COURSE DESCRIPTION CARD - SYLLABUS

Course name
Engineering Thesis Workshop [S1ETI2>ZProj]

Course

Field of study
Education in Technology and Informatics

Year/Semester
4/7

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
15

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
15

Number of credit points

2,00

Coordinators

Lecturers

Prerequisites

The student should possess basic knowledge of organizational and technical process management as well as the ability to work in a team. Familiarity with IT tools supporting project management is recommended.

Course objective

The objective of the course is to familiarize students with the fundamental principles and methods of project management, develop their skills in planning, executing, and monitoring technical and educational projects, and foster competencies in teamwork and decision-making within a dynamic project environment.

Course-related learning outcomes

Knowledge:
1. Understands the fundamental principles and methods of planning, executing, and monitoring technical and educational projects.
2. Recognizes the importance of roles and team structures in project execution.
3. Has basic knowledge of project risk management and resource analysis.
4. Is familiar with selected IT tools supporting project management and their applications.
5. Understands the significance of scheduling and budgeting in achieving organizational goals.

Skills:

1. Can identify project objectives, define its scope, and develop a work breakdown structure and schedule.
2. Is able to utilize IT tools supporting project management for planning and monitoring project activities.
3. Can analyze project risks and propose mitigation strategies.
4. Effectively collaborates within a project team, assuming various roles and communicating professionally.
5. Is capable of preparing project documentation, including progress reports.

Social competences:
1. Is aware of the responsibility for teamwork and the pursuit of shared project objectives.
2. Understands the necessity of ethical conduct in project management, including adherence to intellectual property regulations.
3. Adapts to changing project conditions and makes decisions in a dynamic environment.
4. Demonstrates openness to interdisciplinary and intercultural collaboration in projects.
5. Recognizes the need for continuous improvement of competencies in project management.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

- Written Exam/Knowledge Test - assessing the understanding of fundamental principles, methods, and tools in project management (learning outcomes in the Knowledge category).
- Team Project - the completion of a practical project task, including planning, execution, and preparation of project documentation (learning outcomes in the Skills and Social Competences categories)
- Project Presentation - presenting the team's project results to the group and the instructor (learning outcomes in the Skills and Social Competences categories).

Programme content

- Introduction to Project Management: fundamental concepts, project lifecycle, and stakeholders.
- Project Planning: defining objectives, scope, and creating a Work Breakdown Structure (WBS).
- Scheduling: methods for creating schedules, including CPM and PERT techniques.
- Resource Management: identifying and allocating resources, budgeting processes.
- Risk Management: identifying, analyzing, and mitigating risks in projects.
- Project Monitoring and Control: tools and methods for tracking progress and ensuring alignment with schedules.
- Project Closure: evaluation of outcomes, documentation, and closing procedures.
- Application of IT tools in project management (e.g., MS Project, Trello, Jira).

Course topics

Lectures (15 hours):
Introduction to Project Management: concepts and project lifecycle.
Project Planning: objectives, scope, and Work Breakdown Structure.
Scheduling and control techniques (CPM, PERT).
Resource Management and budgeting.
Risk Management and mitigation strategies.
Project Monitoring: reporting tools and techniques.
Project Closure: key activities and documentation.
Project Classes (15 hours):
Forming project teams and defining project goals.
Creating a Work Breakdown Structure (WBS) and scheduling tasks.
Preparing a project budget and analyzing available resources.
Identifying and analyzing project risks.
Executing and monitoring project tasks.
Developing project documentation and preparing presentations.
Presenting project outcomes and discussing results.

Teaching methods

- Problem-Solving Lectures - introducing students to the theoretical foundations of project management using real-world examples of technical and educational projects.
- Case Study Analysis and Discussions - exploring specific project examples, analyzing challenges encountered during implementation, and identifying potential solutions.
- Teamwork Activities - engaging students in group projects to develop skills in collaboration, communication, and decision-making.
- Practical Exercises with IT Tools - applying project management software (e.g., MS Project, Trello, Jira) for planning, scheduling, and monitoring project activities.
- Student Projects - independent execution of mini-projects under instructor supervision, incorporating theoretical knowledge into practical problem-solving.
- Project Presentations - teams presenting their work results, enhancing communication skills and the ability to defend project assumptions.
- Individual Consultations - providing students with guidance and support for project execution and addressing theoretical or practical challenges.

Bibliography

Basic:
1. Project Management Institute. (2021). A Guide to the Project Management Body of Knowledge (PMBOK® Guide). 7th ed. Newtown Square, PA: Project Management Institute. (A globally recognized standard offering comprehensive coverage of processes, tools, and techniques in project management.)
2. Highsmith, J. (2004). Agile Project Management: Creating Innovative Products. Boston: Addison-Wesley. (Discusses Agile methodology in project management with numerous examples from various industries.)
3. Office of Government Commerce. (2009). Managing Successful Projects with PRINCE2. London: TSO. (A detailed guide to the PRINCE2 methodology, widely used in project management across Europe.)

Additional:
1. Schwalbe, K. (2015). Information Technology Project Management. 8th ed. Boston: Cengage Learning. (Focuses on the specifics of IT projects, discussing methodologies and tools applied in the field.)
2. Larson, E. W., & Gray, C. F. (2017). Project Management: The Managerial Process. 7th ed. New York: McGraw-Hill Education. (Presents project management from a managerial perspective, combining theory with practical applications.)
3. Kloppenborg, T. J. (2015). Contemporary Project Management. 3rd ed. Stamford: Cengage Learning. (A modern approach to project management, emphasizing practical implementation and case studies.)
4. Heldman, K. (2018). Project Management JumpStart. 4th ed. Hoboken: Wiley. (A beginner-friendly introduction to project management fundamentals.)
5. Meredith, J. R., & Mantel, S. J. (2014). Project Management: A Managerial Approach. 9th ed. Hoboken: Wiley. (A comprehensive discussion of project management from a managerial perspective, incorporating strategic and operational insights.)

Breakdown of average student's workload

	Hours	ECTS
Total workload	55	2,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	25	1,00