Jan Amos Komeński STATE UNIVERSITY OF APPLIED SCIENCES in Leszno

Funded by the European Union

Course syllabus for ERASMUS+ incoming students

Course Title	
Leadership and Project Management	
Academic Teacher	Mikołaj Zgaiński,, PhD
E-mail	mikolaj.zgainski@ansleszno.pl
ECTS credits	5
Number of hours	120
Course code	INT-IZKFWF-LPM-26
Course description	

This course introduces engineering students to the principles of leadership and project management in technical and innovation-driven environments. Students learn how to lead multidisciplinary teams, manage engineering projects throughout their lifecycle, and apply project management methodologies to achieve organizational objectives.

The course combines leadership theories with practical project planning, communication, risk management, and decision-making tools commonly used in engineering organizations.

Learning outcomes - course content

Module 1. Introduction to Leadership and Project Management

- Leadership versus management
- The role of project managers in engineering organizations
- Characteristics of successful engineering leaders
- Engineering projects and project life cycle

Module 2. Leadership Styles and Team Development

- Leadership theories and models
- Belbin Team Role Theory
- Building and motivating technical teams
- Team development and conflict resolution

Module 3. Project Initiation and Planning

- Project objectives and scope definition
- Stakeholder identification and analysis
- Project planning techniques

Module 4. Project Scheduling and Resource Management

- Gantt charts and network diagrams
- Resource allocation incl. budget
- Time and cost estimation

Module 5. Risk Management and Decision-Making

- Risk identification and assessment
- Risk response strategies
- Engineering decision-making methods
- Problem-solving techniques

Module 6. Communication and Stakeholder Management

- Communication planning
- Technical presentations
- Negotiation techniques
- Managing stakeholder expectations

Module 7. Ethics, Sustainability and Leadership Responsibility

- Professional ethics
- Responsible leadership
- Sustainability in engineering projects
- Project closure

Module 8. Engineering Project Case Studies

- Industrial project analysis
- Leadership challenges
- Project success and failure factors
- Best practices in engineering management

Knowledge

1. Explain the fundamental principles of leadership and project management in engineering organizations.
2. Describe the project life cycle, project planning processes, and the roles and responsibilities of project managers.
3. Explain leadership theories, including Belbin Team Role Theory, and their application to technical teams.
4. Describe the principles of project scheduling, resource allocation, budgeting, risk management, stakeholder management, and professional ethics in engineering projects.

Skills

1. Apply project planning techniques to define project objectives, scope, schedules, resources, and budgets.
2. Identify project stakeholders, assess project risks, and propose appropriate risk response strategies.
3. Use project management tools, including Gantt charts and basic scheduling techniques, to support engineering projects.
4. Communicate effectively with project stakeholders through technical presentations, negotiations, and structured communication plans.
5. Analyze engineering project case studies to identify success factors, leadership challenges, and opportunities for improvement.

Competences

1. Work effectively as a member or leader of a multidisciplinary engineering team, applying appropriate leadership styles and team management principles.
2. Demonstrate responsibility for ethical decision-making, sustainable project management, and professional conduct in engineering practice.
3. Show initiative in solving project-related problems, supporting team collaboration, and contributing to the successful delivery of engineering projects.

Student workload (self-study description)
• Taking part in classes (30 hours)

- Reading recommended textbooks, scientific articles, and industry reports on leadership, project management and sustainability. Reviewing lecture materials and preparing for examinations (30 hours),
- Preparing the project: (60 hours)
  Analyzing real-world engineering | Analyzing engineering project case studies, including project successes and failures
  Preparing individual and group assignments (project planning, stakeholder analysis, risk assessment, budgeting, and scheduling)
  Developing project documentation, including project scope, Gantt charts, communication plans, and risk registers,
  Preparing technical presentations and participating in team meetings and project discussions

Literature

1. Maylor, H., & Turner, N. (2022). Project Management (5th ed.). Pearson.
2. Project Management Institute. (2021). A Guide to the Project Management Body of Knowledge (PMBOK® Guide) (7th ed.). PMI.
3. Northouse, P. G. (2022). Leadership: Theory and Practice (9th ed.). Sage.
4. Belbin, R. M. (2019). Team Roles at Work (3rd ed.). Routledge.