COURSE DESCRIPTION CARD - SYLLABUS

Course name
Energy performance of building [N1IŚrod2>CHEB]

Course

Field of study
Environmental Engineering

Year/Semester
4/8

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
part-time

Requirements
elective

Number of hours

Lecture
0

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
20

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

Knowledge in the field of energy balancing from the subject of energy management. Ability to perform calculations in Excel software.2. Skills:

Course objective

Acquiring knowledge and skills in performing design energy performance calculations and preparing energy performance certificates.

Course-related learning outcomes

Knowledge:
1. The student has knowledge of the requirements of legal regulations regarding the energy performance of buildings and energy saving.
2. The student has knowledge of the need to prepare design energy characteristics and energy performance certificates for buildings. 3. The student has knowledge of the possibilities of using various methods and tools to prepare the design energy characteristics of a building.

Skills:

1. The student is able to calculate energy indicators for a residential building.
2. The student is able to use the calculation algorithm described in the applicable regulation to perform calculations of the design energy characteristics.
3. The student is able to complete the energy performance certificate for the analyzed building and assess the fulfillment of legal requirements in the field of thermal protection of the building.
4. The student is able to use at least one tool to support calculations of the energy performance of a building.]

Social competences:
1. The student is aware of the need to constantly update knowledge related to changing legal regulations.
2. The student is aware of the need to organize group work in order to achieve a common goal.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The final grade is composed of the following elements: 1) 30 points systematic performance of tasks, 2) 10 points timely completion of the entire project, 3) 60 points final test (multiple choice and open questions). Rating scale: rating 3.0 - 50 points, 3.5 - 60 points, 4.0 - 70 points, 4.5 - 80 points, 5.0 - over 90 points.

Programme content

Theoretical introduction regarding the energy performance of buildings and legal regulations related to the topic. Preparing the design energy performance of a residential building and completing the building's energy performance certificate. The project will be carried out in teams of 2-3 people. The project will be divided into tasks. Calculations will be based on current regulations.

Course topics

The project will be carried out in teams of 2-3 people. The project will be divided into tasks.
1) Legal requirements for energy saving
2) Input data for energy performance calculations
3) Manual calculation of usable energy for heating purposes for the selected month
4) Manual calculation of useful energy for cooling purposes for the selected month
5) Preparation of a calculation sheet for usable energy for 12 months
6) Diagrams of installations used in the building
7) Efficiency of installation systems
8) Final energy indicator
9) Non-renewable primary energy index
10) Other energy and ecological indicators
11) Completing the energy performance certificate with an assessment of compliance with WT requirements
12) Performing alternative calculations so that the WT requirements are met or the intended result is achieved

Teaching methods

Presentation of theoretical issues (knowledge): presentations, case studies, discussions, interactive lessons on eCourses. Interactive insertion of calculations. Discussion of the results.

Bibliography

Basic:
1. Regulation on the methodology for determining the energy performance of a building, valid for the year of project implementation.
2. The regulation regarding the requirements for thermal protection of buildings and energy saving, valid for the year of project implementation.

Additional:
1. K. Zbijowski. Świadectwo charakterystyki energetycznej budynku : metodyka "krok po kroku". Cz. 1, Budynek mieszkalny. Wydawnictwi STO, 2009.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	20	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00