



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Quality management [S2Bud1E-ZBZ>ZJ]

Course

Field of study

Civil Engineering

Year/Semester

1/2

Area of study (specialization)

Sustainable construction and management

Profile of study

general academic

Level of study

second-cycle

Course offered in

English

Form of study

full-time

Requirements

compulsory

Number of hours

Lecture

15

Laboratory classes

0

Other

0

Tutorials

15

Projects/seminars

15

Number of credit points

3,00

Coordinators

dr hab. inż. Jerzy Paślawski prof. PP
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Lecturers

Prerequisites

The student has basic knowledge of civil engineering and quality management. The student is able to acquire information from indicated sources and analyse engineering activities. The student is aware of the need for continuous updating of knowledge and taking responsibility in professional work. The student understands the importance of quality management in construction.

Course objective

To acquire and expand knowledge of fundamental principles of construction with a focus on quality and quality management in the implementation of construction projects. To develop students' awareness of practical aspects of quality management in construction.

Course-related learning outcomes

Knowledge:

- Has in-depth knowledge of running a business in the construction sector and understands principles of financial management in enterprises.
- Has in-depth knowledge of algorithms used in selected software supporting analysis and design of building structures and tools useful for planning and managing construction projects, including BIM

technology.

- Has advanced knowledge of quality management procedures in construction projects and understands issues related to efficiency, costs, and project duration under conditions of risk and uncertainty.

Skills:

- Is able to perform a preliminary economic analysis of proposed solutions and engineering activities, prepare cost estimates, construction schedules, contracts, and business plans, manage construction processes, and define responsibilities of construction and investor supervision.
- Is able to formulate and test hypotheses related to simple research problems using scientific methods and prepare studies supporting future research work.
- Is able to assess risks related to construction projects and building operation, implement appropriate safety principles, and develop work standards and quality management procedures.

Social competences:

- Is aware of the need for continuous professional and personal development and is ready to critically evaluate acquired knowledge.
- Understands the need to communicate knowledge about construction in an accessible way.
- Is ready to think and act in an entrepreneurial way.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture - exam

Classes - written assessment.

Project - assessment of the correctness and quality of the project work.

Grading scale:

90-100% - very good (A)

80-89% - good plus (B)

70-79% - good (C)

60-69% - satisfactory plus (D)

50-59% - satisfactory (E)

below 50% - fail (F)

Programme content

Lecture 1 - Introduction

Lecture 2 - Quality management

Lecture 3 - Development of quality management

Lecture 4 - Concepts of Deming, Juran and Crosby

Lecture 5 - Costs of quality management

Lecture 6 - Hard TQM elements: systems, tools, partnership cooperation

Lecture 7 - Soft TQM elements: employee involvement, culture, communication

Lecture 8 - Practical applications of quality management in construction

Class 1 - Introduction

Class 2 - Simulation-based quality analysis I

Class 3 - Simulation-based quality analysis II

Class 4 - Simulation-based quality analysis III

Class 5 - Simulation-based quality analysis IV

Class 6 - Simulation-based quality analysis - summary

Class 7 - Results discussion

Class 8 - Assessment

Project 1 - Introduction

Project 2 - Project discussion I

Project 3 - Project discussion II

Project 4 - Project discussion III

Project 5 - Consultation I

Project 6 - Consultation II

Project 7 - Consultation III

Project 8 - Assessment

Course topics

Fundamental issues of quality management in construction. Quality management systems applied in construction enterprises and in the implementation of construction projects. Methods and tools used in quality management, including ISO-based systems and continuous improvement concepts. Analysis of practical aspects of quality assurance in preparation and execution of construction projects. Application of simulation and analytical methods for assessing the quality of construction processes. Student project work focused on analysing and developing selected elements of a quality management system for a construction project.

Teaching methods

- informative lecture
- problem-based lecture
- discussion
- case study analysis
- project-based method
- group work

Bibliography

Basic:

1. Hamrol A. Zarządzanie jakością z przykładami, Wydawnictwo Naukowe PWN, Warszawa 2005, 2008
2. Eckers G. Rewolucja Six Sigma ? jak General Electric i inne przedsiębiorstwa zmieniały proces w zyski, Akademia Białego Kruka, MT Biznes, Warszawa 2010
3. Szczepańska K., Zarządzanie jakością: koncepcje, metody, techniki, narzędzia, Politechnika Warszawska, Warszawa 2016

Additional:

1. Myszewski J., Po prostu jakość. Podręcznik do zarządzania jakością, 2009
2. Nowotarski P., Paslawski J., Barriers in running construction SME case study on introduction of agile methodology to electrical subcontractor, Procedia Engineering 122:47-56, 2015.

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	45	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00