COURSE DESCRIPTION CARD - SYLLABUS

Course name
Elective II

Course

Field of study
Construction

Year/Semester
2/3

Area of study (specialization)
Structural Engineering

Profile of study
general academic

Level of study
Second-cycle studies

Course offered in
English

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
0

Other (e.g. online)
0

Tutorials
0

Projects/seminars
15

Number of credit points

2

Lecturers

Responsible for the course/lecturer:
dr inż. Piotr Nowotarski

e-mail: piotr.nowotarski@putpoznan.pl

tel: 616652190

Wydział Inżynierii Lądowej i Transportu

ul. Piotrowo 5, 60-965 Poznań

Responsible for the course/lecturer:
mgr inż. Sebastian Dubas

e-mail: sebastian.dubas@put.poznan.pl

tel: 616652113

Wydział Inżynierii Lądowej i Transportu

ul. Piotrowo 5, 60-965 Poznań

Prerequisites

The student has basic knowledge of the basics of construction; The student is able to obtain information from the indicated sources and analyze engineering activities undertaken; The student is aware of the need to constantly update and supplement construction knowledge and take responsibility in professional work; The student is aware of the issues related to LEan and BIM in construction.

Course objective

Learning and expanding knowledge of the basic principles of Lean Management in the aspect of implementation of a construction project. Sensitizing the student to practical aspects of Lean implementation and execution in construction

Course-related learning outcomes

Knowledge

1. Have detailed knowledge on business activity in construction industry and the ways of developing different forms of individual entrepreneurship; understand the principles of enterprise financial economy.

2. Have extended and detailed knowledge of material strength, modelling and constructing; have knowledge of theoretical principles of the finite element method as well as general rules of non-linear calculations of engineering structures.

3. Know in detail the rules of developing the procedures of construction project quality management; have knowledge of the effectiveness, costs and timing of construction projects under risk and uncertainty conditions.

Skills

1. Are able to prepare a building unit design and technical documentation in the environment of selected CAD software, including the usage of BIM technology.

2. Applying scientific rules and skills, are able to formulate and test hypotheses related to simple research problems, in order to solve engineering, technological and organisational problems in construction engineering; can prepare studies preparing for research work.

3. Can estimate hazards of building projects and building operation, implement suitable safety rules and prepare work standards as well as quality management procedures. .

Social competences

1. Are aware how important is sustainable development in building engineering.

2. Understand the need to transfer to the society the knowledge about building engineering, transfer the knowledge in a clear and easily comprehensible manner.

3. Are ready to think and act in a business-like way.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

As a form of measuring / assessing student work, a final test is carried out (during the last class)

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 (F)

Programme content

Lecture 1 - Introduction

Lecture 2 - Team building in construction

Lecture 3 - Team building in construction II

Lecture 4 - Team building in construction III

Lecture 5 - Lean Management

Lecture 6 - Building practice

Lecture 7 - Building practice II

Lecture 8 - Credit

Project 1 - Introduction

Project 2 - Project overview

Project 3 - Project overview II

Project 4 - Project overview III

Project 5 - Consultation

Project 6 - Consultation II

Project 7 - Consultations III

Project 8 - Credit

Teaching methods

Pyramid discussion; Panel discussion; The classic problem method; Teaching games; Exchange of ideas; Informative lecture; Problem lecture; Conversational lecture; Program text; Work with a book; Talk; Lecture reading; Demonstration method; Production exercise method; Method of experiments; Observation and measurement method; Project method; Leading text method; Workshop method; Show.

Bibliography

Basic

1. Nowotarski, P., Pasławski, J., & Matyja, J. (2016). Improving construction processes using lean management methodologies–Cost case study. Procedia engineering, 161, 1037-1042.

2.Nowotarski, P., Paslawski, J., & Wysocki, B. (2017, December). Quality Improvement of Ground Works Process with the Use of Chosen Lean Management Tools–Case Study. In IOP Conference Series: Earth and Environmental Science (Vol. 95, No. 2, p. 022032). IOP Publishing.

3. Nowotarski, P., & Pasławski, J. (2016). Lean and agile management synergy in construction of high-rise office building. Archives of Civil Engineering, 62(4), 133-148.

Additional

1. Chudley, R., & Greeno, R. (2005). Construction technology. Pearson Education.

2. Ioannou, P. G., & Liu, L. Y. (1993). Advanced construction technology system—ACTS. Journal of Construction Engineering and Management, 119(2), 288-306.

3. Skibniewski, M. J. (1999). A neuro-fuzzy computational approach to constructability knowledge acquisition for construction technology evaluation. Automation in construction, 8(5), 539-552.

Breakdown of average student's workload

	Hours	ECTS
Total workload	60	2,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	30	1,0

[1] delete or add other activities as appropriate