

**The Hong Kong University of Science and Technology**

**UG Course Syllabus Template**

**[Course Title]** Introduction to Wind Effects on Buildings and Structures

**[Course Code]** CIVL 4380

**[No. of Credits]** 3

[Any pre-/co-requisites] Nil

**Name:** [Instructor(s) Name] Prof. Tim K.T. Tse

**Email:** [Your Email Address] [timkttse@ust.hk](mailto:timkttse@ust.hk)

**Course Description**

[Briefly describe the course content, key topics or themes, objectives, methods of instruction, e.g., lectures, discussions, projects].

The course covers 5 wind engineering topics.

**Topic 1: Wind Environment**

Global wind climate; wind climate in Hong Kong; design wind speed in Hong Kong; wind structures near ground

**Topic 2: Wind Pressure and Forces on Buildings**

Introduction to wind pressure; wind pressure on rectangular buildings; wind forces and moments.

**Topic 3: Structural Dynamics**

Formulation of equation of motion; undamped and damped free vibration; harmonic excitation; periodic excitation; random vibration; spectral analysis.

**Topic 4: Wind Induced Vibration**

Along-wind response of structures; cross-wind response of structures; interference excitation of tall buildings.

**Topic 5: Wind Loading Codes**

Code of Practice of Wind Effects in Hong Kong 2004 & 2019; Australian/New Zealand Standard, Structural Design Actions Part 2: Wind Actions 2002 & 2021.

**Assessments:**

<b>Assessment Task</b>	<b>Contribution to Overall Course grade (%)</b>
Homework	40%
Mid-Term	N/A
In-course essay	N/A
Group Project	N/A
Final examination	60%

**Required Texts and Materials**

## Reference Readings:

1. Holmes JD. Wind Loading of Structures. 2nd Edition. London: Taylor & Francis; 2007
2. Dyrbe C, Hansen SO. Wind Loads on Structures. New York: John Wiley & Sons; 1997.
3. Simiu E, Scanlan RH. Wind Effects on Structures: Fundamentals and Applications to Design. 2nd Edition. New York: John Wiley & Sons; 1996.
4. Paz M. Structural Dynamics - Theory and Computation. 4th Edition. Van Nostrand Reinhold, NY; 1997.

**Additional Resources**

[List any additional resources, such as online platforms, library resources, etc.]

## Wind Code:

1. Building Department of Hong Kong, "Code of Practice on Wind Effects in Hong Kong 2004", 2004 & 2019.
2. AS/NZ1170.2, Australian/New Zealand Standard, Structural Design Actions, Part 2: Wind Action, Standards Australia & Standards New Zealand 2002 & 2021.