

CIVIL-212

**Fundamentals of indoor climate**

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Cursus	Sem.	Type
Civil Engineering	BA3	Obl.
HES - GC	H	Obl.

Language of teaching	English
Credits	2
Session	Winter
Semester	Fall
Exam	During the semester
Workload	60h
Weeks	14
<b>Hours</b>	<b>2 weekly</b>
Courses	1 weekly
Exercises	1 weekly
<b>Number of positions</b>	

**Summary**

Indoor climate is of great significance to our well-being. This course offers a fundamental knowledge of the parameters that influence indoor climate (air quality and thermal environment). It also gives an overview of building controls methods that contribute to more comfortable and safe spaces.

**Content**

Theory lectures: Introduction to topics that are fundamental to building climate, such as: Human and the physical environment, indoor environmental quality, pillars of healthy buildings, human productivity and health risks, indoor air quality, thermal environment, thermal comfort, human behavior, building HVAC systems, types of ventilation, room air distribution, indoor environment and energy, existing standards and guidelines for indoor environment, measurement methods and instruments, green building guidelines.

Group assignment: Through the course project, the students will be able to deepen their familiarity on contemporary indoor climate issues and their effect on human's health and comfort. The student will work in groups on an assignment of specific topic which will be presented in two ways: 1) oral presentation through PPT slides that will be accompanied by feedback session by peers and the teacher, where the students will discuss the topics and lessons learnt; and 2) via blog post that will be published at the teacher's laboratory website.

NOTE: Course assignment is altered from the original content due to COVID-19 restrictions. The original course project involves a short physical measurements, basic data analysis and interpretation, and a group oral presentation.

**Keywords**

Building climate, indoor environmental quality, human comfort and productivity

**Learning Prerequisites****Recommended courses**

Building physics I-IV (AR-PHYS)

**Important concepts to start the course**

Indoor environmental quality, Human comfort, Building systems.

**Learning Outcomes**

By the end of the course, the student must be able to:

- Discuss the impact of building design and operation on the quality of indoor environment, human health and comfort.

- Identify control strategies that contribute to the improvement of building climate.
- Report a project in groups and present the work in a report and in an oral presentation
- Search for the contemporary literature on indoor climate topic

### Transversal skills

- Plan and carry out activities in a way which makes optimal use of available time and other resources.
- Give feedback (critique) in an appropriate fashion.
- Communicate effectively, being understood, including across different languages and cultures.
- Take feedback (critique) and respond in an appropriate manner.
- Access and evaluate appropriate sources of information.
- Make an oral presentation.
- Summarize an article or a technical report.

### Expected student activities

To participate in the classes, ask questions, engage in discussions and debates, pass the tests and complete the assignment.

### Assessment methods

Midterm exam 30 pts  
2nd Exam 30 pts  
Course Project 40 pts

### Supervision

Office hours	Yes
Assistants	No
Forum	No

### Resources

#### Bibliography

Peer-reviewed papers and websites as it will be provided throughout the semester.

C-A Roulet. Santé et qualité de l'environnement intérieur dans les bâtiments.

#### Ressources en bibliothèque

- [Santé et qualité de l'environnement intérieur dans les bâtiments/ C.A. Roulet](#)