

IDENTIFICATION

Course code : ESI-SPI-CI-BE4-S8-UE2-EC4
ECTS : 1.5

DURATION

Lectures : 8
Tutorial classes : 0
Labs : 12
Total : 20

Project :
Personnal work :

ASSESSMENT

Continuous Assessment and Project (Development of a maintenance and operations strategy for a building)

TEACHING MATERIALS

Course materials : .pdf, .ppt, and online during class

LANGUAGE

English

CONTACT

Modifié le : 3 août 2026

UE : UE8-QEB

COURSE : Building Maintenance and Operations

SCOPE OF THE COURSE

OBJECTIVES

Understand the building lifecycle : Grasp the transition from delivery (GPA) to routine operations. Master maintenance types : Distinguish and plan preventive, corrective, and predictive maintenance. Optimize energy performance : Learn to control systems (BMS/BAS) to maintain consumption targets (Tertiary Decree). Understand regulatory frameworks : Master obligations related to ERP (Establishments Receiving the Public) and fire safety. Use digital tools : Get introduced to CMMS (Computerized Maintenance Management System) and BIM FM (Facility Management).

COMPETENCE AND SKILLS

Develop a maintenance plan : Inventory technical equipment (HVAC, electrical, envelope) and define intervention frequencies. Manage a performance contract : Draft or analyze a maintenance service specification (CCTP). Conduct a technical audit : Assess a building's condition and recommend improvement or compliance works. Handle digital operations : Exploit sensor data to optimize thermal comfort and energy efficiency.

PROGRAM

1. Introduction & Challenges : Lifecycle, total cost of ownership (LCC), environmental and financial stakes of operations.
2. Maintenance Strategies : Preventive vs. corrective maintenance. Performance indicators (MTBF, MTTR).
3. Regulations & Safety : Safety register, periodic regulatory inspections, accessibility.
4. Energy Operations : Consumption monitoring, BMS/BAS control, Energy Performance Contracts (EPC).
5. Digital Tools : Introduction to CMMS and transition from BIM "As-Built" to BIM "Operations".
6. Case Study : Analysis of a real building in Réunion Island (e.g., a high school or office building) and development of a maintenance plan.

BIBLIOGRAPHY

REQUIREMENTS

Building techniques