

CIVIL-212

**Fundamentals of indoor climate**

Licina Dusan

<b>Cursus</b>	<b>Sem.</b>	<b>Type</b>
Civil Engineering	BA3	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>
Lecture	1 weekly
Exercises	1 weekly
<b>Number of positions</b>	

**Summary**

The quality of the indoor climate is of great significance to building performance, human comfort, and well-being. This course offers a fundamental knowledge of the parameters that influence indoor climate (air quality and thermal environment) and their assessment methods.

**Content**

Theory lectures: Introduction to topics that are fundamental to building climate, such as: Human and the physical environment, indoor environmental quality, heat transfer in buildings, psychrometric processes, indoor air quality, thermal environment, thermal comfort, building HVAC systems, types of ventilation, room air distribution, indoor environment and energy, existing standards and guidelines for indoor environment.

Group assignment: Through the course project, the students will work in a group of ~4 to prepare one topic related to the course content. The topic will be presented in with 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. The aim of the course assignment is to deepen students' familiarity on contemporary indoor climate issues and trends, as well as to encourage students to think about this topic in a broader scientific and societal context, introduce you to the writings of leading experts in the field, and give them practice of oral presentation and creating of interesting and visually stimulating PPT slides

**Keywords**

Building climate, indoor environmental quality, human comfort and productivity

**Learning Prerequisites****Required courses**

None

**Important concepts to start the course**

Indoor environmental quality, Human comfort, Building systems, Heat transfer.

**Learning Outcomes**

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

- Account for the 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.

- Carry out a project in groups and present the work in a form of an oral presentation.

### Transversal skills

- Assess one's own level of skill acquisition, and plan their on-going learning goals.
- Identify the different roles that are involved in well-functioning teams and assume different roles, including leadership roles.

### Teaching methods

This course consists of theory lectures complemented with group assignments.

### Expected student activities

To actively participate in lectures to understand basic theory, and to write and present a group assignment.

### Assessment methods

Written exam on the theoretical bases: 60%

Group assignment with oral presentation: 40%

### Supervision

Office hours	Yes
Assistants	Yes
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](#)

#### Moodle Link

- <https://go.epfl.ch/CIVIL-212>

### Prerequisite for

**ENG-445 Energy and Comfort in Buildings**