CIVIL-212

Fundamentals of indoor climate

Licina Dusan

Cursus	Sem.	Type
Civil Engineering	BA3	Obl.

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

Summary

The indoor climate impacts building performance and human well-being. This course covers fundamental knowledge of indoor air quality and thermal environment, with their assessment methods. It also outlines strategies for creating comfortable, healthy, and energy-efficient spaces.

Content

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.

In addition, through the course project, the students will work in a group of (cerca)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

Indoor environmental quality, building design, building systems, human comfort and health

Learning Prerequisites

Required courses

None

Important concepts to start the course

Indoor environmental quality, Building physics, Building systems, Heat transfer.

Learning Outcomes

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

- Characterize 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.
- Perform a project in groups and present the work in a form of an oral presentation.

Transversal skills

- Plan and carry out activities in a way which makes optimal use of available time and other resources.
- Access and evaluate appropriate sources of information.
- Make an oral presentation.
- Demonstrate the capacity for critical thinking
- Take feedback (critique) and respond in an appropriate manner.
- Communicate effectively with professionals from other disciplines.

Teaching methods

This course consists of theory lectures and a group course project**.**

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	No
Forum	Yes

Resources

Virtual desktop infrastructure (VDI)

No

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
***Type of assessment: During the semester**