

Tadeusz Kosciuszko Cracow University of Technology

Course Card

Faculty of Civil Engineering

Field of study: Civil Engineering

Study profile: general academic

Study form: full-time

Field of study code: BUD

Study cycle: 1st

Specialty: no specialty

1 COURSE INFORMATION

Course name	Technologia, mechanizacja i automatyzacja robót budowlanych
Course name in English	Technology, mechanisation and automatisisation of construction works
Course code	WIL BUD oIS C26 24/25
Course category	Basic
No. of ECTS points	5.00
Semester	3 and 4

2 CLASS TYPE, NUMBER OF HOURS ACCORDING TO THE STUDY PLAN

Semester	Lecture	Class exercise	Laboratory	Computer lab	Design exercise	Seminar
3	30	0	0	0	15	0
4	15	0	0	0	15	0

3 COURSE OBJECTIVES

Objective 1 To provide information related to technology of construction works. To get students acquainted with various types of technologies, mechanization and automation of construction works. To prepare students to solve problems within the field of construction technology.

Objective 2 To familiarize students with various types of construction machines. To prepare students for analyses of efficiency of labor, machines and the use of construction materials. To familiarize students with various kinds of automation of construction works. To prepare students (at a basic level) to take part in research within the field of technology, mechanization and automatization of construction works.

4 PREREQUISITES IN TERMS OF KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1 Knowledge on classification and types of building materials. Knowledge on classification and types of construction objects and their elements. Completion of courses according to the sequence of learning at Faculty of Civil Engineering CUT.

5 LEARNING OUTCOMES

LO1 Knowledge Basic knowledge within the field of technology, mechanization and automation of construction works.

LO2 Skills Basic knowledge on the use of resources (labor, machines, materials) in technology, mechanization and automation of construction works.

LO3 Knowledge Ability to solve basic problems within the field of technology, mechanization and automation of construction works.

LO4 Knowledge Ability to work in team. Ability to work individually. Critical approach to own work and results of analyzes. Ability to discuss results of own or others work.

6 COURSE CONTENT

Design exercise		
No.	Subject matter of the course Detailed description of thematic blocks	No. of class hours
P1	Earthworks technology - individual/team assignment.	8
P2	Reinforced concrete technology - individual/team assignment.	7
P3	Technological transport on a construction site and technology of assembly works - individual/team assignment.	8
P4	Presentation of a chosen aspect of automation of construction works - individual/team assignment.	7

Lecture		
No.	Subject matter of the course Detailed description of thematic blocks	No. of class hours
L1	Course description. Presentation of requirements to complete the course. Introduction to construction technology, mechanization and automation of construction works.	2

Lecture		
No.	Subject matter of the course Detailed description of thematic blocks	No. of class hours
L2	Definitions and concepts of technology of construction works. Definitions and concepts of mechanization of construction works. Definitions and concepts of automation of construction works.	2
L3	Earthworks technology. Earthworks machines. Technologies of soil stabilization and strengthening.	6
L4	Deep excavation supports. Deep foundation technologies.	4
L6	Reinforced concrete technology - technology of reinforcement works.	2
L7	Reinforced concrete technology - formworks and scaffoldings.	4
L8	Reinforced concrete technology - technology for concrete transportation, placement and curing.	2
L9	Technological transport on a construction site. Mechanization of transport on a construction site.	4
L11	Technology of masonry works. Technology of insulation works. Technology of finishing works.	4
L12	Automation of earthworks.	4
L13	Technology of assembly works.	4
L14	Mechanization and automation of reinforced concrete construction works.	4
L15	Chosen aspects of automation and robotics in construction works.	3

7 TEACHING TOOLS

N1 Lectures, multimedia presentations

N2 Design exercises: individual tasks and team tasks

N3 E-learning

8 Student workload

Activity form	Number of hours of activity
Hours realized in contact with the teacher	
Hours resulting from the study plan	75
Consultation hours	0
Exams and tests during session	6
Hours of autonomous student work	
Preparing for classes, studying literature	28
Developing results	20
Preparing of reports, projects presentations, discussion	22
Total number of hours devoted to the subject	151
Total number of ECTS points	5.00

9 Methods of grading

Partial grades

F1 Design exercises: individual tasks, team tasks

Summary grade

P1 Exam after winter semester. Exam after summer semester.

Conditions for passing the course

L1 Completion of all design exercises within the deadlines.

L3 Positive exam grade.