework:	30%
Mid-term exam:	30%
Final exam:	40%