ARCH 5422
ADVANCED STRUCTURES AND CONSTRUCTION
2015-16 Term I

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Online course info: http://www.arch.cuhk.edu.hk/server1/staff1/bruce/arch5422/

Student Assistants: tba

DESCRIPTION

This course continues the study of building technology including structure, materials and methods of construction, and building envelope systems. In addition, there is a focus on the technology and design of high-rise buildings. Case studies from contemporary practice and significant historic works will be used to illustrate building system typologies that contribute to an understanding of the relationship between design intention and constructed form. Course topics will also emphasize integrated and sustainable strategies in tall building design.

OBJECTIVES

- Introduction and description of the basic types of foundation systems and their formation.
- Introduction of lateral forces and the structural systems designed to resist these forces.
- Overview of the basic issues and design requirements of hi-rise building design and construction.
- Understanding of the relationship between structure, building systems, and envelope toward an integrated design response.

LEARNING OUTCOMES

- Able to identify common structural and building construction systems and describe their characteristics as well as their advantages and disadvantages.
- Understanding of hi-rise building design and the major developments that shaped its evolution.
- Able to identify and configure schematically basic foundation support structures.
- Able to select and develop schematically a structural scheme for a proposed building design. This would include but not be limited to the following: primary structure, type and size of major spanning elements, floor and roof framing, lateral force resisting system, and foundation structure. These components to be developed in parallel with a studio building design project.

ASSESSMENT SCHEME

- In-class assignments (20%)
- Building Technology Design Report (50%)
- Quizzes (30%)

REQUIRED READING

REFERENCE


FIELD TRIP

Visits to buildings in Hong Kong and the region and/or architectural offices may be required during the term. If possible, these will be scheduled during the regular class meeting time. If necessary, a field trip may be scheduled on a Saturday and will be counted as a class meeting. Students in fulfillment of course requirements may undertake some local visits.

COURSE FORMAT

Lectures, tests and in-class assignments/presentations. A field trip may be scheduled.
Fridays: 10:30am – 1:15pm YIA LT4.

ACADEMIC HONESTY

Attention is drawn to University policy and regulations on honesty in academic work, and to the disciplinary guidelines and procedures applicable to breaches of such policy and regulations.
Details may be found at the following website: http://www.cuhk.edu.hk/policy/academichonesty/
With each assignment, students will be required to submit a statement that they are aware of these policies, regulations, guidelines and procedures.
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<th>Lecture</th>
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<th>In Class Activity</th>
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<td>18.09</td>
<td>Foundations</td>
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<td>Vertical Structure 1: Evolution</td>
<td>HK Towers Study: Introduction</td>
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<td>5 Evolution of Glass Curtain Wall__Abalos/Herreros Pt.2 Ch.3</td>
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<td>6 Facades: Principles of Construction__Knack</td>
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