COURSE DESCRIPTION CARD - SYLLABUS

Course name
Development in design ideas [S1Bud1>RMP]

Course

Field of study
Civil Engineering

Year/Semester
1/2

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
elective

Number of hours

Lecture
15

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

1,00

Coordinators

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Lecturers

Prerequisites

Basic technical and historical knowledge

Course objective

Getting familiar with the idea of design in human history. Discussion of the influence of inventions, research experiences, the influence of nature, religion, and geopolitical situation on the development of building design.

Course-related learning outcomes

Knowledge:
Student has basic general knowledge of mathematics, physics, chemistry, biology and other areas of science, which creates a theoretical basis useful for formulating and solving tasks related to design development.
Student has a basic knowledge of the influence of various areas of life on the development of design.

Skills:
Student is able to do research from literature, databases and other properly selected sources; is able to

integrate obtained information, interpret and evaluate it, as well as draw conclusions, formulate and justify opinions and positions, and discuss them.
Student can independently plan and implement earning throughout his life and use his knowledge in the field of construction in order to communicate using specialized terminology in order to discuss important problems in the construction industry.

Social competences:
Student is able to adapt to new and changing circumstances, is able to define priorities in the implementation of tasks defined by himself and others, acting e.g. in the public interest and taking into account design standards.
Student understands the need to provide the society with knowledge about construction and its development, passes this knowledge on in a commonly understandable way.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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Test with single-choice questions, marks scale: 11,0 points - mark 5,0, 10,0 points - mark 4,5, 9,0 points - mark 4,0, 8,0 poinst - mark 3,5, 7,0 points - mark 3,0, 6,0 points - mark 2,0.

Programme content

1. Introduction to the subject. Familiarizing students with the role of a contemporary structural designer of building, his tasks and responsibilities of the profession. Overview of a designer career path.
2. Discussion of the development of building design in prehistoric, ancient and medieval times (the so-called trial and error period in designing and construction). The influence of nature, geopolitical situation, religion and the influence of the first law regulations on the development of design. Discussion of construction disasters and the development in design solutions.
3. Discussion of the development of building design from the late Middle Ages to the present day (the so-called period of mathematical models). Introducing the definition of a mathematical model. Influence of Leonardo da Vinci, Galileo, Isaac Newton and others on building design. Overview of the invention of modern materials for building design development.
4. Discussion of the development of contemporary design with the use of advanced methods and technologies, including the finite element method. Familiarization with the introduction of design standards to design process. Overview of design in BIM technology.

Course topics

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Teaching methods

A lecture in the form of a multimedia presentation, discussion between the lecturer and the students, student participation in solving the problem

Bibliography

Basic
Stephen P. Timoshenko, Historia Wytzymałości Materiałów, Arkady, 1966

Bryła S. (red.) Podręcznik Inżynierski Tom I-IV, Lwów-Warszawa 1927-1936
David J. Brown, Mosty trzy tysiące lat zmagań z naturą, Arkady, 2007
Praca zbiorowa, Najsłynniejsze miejsca i budowle świata, Wiedza i Życie, 2006
Design standards, Polski Komitet Normalizacyjny
Additional
Kwiatkowski B., Poczet Faraonów, Iskry, 2002

Breakdown of average student's workload

	Hours	ECTS
Total workload	30	1,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	15	0,50