



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Materiały budowlane/Construction materials

Course

Field of study

Civil Engineering

Area of study (specialization)

Structural Engineering

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

1/2

Profile of study

general academic

Course offered in

English

Requirements

compulsory

Number of hours

Lecture

30

Laboratory classes

30

Other (e.g. online)

0

Tutorials

30

Projects/seminars

0

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

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Responsible for the course/lecturer:

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Prerequisites

Knowledge: basic knowledge of building materials.

Skills: ability to characterize and use a material in a building.

Social competences: awareness of the need for continuous updating and supplementing of knowledge and skills.



Course objective

To introduce the students with knowledge about the manufacturing processes and characteristics of modern building materials.

Course-related learning outcomes

Knowledge

Have extended and detailed knowledge of mathematics, physics and chemistry, forming theoretical principles appropriate to formulate and solve tasks related to building engineering.

Know in detail currently utilised construction materials and products, their properties and testing methods as well as production and assembly technologies.

Skills

Are able to obtain information from literature, databases and other properly selected information sources; can integrate the obtained information, interpret and evaluate it as well as draw conclusions, formulate, justify, discuss and present opinions.

Can make plans autonomously, carry out lifelong learning processes and direct others in this respect; can apply the obtained knowledge into building engineering in order to communicate with different target groups using specialized terminology and discuss important problems of building industry.

Social competences

Are responsible for the safety of own work and team work.

Can realise that it is necessary to improve professional and personal competence; are ready to critically evaluate the knowledge and received content.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Colloquium in written form within the time limit given at the beginning of the semester. Colloquium at the end of the semester on the material for laboratory exercises .

Programme content

Functions of building materials. Basic parameters and criteria for selecting building materials. New trends in cement and concrete technology. Self-compacting and photocatalytic concretes. HSC, UHSC and fibroconcrete. Transparent and glass concrete. Geopolymer concrete. Flexible and self-repairing concrete. Corrosion and durability of building materials. Nanotechnologies in construction. Glass as a modern building material. Wood as a modern building material. Metal as a modern building material. Ceramics as a modern building material. Contemporary thermo-insulating and anti-moisture and waterproofing materials.

Teaching methods



Informational lecture with elements of the case method, laboratory method (group experiments conducted by students), e-learning methods.

Bibliography

Basic

1. P. Domone, J. Illston, Construction Materials Their Nature and Behaviour, 4th edition, 2010
2. J. Newman, B.S. Choo, Advanced Concrete Technology II, 2003
3. M. A. Caldarone, High strength Concrete, 2009.
4. K. Gopalakrishnan, B. Birgisson, P. Taylor, N. Attoh-Okira, Nanotechnology in Civil Infrastructure, 2011

Additional

Scientific articles

Breakdown of average student's workload

	Hours	ECTS
Total workload	90	3,0
Classes requiring direct contact with the teacher	60	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	30	1,0

¹ delete or add other activities as appropriate