



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Cost estimation [S1Bud1>KOS]

### Course

Field of study

Civil Engineering

Year/Semester

3/5

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

30

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

15

### Number of credit points

3,00

### Coordinators

dr inż. Marcin Gajzler

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### Lecturers

### Prerequisites

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

### Course objective

Acquisition of knowledge, skills and competences in the field of planning, monitoring and cost settlement of construction works, and above all, preparation of construction cost estimates and other cost studies.

### Course-related learning outcomes

Knowledge:

- has a basic knowledge of the algorithms of operation 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 and algorithms for the operation of programs for the evaluation and design of energy-efficient buildings
- has knowledge of the organization and principles of construction management, creating quality management procedures for construction works; knows the standards of work in construction

Skills:

- can use advanced information and communication techniques appropriate to the implementation of tasks typical for engineering activities
- is able to perform a preliminary economic analysis of basic engineering activities; knows how to prepare a simple cost estimate and work schedule
- knows how to organize work on a construction site in accordance with the principles of technology and construction organization

Social competences:

- is responsible for the reliability of the obtained results 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 degree studies, postgraduate studies, courses)
- has the ability to critically evaluate the results of their own work

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:

lecture - written exam (open questions, test)

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

Grading scale defined% from:

90 very good (A)

85 good plus (B)

75 good (C)

65 sufficient plus (D)

55 sufficient (E)

below 54 insufficient

### Programme content

The specificity of construction. Factors determining the condition of construction. Forms of settlements and remuneration for construction works. Cost accounts (type and calculation system, according to the place of their origin, according to cost drivers, resultant). Conditions of the cost calculation process in construction. Functions and types of cost studies in construction. Pre-investment cost calculations. Types of cost estimates. Collective cost statements. General and detailed rules for the take-off of works. Methods of calculating the cost estimate. Normative and price-cost databases and the rules of using them. Calculation of individual components of the cost estimate. Principles of individual calculation. Valuation of design work costs. Monitoring of costs during the implementation of construction works. Costs control. Selected elements of the economics of building objects exploitation

### 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

Lecture - multimedia presentation

Projects - carrying out a design exercise

### 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	90	3,00
Classes requiring direct contact with the teacher	45	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	45	1,50