

IDENTIFICATION

Course code : E3BE5EF2
ECTS : 1

DURATION

Lectures : 2
Tutorial classes : 6
Labs : 4
Total : 12

Project :
Personnal work :

ASSESSMENT

- 1 Practical Work (PW) grade - Personal project grades

TEACHING MATERIALS

- Course and tutorial handouts - Manufacturer data - Site data - In-house calculation tools

LANGUAGE

English

CONTACT

Jean CASTAING LASVIGNOTTES
jean.castaing-lasvignottes@univ-reunion.fr

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UE : UE5.3-EFFI

COURSE : Analysis of Building Flows

SCOPE OF THE COURSE

OBJECTIVES

To understand and identify the different flows (material, energy) present in buildings

COMPETENCE AND SKILLS

Upon completion of this course unit, the student will be able to :

1. Understand the fundamental principles of flow analysis in buildings;
2. Characterize the flows present in a building;
3. Analyze and aggregate flows;
4. Apply an analysis methodology to a building.

PROGRAM

- Introduction, principles and fundamental definitions
- The different flows present in a building, Units
- Aggregation of flows, definition of macro indicators
- Application to a tertiary, residential or industrial building

BIBLIOGRAPHY

- Incropera, F. P., DeWitt, D. P., Bergman, T. L., & Lavine, A. S. (2017). *Fundamentals of Heat and Mass Transfer*. John Wiley & Sons.
- ASHRAE (2021). *ASHRAE Handbook – Fundamentals*. American Society of Heating, Refrigerating and Air-Conditioning Engineers.
- ADEME (2022). *Guide to Energy Efficiency in Buildings*. ADEME Éditions.

REQUIREMENTS

This course unit requires basic knowledge in :

- thermodynamics and heat transfer;
- building physics;
- mass and energy balances;
- basic mathematical and statistical tools.