STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
Construction Technology Laboratory		**1010112121010105660**
Field of study: **Civil Engineering**	Profile of study (general academic, practical): **general academic**	Year /Semester: **1 / 2**
Elective path/specialty: **-**	Subject offered in: **Polish**	Course (compulsory, elective): **obligatory**
Cycle of study: **Second-cycle studies**	Form of study (full-time,part-time): **full-time**	
No. of hours: Lecture: **15** Classes: **-** Laboratory: **45** Project/seminars: **-**		No. of credits: **3**
Status of the course in the study program (Basic, major, other): **other**	(university-wide, from another field): **university-wide**	
Education areas and fields of science and art		ECTS distribution (number and %)

Responsible for subject / lecturer:

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Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Basic methods of determining the cost of living buildings LCC. Basic methods of costing of buildings Basic methods of planning construction projects
2	**Skills**	Learn how to calculate LCC object Ability to create cost estimates
3	**Social competencies**	Awareness of lifelong learning, the ability to work in a group and adopt different social roles

Assumptions and objectives of the course:

Familiarize students with the methodology for calculating the LCC, the methods of creating and calculating cost estimates and familiarization with the methods of planning construction projects

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Student nows the procedures for quality management of construction projects. Knowledgeable about the effectiveness, cost and lead time construction projects under risk and uncertainty - [K_W10]
2. Student has knowledge about doing business in the construction industry. Understand the principles of financial management companies. - [K_W11]
3. Student knows and applies the provisions of construction law - [K_W17]
4. The student has knowledge about the impact of the investment and the existing buildings on the environment - [K_W13]

Skills:

1. Uses specialized tools to find useful information, communication and acquisition of software to support the work of the designer and organizer of the building process - [K_U05]
2. Student knows how to draw up a schedule of construction and cost estimate, contract or construction project business plan, manage, manage the building process, set out the obligations and responsibilities of project supervision and construction - [K_U10]
3. Student is able to carry out risk analysis in the implementation of projects and operation of buildings and implement appropriate measures and safety. Able to develop standards and norms of work and quality management procedures. - [K_U12]
4. Student can make the development of preparing him to undertake scientific work. - [K_U18]

Social competencies:

1. Student can carrying out certain tasks to work independently, to work in a team and manage a team. - [K_K01]
2. Student is responsible for the accuracy of the results of their work and an assessment of the work of a subordinate unit - [K_K02]
3. Student can complement and extens knowledge of modern processes and technologies in construction - [K_K03]
4. Student is aware of the need for sustainable development in construction - [K_K04]
5. Student understands the need to inform the public knowledge of the construction - [K_K08]

Assessment methods of study outcomes
The activity of the student in the classroom
Final test of the lectures
Indirect tests, after each major part of material
Course description
Acquainted with the methodology of LCC
Implementation of the project of LCC
Acquainted with the program NORMA EXPERT
The creation of the construction-estimate
Basic bibliography:
1. Kosztorysowanie i normowanie w budownictwie, Zdzisław Kowalczyk, Jacek Zabielski
2. Kosztorysowanie w budownictwie. Tadeusz Laurowski
3. Life Cycle Costing: Techniques, Models, and Applications Balbir S. Dhillon
Additional bibliography:
1. Cost Analysis and Estimating for Engineering and Management Phillip F. Ostwald,Timothy S. McLaren
2. Materiały udostępnione na portalu edukacyjnym Moodle PUT

Result of average student's workload

Activity	Time (working hours)
1. Lectures	15
2. Laborathories	45
3. Student	30

Student's workload

Source of workload	hours	ECTS
Total workload	75	3
Contact hours	60	2
Practical activities	15	1