UNIVERSITÉ PARIS-EST

Invited visiting academics and scientists in 2018

Francesco CAUSONE

- Politecnico di Milano (Italy) -

Francesco Causone *is an Associate Professor in Buildings Physics at the Polytechnic University of Milan in the Department of Energy. After his Master Degree in Architecture at the Polytechnic University of Turin, he did, at the same place, a PhD in Technological Innovation for Built Environnement. As he was a Sustainability Researcher and a Member of the Specialist Modelling Group at Foster + Partners in London, he won in 2012 the REHVA Young Scientist Award. He also obtained the LEED AP BD+C certification.*
His research interests focus in particular on Energy and Smart Cities, Indoor Environmental Quality (IEQ) and obviously Sustainable Architecture.

Short Course

with **Andrea Kindinis**, Teacher-Researcher, ESTP, Cachan

Indoor air quality (IAQ) and thermal comfort assessment in buildings

Timetable

- Friday, May 18 - 14:00-17:00
- Tuesday, May 22- 14:00-17:00
- Thursday, May 24- 14:00-17:00
- Monday, May 28- 14:00-17:00
- Wednesday, May 30- 14:00-17:00

Target Audience
PhD students

Language
English

Location
ESTP Paris-Campus
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94234 Cachan
Bâtiment De Lesseps (Bât. 12) - RDC - Salle D01

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Sciences, Ingénierie et Environnement

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Course Content

The course consists of lectures and practical applications of IAQ and thermal comfort assessment techniques in classroom settings. Starting from thermal comfort theory, the course will describe the state of art of in-situ measurement techniques for the assessment of both IAQ and thermal comfort. Attention will be given both to the theoretical and operational definition of the most significant performance indicators, on techniques described in standards, and on techniques not yet standardized. An overview of different ventilation strategies and buildings systems will be provided showing possibilities and limitations of available assessment tools and their compliance with international sustainability protocols, such as LEED, standards, directives and requirements.

Learning outcomes

On completion of the course, the students shall be able to (i) account for IAQ and thermal comfort assessment techniques, (ii) develop an IAQ and/or thermal comfort assessment plan, (iii) relate IAQ and thermal comfort assessment procedures to their own specific area of research and discuss how they can be used.

Lectures content

18/05/2018	*Fanger's thermal comfort theory, adaptive thermal comfort theory, Mean Radiant Temperature, Operative Temperature, PMV, PPD and long term discomfort indices, general comfort and local discomfort*
22/05/2018	*Introduction and overview of ventilation strategies, commissioning process, indices for ventilation assessment, review of in-situ performance assessment techniques*
24/05/2018	*IAQ beyond ventilation, low emitting materials and sustainable building certification protocols (e.g. LEED), high quality experimental sensors and cheap sensors, simulation tools (EnergyPlus, Contam, CFD, etc.)*
28/05/2018	*"Hands on" real experimental equipment for the assessment of IAQ and thermal comfort available at the ESTP, Paris. Description of practical issues in the use of experimental tools.*
30/05/2018	*On the basis of an experimental dataset collected on site, the students will be asked to develop calculations for the assessment of major KPIs described during the course. The students will be asked to provide a critical evaluation of the environmental conditions within the considered case study, on the basis of their calculation outcomes and to describe it in a short written report. A final discussion between students and the lecturer will follow on the outcomes of the analysis.*

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