Course: Project Energy Systems — credits: 10

Course code	WBVP26PES
Name	Project Energy Systems
Study year	2026-2027
ECTS credits	10
Language	English
Coordinator	T. Munuswamy
Modes of delivery	Education
Assessments	Professional Identity - Assignment Project Energy Systems - Assignment

Learning outcomes

Student is able to:

- understand the unique challenges associated with building energy in church buildings, including architectural and historical considerations
- identify and collect relevant data on church building energy performance, such as energy bills, equipment specifications, and building characteristics
- analyze and interpret energy data using appropriate methods, such as regression analysis, energy modelling, and simulation
- evaluate the energy efficiency of the church building and identify opportunities for improvement, including measures related to building envelope, HVAC, lighting, and occupant behavior
- design and evaluate various energy efficiency measures using technical and economic analysis methods, and select the most appropriate measures based on energy savings, cost effectiveness, and other relevant criteria
- develop a comprehensive report and presentation that summarizes the church building energy performance analysis, including recommendations for energy efficiency improvements, estimated energy savings, and economic analysis results
- communicate effectively with stakeholders, such as church leaders, congregation members, and engineering professionals, to present the results of the church building energy analysis project and discuss potential energy efficiency measures
- apply critical thinking and problem-solving skills to address challenges and uncertainties in the church building energy analysis process, and make data-driven decisions based on available information
- understand the role of building energy analysis in the context of sustainability, and recognize the importance of reducing energy use and greenhouse gas emissions in the built environment, including in historic and cultural buildings such as churches

Content

This project focuses on the energy and system analysis of a certain building or location which needs to be made sustainable. Within the project, the students, as a group, will perform an analysis of chosen technical problem or case study. During this phase the students will receive just-in-time information. Understanding of the heat transfer concepts and energy flows are a pre-requisite in order to perform a system analysis, these topics will be addressed in the Fluid mechanics (WBVP23FM), Heat transfer (WBVP23HT) and Thermodynamics (WBVP23TD). In the end the students submit an advisory technical report as a deliverable to the client.

Included in programme(s)

Mechanical Engineering VWO a 3-year variant

School(s)

Engineering, Life Sciences & ICT

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