SYLLABUS

1. Data about the study programme

1.1 Higher education institution	Technical University of Cluj-Napoca
1.2 Faculty	Automation and Computer Science
1.3 Department	Automation
1.4 Field of study	Systems Engineering
1.5 Cycle of study	Bachelor
1.6 Study programme / Qualification	Automation and Applied Informatics (in English language)
1.7 Form of education	Full-time education

2. Data about the subject

2.1 Subject name	**Project Management**		Subject code		**51.20**
2.2 Course lecturer	Assoc. Prof. Dr. Eng. Szilárd ENYEDI – Szilard.Enyedi@aut.utcluj.ro				
2.3 Teachers in charge of applications	Lect. Dr. Eng. Iulia ȘTEFAN – Iulia.Stefan@aut.utcluj.ro				
2.4 Year of study	4	2.5 Semester	1	2.6 Assessment type	E
2.7 Subject category	*DF – fundamental, DS – specialty, DC – complementary*				DS
	DOB – compulsory, DOP – elective, DFA – optional				DOP

3. Estimated total time

3.1 Number of hours per week	4	of which	3.2 Course	2	3.3Seminar	0	3.3Laboratory	2	3.3Project	0	3.3Practice	0
3.4 Number of hours per semester	56	of which	3.5 Course	28	3.6Seminar	0	3.6Laboratory	28	3.6Project	0	3.6Practice	0

3.7 Distribution of time (hours per semester) for individual study and assessment:	
(a) Assessment	3
(b) Study using textbooks, lecture materials, bibliography and notes	15
(c) Additional study in the library, on specialised electronic platforms and in the field	12
(d) Preparation for seminars / laboratories, homework, reports, portfolios and essays	12
(e) Tutoring	2
(f) Other activities	0
3.8 Total hours of individual study and assessment (sum of 3.7(a). 3.7(f))	44
3.9 Total hours per semester (3.4+3.8)	100
3.10 Number of credits	4

4. Prerequisites (where applicable)

4.1 Curriculum	Notions of management and communication, software-hardware engineering, and computational systems.
4.2 Competence	Basic knowledge of software engineering and programming; basic knowledge of computational-system architecture and hardware-software inter-action; skills in using collaborative computing tools.

5. Requirements (where applicable)

5.1. For the course	Course attendance is compulsory. Lecture notes, an electronic communication platform and the recommended bibliography are used.
5.2. For seminar / laboratory / project activities	Laboratory attendance is compulsory. The activities involve individual and team work, the use of collaborative tools and compliance with submission deadlines.

6. Specific competences acquired

Professional competences	C5. Development of applications and implementation of algorithms and automatic control structures, using project-management principles, programming environments and technologies based on microcontrollers, signal processors, programmable logic controllers and embedded systems. C6. Application of knowledge of legislation, economics, marketing, business and quality assurance in economic and managerial contexts.

Transversal competences	CT1. Application, in compliance with legislation and intellectual-property rights, including technology transfer, product-certification methodology, principles, norms and values of the professional code of ethics, within one's own strategy of rigorous, efficient and responsible work. CT2. Identification of roles and responsibilities in a multidisciplinary team, decision-making and task assignment, with the application of relationship-building and efficient teamwork techniques. CT3. Identification of continuing-education opportunities and efficient use of learning resources and techniques for personal development.

7. Expected learning outcomes

Knowledge	The student identifies and describes concepts, principles and methods used in engineering project management, including planning, estimation, monitoring, risk management, quality assurance, requirements documentation and design documentation. The student explains the role of project-management principles and of economic, managerial, legal, quality and communication factors in the development and implementation of automation and applied-informatics applications and systems. The student describes planning, documentation, monitoring and assessment aspects for projects that include software applications, embedded systems, automatic systems and intelligent systems.
Skills	The student applies modern project-management techniques, economic techniques and decision-making techniques, including in a multidisciplinary context. The student prepares documentation and planning elements for projects in the field of systems engineering: objectives, deliverables, activity structure, schedule, estimates, risks, requirements documents and design documents. The student selects and applies specific scientific methods and techniques in the development and implementation of projects in systems engineering and analyses the level of scientific documentation and the potential advantages and disadvantages of the proposed methods and procedures. The student uses collaborative tools and individual/teamwork methods for collecting feedback, communicating progress and presenting project results. The student plans and documents projects include advanced software applications, embedded components, automatic systems or intelligent-system components, analyzing dependencies, risks, constraints, resources and quality criteria.
Responsibility and autonomy	The student carries out project-management processes in systems engineering, taking on different roles in a team and describing results clearly and concisely, both orally and in writing. The student contributes constructively to multidisciplinary teams, assumes responsibility for the quality, safety and ethical implications of engineering work and complies with deadlines, professional norms and applicable legal requirements. The student plans, executes and manages project tasks autonomously, requests and integrates feedback and adopts strategies for continuous professional and personal development. The student shows initiative in adopting new tools, methods and technologies, critically assessing their technical, economic, ethical and organizational impact on engineering projects.

8. Subject objectives (based on the grid of acquired specific competences)

8.1 General objective of the subject	To develop the ability to use project-management principles and planning, documentation, communication and quality-assessment tools in the development and implementation of automation and applied-informatics projects.
8.2 Specific objectives	To develop skills in planning, estimating, monitoring and evaluating the risks, costs, deadlines and quality of engineering projects. To develop the ability to prepare and interpret project-specific documentation, including requirements documents, design documents, work plans and presentation materials. To develop the ability to apply economic, managerial, legal and quality-assurance techniques in project contexts. To develop teamwork, professional communication, responsibility, ethical conduct and efficient use of collaborative tools. To develop the ability to plan and coordinate projects that include advanced software applications, embedded systems, automatic systems and intelligent systems.

9. Contents

9.1 Course	No. hours	Teaching methods	Notes
Introduction. The need for project management.	2	Lecture, study based on course	
Classical project-management methods. Characteristics.	2		

Agile methods. User stories. SCRUM. DevOps. Software- development philosophies.	2	notes and bibliography, questions and answers, case studies, applied discussions.	
The Toyota Way. History. Principles. Implementation. Issues. Kanban.	2		
Project proposal. Feasibility. Budget.	2		
Estimation. Methods. Level of detail.	2		
Risk management. Risk matrix. SWOT analysis.	2		
Monitoring. Versions. Quality and performance. Six Sigma.	2		
Deadlines. Student syndrome. Parkinson's law. Task synchronization.	2		
Leadership. Team management. Team inspiration.	2		
Human resources. Assertive communication. Emotional intelligence.	2		
General Data Protection Regulation (GDPR).	2		
Virtual teams. Benefits and disadvantages.	2		
Trends in project management.	2		

Bibliography

1. Enyedi Szilárd, *Project Management – course notes* (available online at http://users.utcluj.ro/~szilard/; access details will be communicated during course and laboratory activities).
2. Chris Croft, *Project Management QuickStart Guide: The Simplified Beginner's Guide to Precise Planning, Strategic Resource Management, and Delivering World Class Results*, ClydeBank Media, 2022.
3. Luis Gonçalves, Ben Linders, *Getting Value out of Agile Retrospectives*, lulu.com, 2014 (available online at https://www.infoq.com/minibooks/agile-retrospectives-value).
4. Corina Rădulescu et al., *Planificarea şi conducerea proiectelor*, U.T.Press, 2017 (available online at http://biblioteca.utcluj.ro/carti-online.html).

9.2 Seminar / laboratory / project / practical work	**No. hours**	**Teaching methods**	**Notes**
Team formation. Individual work versus teamwork. Defining soft skills.	2		
Soft skills: self-assessment and peer assessment. The Belbin test.	2		

Building an online and offline professional profile. Team presentation using collaborative tools.	2	Documentation study, presentation and examples, individual paper-based and computer-based exercises, team problem solving, presentations and feedback.	
Project-management tools. Mind maps: conceptual description, software tools, experimentation.	2		
Tools for documentation and feedback management. Collaborative approach.	2		
Project-organisation tools. WBS diagrams. Choosing the teamproject topic. Documenting the state of the art.	2		
Software project-organisation tools. GANTT diagrams. Tools and implementation.	2		
Tools for team-based project development. Presentation and self-directed learning within the teams.	2		
System Requirements Specification I. SRS structure and content. Standardised requirements description. Industry examples.	2		
System Requirements Specification II. Preparation and presentation of the document by each team.	2		
Software Design Description I. SDD structure and content. Specific features of collaborative online tools for content recovery.	2		
Software Design Description II. Preparation and presentation of the document by each team.	2		
Project-presentation exercises within teams, part I.	2		
Project presentation exercises within teams, part II.	2		

Bibliography

1. Enyedi Szilárd, *Project Management – course notes* (available online at http://users.utcluj.ro/~szilard/; access details will be communicated during course and laboratory activities).
2. Chris Croft, *Project Management QuickStart Guide: The Simplified Beginner's Guide to Precise Planning, Strategic Resource Management, and Delivering World Class Results*, ClydeBank Media, 2022.
3. Luis Gonçalves, Ben Linders, *Getting Value out of Agile Retrospectives*, lulu.com, 2014 (available online at https://www.infoq.com/minibooks/agile-retrospectives-value).
4. Corina Rădulescu et al., *Planificarea şi conducerea proiectelor*, U.T.Press, 2017 (available online at http://biblioteca.utcluj.ro/carti-online.html).

10. Correlation of subject contents with the expectations of the epistemic community, professional associations and representative employers in the field of the program

The course contents are correlated with the qualifications and occupations targeted by the study programmed, such as systems and computer engineer/designer, automation engineer and industrial electromechanical-automation maintenance specialist. The topics address current professional requirements: planning and monitoring projects, managing risks, working in multidisciplinary teams, using collaborative tools, preparing requirements and design documentation, communicating with stakeholders, and complying with legal, economic, ethical and quality requirements. The subject also supports the management of projects that include advanced software applications, embedded systems, automatic systems and intelligent systems. The contents are aligned with recognized project-management practices and are updated based on developments in industry, graduate feedback and employer requirements in automation and applied informatics.

11. Assessment

Activity type	11.1 Assessment criteria	11.2 Assessment methods (and assessment type: continuous/summative)	11.3 Weight in the final grade
11.4 Course	Mastery of project-management concepts, methods and terminology; analysis, reasoning and ap-plication capacity in engineering contexts.	Written examination or online as assessment on an institutional platform – summative assessment.	60%
11.5 Seminar / laboratory / project / practical work	Completion of individual and team assignments; quality of documents and deliverables; use of collaborative tools; presentation and justify-cation of results; compliance with deadlines.	Written/online laboratory project and colloquium using an institutional platform – continuous as-assessment.	40%
11.6 Minimum performance standard: grade $G \geq 5$, $G = 0.6 \times E + 0.4 \times C$, where E = exam and C = colloquium. Passing condition: $E \geq 5$ and $C \geq 5$.			

Date of com-pletion:	Teaching staff	Academic rank, title, First name LAST NAME	Signature
29.06.2026	Course	Assoc. Prof. Dr. Eng. Szilárd ENYEDI	
	Applications	Lect. Dr. Eng. Iulia ȘTEFAN	

Date of approval by the Automation Department Board _____	Head of the Automation Department Prof. dr. ing. Honoriu VĂLEAN
Date of approval by the Faculty Council of Automation and Computer Science _____	Dean Prof. dr. ing. Vlad MUREȘAN