

# IEA ANNEX 62 - Ventilative Cooling - Summer Course



Lisbon – Portugal

15-19<sup>th</sup> of May 2017

Faculty of Sciences ULisbon

In the majority of developed countries, most office buildings, and an increasing fraction of residential buildings, use mechanical cooling even when an optimized natural ventilative cooling (VC) system could meet cooling comfort and fresh air requirements. This five-day summer course will introduce students to the capabilities and limitations of VC using a design case study approach.

The course will be thought by VC experts who are currently participating in [IEA ANNEX 62](#). By the end of an intense work week the students will be asked to present their VC solution for a school and discuss the expected system performance (predicted using building thermal and airflow simulation). The course will be taught in the [University of Lisbon](#) campus (15-19<sup>th</sup> of May 2017). Course instructors: [Per Heiselberg](#), [Maria Kolokotroni](#), [Hilde Breesch](#), [Annamaria Belleri](#), [Maria Justo Alonso](#), [Guilherme Carrilho da Graça](#), [Peter Holzer](#), [Michal Pomianowski](#), [Maurizio Cellura](#), [Florentzous Florentzou](#), [Paul O'Sullivan](#), [Hisashi Kotani](#)

This course is targeted to **PhD and MSc students with an interest in VC and thermal simulation**. Please see the course plan in the next page. Cost: 450€. For more information please email [afilsilva@fc.ul.pt](mailto:afilsilva@fc.ul.pt).

## Course plan

Day	Monday (theory)	Tuesday (practical)	Wednesday (seminar)	Thursday (VC design)	Friday (VC design)
9:30 11:00	Ventilative cooling (VC) strategies and systems	Laboratory modelling of VC system performance	I-Presentation of Annex 62 Ventilative Cooling II-Methods and Tools for prediction of VC performance	Thermal comfort and IAQ standards for VC	Student work: simulation of VC school (II)
11:15 12:45	VC potential & Effects of climate change	<b>VC modelling exercises at FCUL experimental facilities: weather exposed NV test room</b>	III-Reliable ventilative cooling solutions and technologies IV-Presentation of ventilative cooling case studies	Development of VC design solutions	Development of school VC solutions Calculation of comfort and IAQ performance indicators Preparation of presentation
14:00 15:30	Simplified modelling of VC & simple design rules	<b>VC modelling exercises at FCUL experimental facilities: wind tunnel</b>	Presentation of course exercise: VC design for a school	Thermal and airflow simulation of VC (II)	<b>Student presentations and discussion</b>
16:00 17:30	Field monitoring of VC system performance	<b>Urban hike in Lisbon to visit Ventilative Cooling examples: 7000 seat multi event venue and kindergarten</b>	Thermal and airflow simulation of VC (I)	Student work: simulation of VC school (I)	