# POZNAN UNIVERSITY OF TECHNOLOGY

## EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

## COURSE DESCRIPTION CARD - SYLLABUS

Course name
Project management [S2Log2>ZProj]

## Course

Field of study
Logistics

Year/Semester
1/1

Area of study (specialization)
–

Profile of study
general academic

Level of study
second-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

## Number of hours

Lecture
15

Laboratory classes
15

Other
0

Tutorials
0

Projects/seminars
0

## Number of credit points

2,00

## Coordinators

dr hab. inż. Magdalena Wyrwicka prof. PP
magdalena.wyrwicka@put.poznan.pl

## Lecturers

## Prerequisites

Student knows issues of process mapping, process orientation in logistics and process simulation.

## Course objective

Transfer of knowledge about the premises for the implementation of pro-development changes as well as skills and competences in the field of pro-development project management. Preparation for the role of a project manager. [P7S_WG_03] Student knows extended issues in the field of mathematics and optimization methods in studying the structure of economic and logistic phenomena. [P7S_WG_03] Student can make a critical analysis of technical solutions used in the analyzed logistics system (in particular with regard to devices, objects and processes). [P7S_UW_04] Student is ready to prepare in Polish and English language at the B2 level of the European Language Description System a well documented elaboration of problems in the field of logistics. [P7S_UK_02] Student takes a responsibility for own work and readiness to comply with the rules of working in a team and taking responsibility for the tasks carried out jointly. [P7S_KR_01]

## Course-related learning outcomes

Knowledge:

1. Student knows extended issues in the life cycle of socio-technical systems (logistic systems) and the life cycle of industrial products [P7S_WG_06]
2. Student knows extended issues in the scope of management characteristic for logistics and supply chain management [P7S_WG_08]
3. Student knows phenomena and contemporary trends characteristic for logistics and its detailed issues and supply chain management [P7S_WK_03]

Skills:
1. Student can design, using appropriately selected means, an experiment, a process of analysis or a scientific study solving a problem within the framework of logistics and its specific issues as well as supply chain management [P7S_UK_01]
2. Student can formulate and solve tasks through interdisciplinary integration of knowledge from different fields and disciplines used to design logistics systems [P7S_UO_01]

Social competences:
1. Sudent undestands recognize causal relationships in achieving the set goals and grading the significance of alternative or competitive tasks [P7S_KK_01]
2. Student can planning and managing in a creative way business ventures. [[P7S_KO_01]
3. Student knows about responsibility and initiation of activities related to the formulation and information sharing and cooperation in the society in the scope of logistics [P7S_KO_02]
4. Student can inspire and organize the learning process of others in the scope of logistics and supply chain management. [P7S_KR_02]

## Methods for verifying learning outcomes and assessment criteria
Learning outcomes presented above are verified as follows:

Lecture: Formative assessment: presence and activity during classes, results of solved cognitive tasks, participation in discussions. Summative assessment: written test result (containing 4-5 open problem questions; max 13 points, passing from 6.5).
Laboratory: Formative assessment: presence and activity during classes, results of solved cognitive tasks, participation in discussions. Summative assessment: independent execution of the indicated cognitive task (computer-assisted project) and its presentation in the forum of the group.

## Programme content
Lecture: At the beginning, project management systems are discussed. Project initiation in connection with project portfolio management and seizing opportunities. Project organization as preparation of the enterprise for project implementation. Typology of projects (organizational, technical and resource diversity complexity; distinguishing standard projects, those with acceptance problems, potential and pioneering projects), Establishing requirements with the client and conditions (time, financial resources, legal) of project implementation and specifying the project goal. Feasibility analysis in connection with profitability analysis. Project outline as a preliminary outline of the work to be carried out, helpful in defining the scope of tasks. Project management methodologies (PMBoK, Prince 2, Scrum, XP, RUP, MSF, XPrince, CMMI, Six Sigma, ITIL, COBIT) and their classification from the point of view of applications. Creating a project team (principles, typical phases of transforming a group into a team), creating its structure (linear, virtual, specialists, partnership, surgical) and integrating the team into the structure of the enterprise (linear, staff, matrix, separate group) depending on the type of project. Project planning based on a task breakdown structure (WBS). Planning levels (organizational, implementation process, metrics, documentation). Resource planning. Features of a good plan. Methods of estimating the duration and costs of project tasks. Project network diagram. The validity of using a specific network method (CPM, PERT, MPM). Analysis of activity networks: buffer times, critical path, resource balancing, financial analysis, deadline plans. Project schedule (Gantt chart) and network information. The validity of using a computer program supporting project management. Risk analysis (risk definition, risk management principles, risk management methodology) and plans to counteract disruptions. Project implementation and control (practical recommendations for the manager and contractors, the essence of supervision, preparation for control, the Earned Value method). Project controlling - striving to minimize the control cycle. Analysis of the existing situation and introduction of changes (implementation methods, causes of failures during the implementation of changes). HR aspects in project management (communication problems, need for mediation, ambiguity of information, including graphic information, thought patterns regarding the role of the manager and the functioning of the team, conflicts). Closing the project as a summary of the team's work,

handing over the product to the client (presentation of results, signing the delivery and acceptance protocol) and collecting opinions.

Laboratory: The student undertakes initiation and planning of the indicated logistics project using the selected IT system (MsProject or PERT best). The need to implement such a project must be demonstrated, the client's requirements and conditions must be specified. Develop a work breakdown structure (WBS) and assign contractors and necessary resources to individual tasks, estimate the cost and implementation time. Determine the composition of the team and the roles of the performers. Develop a Gantt chart or network plan. Conduct a time analysis (critical path, time buffers) and cost analysis (costs generated in the termination unit) and determine the project budget. Check whether contractors do not have accumulated tasks (the issue of availability of employees, items and means of work). Prepare a concept for supervising and controlling the project, indicating persons responsible for implementation and authorized to make decisions. Define the team communication system.

## Course topics

Lecture: Project management systems. Project initiation. Design organization. Typology of projects, Determining the requirements and conditions of project implementation and specifying the purpose of the project. Feasibility study. Project outline. Project management methodologies. Creating a project team, creating its structure and integrating the team into the structure of the company. Project planning. Structure of the division of tasks. Resource Planning. Methods of estimating the duration and costs of project tasks. Project network diagram. Network methods (CPM, PERT, MPM). Critical path. Project schedule (Gantt chart). The use of a computer program supporting project management. Risk analysis and anti-disruption plans. Project implementation and control. Project controlling - Analysis and introduction of changes. HR aspects in project management. Closing the project.
Laboratorium: Inicjacja i planowanie projektu logistycznego z wykorzystaniem wybranego systemu informatycznego.

## Teaching methods

Lecture: problem lecture or seminar, work with a book
Laboratory: laboratory exercises - solving cognitive tasks (project preparation) with the use of IT support.

## Bibliography

Basic:
1. PMBOK® Guide - 7th Edition, Pennsylvania, 2021
2. Trocki M., Metodyki i standardy zarządzania projektami, PWE, Warszawa, 2017.
3. Wyrwicka M., Zarządzanie projektami, Wydawnictwo Politechniki Poznańskiej, Poznań, 2011.
4. Wyrwicka M.,Zarządzanie projektowe [w:] Fertsch M. (red.), Elementy inżynierii logistycznej, Biblioteka Logistyka, Wydawnictwo ILiM, Poznań 2017, s. 53-74.
5. Wysocki R., Efektywne zarządzanie projektami. Tradycyjne, zwinne, ekstremalne, Wydawnictwo Helion, Gliwice, 2013.

Additional:
1. Głodzieński E., Efektywność w zarządzaniu projektami. Wymiary, koncepcje, zależności, PWE Warszawa, 2017.
2. Prussak W., Wyrwicka M., Zarządzanie projektami, Zachodnie Centrum Organizacji, Poznań, 1997.
3. Shenhar A.J., Dvir D., Nowe spojrzenie na zarządzanie projektami. Sukces wzrostu i innowacji dzięki podejściu romboidalnemu, Wydawnictwo APN Promise, Warszawa, 2008.
4. Wyrwicka M., Niektóre uwarunkowania efektywnej realizacji projektów, Zeszyty Naukowe Politechniki Poznańskiej, seria Organizacja i Zarządzanie, nr 29, 2020, s. 113-118.
5. Trocki M., Nowoczesne zarządzanie projektami, PWE, Warszawa, 2012.

## Breakdown of average student's workload

| | Hours | ECTS |
|---|---|---|
| Total workload | 50 | 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) | 20 | 1,00 |