Course Description

Skyscrapers and large bridge complexes have always fascinated the general public and always challenged the imagination of engineers. This course will provide students with the development of tall buildings and long-span bridges and the basic knowledge of structural design and behaviour of structures considered. Areas covered include an overview of the tallest buildings and longest bridges in the world and the concepts of structural design and aesthetic challenges. An introduction to seismology and seismic damage of buildings and bridges is also included.

Topics

1. The development of tall buildings and long-span bridges
2. Tall buildings: structural design and aesthetic challenges
3. Architects vs structural engineers
4. Introduction to seismology
5. Seismic damage of buildings and bridges
6. Long-span bridges: structural design and aesthetic challenges
7. Foundations for tall buildings and bridges

Grading Scheme

- Class attendance and participation (40%)
- Two marked assignments (30%)
- One group project, with oral presentations (30%)

[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.]

Instructor

Prof J S KUANG

Prof Kuang is a Professor 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 his research interests include seismic engineering, seismic analysis and design 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 numerous awards, including the Telford Premium and the TK Hsieh Award from the Institution of Civil Engineers, UK, and the Best Transactions Paper Award from the Hong Kong Institution of Engineers. He has been teaching an introductory course in civil engineering at HKUST since 2011 and is one of the most well-received course instructors.