



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Sustainable Buildings

### Course

Field of study

Year/Semester

Civil Engineering

1/2

Area of study (specialization)

Profile of study

Construction Project Engineering

general academic

Level of study

Course offered in

Second-cycle studies

Polish

Form of study

Requirements

part-time

compulsory

### Number of hours

Lecture

Laboratory classes

Other (e.g. online)

10

0

0

Tutorials

Projects/seminars

18

0

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

Responsible for the course/lecturer:

dr inż. Barbara Ksit

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tel. 48 61 6652864

WILiT

Piotrowo 5, Poznań

### Prerequisites

Knowledge The basic knowledge from the construction engineering.

Skills Best to design the building.

Social competencies The consciousness of the necessity of continuous updating and supplementings of the building knowledge and engineer skills.

### Course objective

The delivery the maximum of the knowledge from the contemporary construction engineering.



### Course-related learning outcomes

#### Knowledge

1. Student knows rules of the creations of the ecological and sustainable construction objects.
2. Student knows rules of the creations of the energy-saving, passive and zeroenergeting construction objects.
3. Student have detailed and theoretically based knowledge in the field of building physics, related to heat and moisture migration in selected building units.
4. Student knows norms and guidelines of the designing of building objects and their elements.
5. Student knows and applies regulations of the construction law.
6. The student has a knowledge of the influence of construction investments realization on the environment.

#### Skills

1. Student can select materials and technologies for the realization of the ecological and sustainable construction objects.
2. Student can select materials and technologies for the realization of the energy-saving, passive and zeroenergeting construction objects.
3. Student can prepare and analyse the energy balance of the construction object.

#### Social competences

1. Student independently supplements and extends the knowledge of within the range modern processes and technologies in construction.
2. Student is responsible for the honesty of obtained results of his own works and the estimation of works of the team subjected to him.
3. Student has a consciousness of the necessity of the lifting of professional and personal competences.
4. Student has a consciousness of the need of the sustainable development in construction.
5. Student understands the need of the transfer to the society of the construction knowledge.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Within the subject, classes are conducted as: lectures and exercises

as a form of measurement / evaluation of the student's work, the following are carried out:

Lectures:

\* final tests



Rating scale specified% from:

90 very good (A)

85 good plus (B)

75 good (C)

65 sufficient plus (D)

55 sufficient (E)

below 54 insufficient (F)

In doubtful cases, the credit is extended to the oral part.

Auditorium exercises:

Defense of projects.

### Programme content

Lecture: Ecological construction. Energy-saving and passive construction. Green walls and roofs.

Certification, Rech, certificates, Acoustics-basics

Exercises:

Execution of the certificate

### Teaching methods

Lecture / problem lecture / lectures with multimedia presentation

Exercises / exercises involving the use of professional literature, standards, the Act -

Determining the ventilation space in the flat roof with the selection of ventilation grilles,

calculation of HD heat losses and the average heat transfer coefficient for the building, taking into account linear bridges, acoustic insulation of the partition.

### Bibliography

Basic

1. T. Błaszczński B. Ksiazka L. Grzegorzczak, Nowa certyfikacja Energetyczna Budynków jako element budownictwa zrównoważonego PP, Poznań 2018

2. A. Kaliszuk-Wietecha, Budownictwo zrównoważone. Wybrane zagadnienia z fizyki budowli. Wyd. 1 PWN 2016

3. Pakiet do projektowania budynków pasywnych PHPP, PIBP, 2006



Additional

1. praca zbiorowa pod red. J.Karyś, Ochrona przed wilgocią i korozją biologiczną w budownictwie Medium Warszawa 2014
2. F.Frossel, Osuszanie murów i renowacja piwnic Polceon. Warszawa 2007
3. praca zbiorowa pod red. L.Runkiewicz, T.Błaszczyszki Ekologia a budownictwo, Dolnośląskie wydawnictwo edukacyjne Wrocław 2016
4. J.Nurzyński, Akustyka w budownictwie, Wydawnictwo Naukowe PWN 2018

**Breakdown of average student's workload**

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	28	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	47	2,0

<sup>1</sup> delete or add other activities as appropriate