

# Bioclimatic building design (BSc)/Bioclimatic design (MSc) 2023-2024

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## Topics

### A. Lectures

- Motivation and basic concepts
- Building energy balance, heat transfer and structures
- Thermal insulation and materials
- Comfort criteria and HVAC systems
- Daylight and lighting systems
- Passive design and examples
- Loads and building automation
- Standards, indicators, and certifications
- Local generation and storage

### B. Exercises (\*BSc/\*\*MSc)

- Software overview and examples
- Estimation of thermal loads\*
- Building thermal model in MATLAB/Simulink\*\*
- Preliminary sizing of lighting system\*
- Sizing of lighting system in DIALux\*\*
- Preliminary daylight evaluation\*
- Daylight evaluation in DIALux\*\*
- Short essay (\*, \*\*)

## Teaching

- Attendance is strongly recommended

## References

Lectures notes posted on Google Classroom/Google Drive, including suggested references.

## Exam

- I. Submission of a short report, via email prior to discussion, with exercises + short essay
- II. Presentation and discussion of essay + questions on exercises and theory