



SISP 1316

Tall Buildings and Long-span Bridges: Structures and Aesthetics

Course Description

Skyscrapers and large bridge complexes have always fascinated the general public and always challenged the imagination of engineers. This course provides students with the development of tall buildings and long-span bridges, and the basic knowledge of structural design and behaviour of structures considered. Topics include an overview of the tallest buildings and longest bridges in the world, the concepts of structural design and aesthetic challenges, and an introduction to the scientific knowledge of earthquakes and earthquake-resistant structures.

Topics

1. Development of tall buildings
2. Structural analysis
3. Aesthetic challenges
4. Architects vs structural engineers
5. Long-span bridges: structural design and aesthetics
6. Earthquakes and structural damage
7. Smart earthquake-resistant buildings

Grading Scheme

- Class attendance and participation (40%)
- Three marked assignments (60%)

[Topics and grading schemes are subject to change as deemed appropriate. Students will receive information and guidelines in class on how they will be assessed for the course.]

Teaching mode

The course will be conducted via Zoom.

Instructor

Professor J S KUANG

Prof Kuang is a Professor Emeritus of Civil Engineering at HKUST. He received his doctorates from the University of Cambridge in engineering science and the University of Hong Kong in civil engineering, respectively. His expertise lies primarily in structural engineering and research interests include seismic engineering, design and analysis of structures, in particular tall buildings. Prof Kuang has an extensive knowledge and teaching experience in the areas. His outstanding research achievements have been recognised by various prestigious awards, including the Telford Premium, the TK Hsieh Award and the Magazine of Concrete Research Prize from the Institution of Civil Engineers, UK, and the Best Transactions Paper Awards from the Hong Kong Institution of Engineers. He received the MSc Program Teaching Excellence Appreciation Award from the School of Engineering, HKUST.