



Environmental Technologies & Sustainable City

Lecturer: Prof. Jianxiang Huang (The University of Hong Kong)

Short description of the lecture (up to 10 sentences):

The modern metropolis, occupying a small fraction of land on earth, accommodates a majority of the world population and consumes the largest share of natural resources. Meanwhile, a dense city imposes substantial disruption on its micro-environment, imposing risks on the health, comfort, and quality of life of its residents. Such risks increase in light of continued urban growth, the ageing society, and climate change, at the scale and complexity that exceeds personal experiences and the scope of conventional assessment.

The goal of this course is to develop knowledge and research skills in relation to sustainable cities. The class surveys scientific principles, reviews environmental technologies, and presents recent case studies. The core component of this course is an integrated design workflow supported by emerging analytical tools, from geo-spatial computing, remote sensing, to simulation tools. Students acquire techniques from rule-of-thumbs to state-of-the-art simulations of localized wind, day-lighting, human comfort as well as building energy use. Empirical research across climate zones will be presented, providing empirical evidence between environmental stress, perceived comfort, and behavioral patterns. The class format consists of lectures, software tutorials, and discussion.

Syllabus of the lecture subjects (enlisted):

Specific topics covered in subsequent lectures (45 mins each) will include:

- The concepts of sustainable city and its variations
 - The green city,
 - The resilient city,
 - The eco-city,
 - The inclusive city,
 - The climate adaptive city
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- Key indicators and rating systems for cities
 - Green assessment systems,
 - The ecological footprint,
 - Sustainable infrastructure



- Prevailing and emerging methods to assess various environmental parameters within the built environment.
 - Daylighting, air temperature,
 - Wind speed, energy,
 - Thermal comfort, noise and air quality
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- Empirical research on environmental factors, human behavior, and health outcomes.

Terminy wykładów			
Data	Dzień tyg.	Godzina	Sala
2015-10-12	Pn	16.15-21.00	GG 414
2015-10-13	Wt	16.15-21.00	GG 414
2015-10-14	Śr	16.15-21.00	GG 414