



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Cost estimation [S1BZ1E>KOS]

### Course

Field of study

Sustainable Building Engineering

Year/Semester

3/5

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

English

Form of study

full-time

Requirements

elective

### Number of hours

Lecture

30

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

30

### Number of credit points

4,00

### Coordinators

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### Lecturers

### Prerequisites

Basic knowledge of building materials, construction, technology and organization of construction works

### Course objective

Acquiring knowledge, skills and competences in the field of planning, monitoring and accounting for the costs of carrying out construction works, and above all, preparing construction cost estimates and other cost studies

### Course-related learning outcomes

Knowledge:

- has basic knowledge about algorithms of selected computer programs (also using BIM technology) supporting the calculation and design of structures, organization of construction works, cost estimation and technical equipment of buildings as well as algorithms of programs for evaluation and design of energy-saving buildings
- has knowledge of the organization and principles of construction management, creating quality management procedures for construction works; knows work norms in construction

### Skills:

- is able to use information and communication techniques appropriate to carry out tasks typical of engineering activities
- is able to make a preliminary economic analysis of engineering activities undertaken in the field of: buildings, technical systems for buildings and external infrastructure as well as for elements and systems used in the built environment; knows how to prepare a simple cost estimate and work schedule
- knows how to organize work at the construction site in accordance with the principles of technology and construction organization

### Social competences:

- is responsible for the reliability of the results of his work and their interpretation
- is aware of the need to improve professional and personal competences, understands the need and knows the possibilities of continuous training (second and third cycle studies, post-graduate studies, courses)
- has the ability to critically assess the results of their own work

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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ecture - written exam (open questions, test)

design exercises - preparing a cost estimate for the indicated scope of construction works on the basis of a bill of quantities

Grade scale determined% from:

90 very good (A)

85 good plus (B)

75 good (C)

65 sufficient plus (D)

55 satisfactory (E)

below 54 insufficient

## Programme content

The specificity of construction. Factors determining the condition of construction. Forms of settlement and remuneration for construction works. Cost accounts (generic, calculative, according to their place of origin, cost carriers, result). Conditions of the cost calculation process in construction. Functions and types of cost studies in construction. Cost calculations in the pre-investment phase. Types of cost estimates. Summary cost statements. General and detailed rules for taking over the works. Cost calculation methods. Normative and price-cost bases and rules for using them. Calculation of individual components of the price estimate. Individual calculation rules. Cost estimation of design works. Cost monitoring during construction works. Costs control. Selected elements of the economics of building works

## Course topics

Basic concepts and definitions, Methods and principles of construction works bill of quantities. Scaffolding and formwork in cost calculation. Classification of cost estimates, Cost calculation methods, Forms used in cost estimation, Methods of individual calculation of unit material outlays, Valuations in the investment process, Elements of public procurement, Investor cost estimate in public procurement, Cost estimation of planned construction works and planned design works, Computer-aided cost estimation process

## Teaching methods

1. Lecture with multimedia presentation
2. Design exercise with elements of solving tasks

## Bibliography

Basic

1. Smoktunowicz E.; Kosztorysowanie obiektów i robót budowlanych, Polcen, Warszawa 2001
2. Zajączkowska.T. Kalkulacja kosztorysowa i jej komputerowe wspomaganie, Zamex`, Kraków 2002

3. Vademecum kosztorysanta, Ośrodek Wdrożeń Ekonomiczno-Organizacyjnych Budownictwa, Promocja, Warszawa 2002

Additional

1. Duraj J. Podstawy ekonomiki przedsiębiorstwa, PWE, Warszawa 2004

2. Standardy kosztorysowania robót budowlanych, Stowarzyszenie Kosztorysantów Budowlanych, Warszawa 2005

### Breakdown of average student's workload

	Hours	ECTS
Total workload	120	4,00
Classes requiring direct contact with the teacher	60	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	60	2,00