SPRING SEMESTER (M1.2/I4.8)

ENERGY AND AUTOMATED OBJECTIVES PROCESSES

NANTES CAMPUS

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Assessment

- Quizzes
- Regular progress reports and consultation
- Conference and practicals reports
- Technical and project reports
- Project oral and written presentation

Partners

Partner companies who deliver lectures/conferences or mentor case studies.

TPA / Stellantis / GRT Gaz / Segula / Enedis

OBJECTIVES

- Acquire knowledge in the futuristic and multi-technological energy field
- Design solutions using new renewable energies

TARGET PROFESSIONS

- Energy process engineer
- Energy efficiency engineer
- Energy design office

PROGRAM

Lectures/Conferences

Mainly held by industry partner representatives:

- Understanding energies, methodologies, approaches
- Industry insights: Experiences, Problem situations
- Company visits

Energy and Energy Production

- Energy Transition
- NRE: New renewable energies (solar, wind, biomass, bio-fuels, etc.)

Management, Automation & Distribution

- Smart grids, and problem of intermittent NRE
- Gas network injection, Energy storage

Energy systems: application to vehicles and buildings

- Electric and autonomous vehicles
- Vehicle-to-grid (V2G)
- Building energy efficiency (RT2012)

Practicals and Case Studies

- Dimensioning NRE systems (solar, PV grids, etc.) for a building and electric vehicle
- Study of the mix of NREs

Typical Project(s)

Mainly with industrial customers:

- Hybridization of existing wind turbines
- Aquaponics modeling for the Icam restaurant
- Energy recovery: automated drying chamber
- Biomass: pyrolysis and gasification systems
- Measurement, autonomous instrumentation

Competencies

- Acquire an end-to-end project perspective and approach to the energy field
- Size energy systems (NRE)
- Carry out a scientific approach to understand and meet customer needs

Prerequisites

- Bachelor's Level - Energy, Electrical, Fluid Mechanics and Thermal concepts

Note that as lectures and case studies for industrial partners are mostly conducted in French, having a good level of French is recommended.