COURSE DESCRIPTION CARD - SYLLABUS

Course name

Building modelling and static analysis in BIM

Course

Field of study

Sustainable Building

Year/Semester

4/7

Area of study (specialization)

-

Profile of study

general academic

Level of study

First-cycle studies

Course offered in

English

Form of study

full-time

Requirements

elective

Number of hours

Lecture

30

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars

15

Number of credit points

5

Lecturers

Responsible for the course/lecturer:

dr inż. Monika Siewczyńska

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tel. 616652864

Wydział Inżynierii Lądowej i Transportu

ul. Piotrowo 5 Poznań

Responsible for the course/lecturer:

second person allowed

Prerequisites

Students commencing this course should have basic knowledge of building mechanics, material strength, reinforced concrete, masonry and steel structures and building physics.

Course objective

To provide students with knowledge in the field of computer-based structure analysis using BIM technology. To develop students' ability to dimension structures in 3D with critical analysis of results.

Course-related learning outcomes

Knowledge

1. is familiar with the detailed rules for the construction and dimensioning of elements and connections of construction works

2. is familiar with the principles of energy analyses of buildings

Skills

1 The student is able to calculate the set of loads acting on buildings

2. the student is able to design selected elements and simple structures

The student is able to use selected computer programs to support design decisions in sustainable construction.

4. the student is able to perform energy analyses of a building in BIM

Social competences

1. Student is responsible for the integrity of his work and its interpretation

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The knowledge acquired during the lectures is verified by two 45-minute colloquia carried out during the 7th and 15th lectures. Each of the colloquia consists of 5-10 questions (test or open), differently scored. The credit threshold: 50% of points. The lectures outlines on the basis of which the questions are developed will be sent to students via e-mail using the university's e-mail system.

In the case of e-learning, it is possible to change the method of passing the lectures in quizzes - after each lecture. The points obtained from the individual quizzes are added up and the final grade is determined on their basis.

Maximum number of points for each quiz: 3 points.

Number of quizzes: 7

Scoring - evaluation:

20-21 - 5,0

18-19 - 4,5

16-17 - 4,0

14-15 - 3,5

12-13 - 3,0

0-11 - 2,0

Skills acquired during the projects are verified on the basis of ongoing verification of the correctness of calculations carried out in the computer program.

Programme content

Lectures:

Methods of static analysis using programs from BIM environment.

Methods of verification of results obtained in computer programs.

Energy analyses of 3D model with the use of programs from BIM environment.

Projects:

Creation of a 3D architectural and analytical model, load combinations, static analyses and dimensioning of structural elements. Energy analysis of the architectural model.

Teaching methods

Lectures - informative lecture with multimedia presentation

Project: working with computer programs, exposition

Bibliography

Basic

Tutorials of programmes for static and energy analysis

Additional

Tutorials of programmes for static and energy analysis

Breakdown of average student's workload

	Hours	ECTS
Total workload	125	5,0
Classes requiring direct contact with the teacher	45	2,0
Student's own work (literature studies, preparation for classes, preparation for tests and project preparation) [1]	80	3,0

[1] delete or add other activities as appropriate