Syllabus

1. Data about the program of study

1.1 Institution	Technical University of Cluj-Napoca
1.2 Faculty	Automation and Computer Science
1.3 Departament	Automation
1.4 Field of study	Systems Engineering
1.5 Cycle of study	Bachelor of Science
1.6 Program of study/Qualification	Automation and Applied Informatics (English)
1.7 Form of education	Full time

2. Data about the subject

2.1 Subject name	***Project Preparing Methodology***				Discipline code	**57.00**
2.2 Course responsible/lecturer	Prof.dr.ing.Ovidiu Petru Stan					
2.3 Teachers in charge of applications	NA					
2.4 Year of study	4	2.5 Semester	2	2.6 Assessment *(E/C/V)*		C
2.7 Type of subject	*DF – fundamental, DS – specialty, DC – complementary*					DS
	DOB – compulsory, DOP – elective, DFA – optional					DOB

3. Estimated total time

3.1 Number of hours per week	1	of which:	3.2 Course	1	3.3 Seminar	0	3.3 Laboratory	0	3.3 Project	0
3.2 Number of hours per semester	50	of which:	3.5 Course	14	3.6 Seminar	0	3.6 Laboratory	0	3.5 Project	0

3.3 Individual study	
(a) Manual, lecture material and notes, bibliography	2
(b) Supplementary study in the library, online and in the field	8
(c) Preparation for seminars/laboratory works, homework, reports, portfolios, essays	10
(d) Tutoring	10
(e) Exams and tests	4
(f) Other activities:	2
3.4 Total hours of individual study (sum of (3.3(a)…3.3(f)))	36
3.5 Total hours per semester (3.2+3.4)	50
3.6 Number of credit points	2

4. Pre-requisites (where appropriate)

4.1 Curriculum	• Core courses in automation, process control, and project management. • Familiarity with industrial documentation standards.
4.2 Competence	• Ability to read, interpret, and critically assess technical specifications and engineering literature. • Basic understanding of project lifecycle and risk analysis in industrial environments. • Familiarity with process control and automation concepts • Ability to work with common project documentation tools and visualization software.

5. Requirements (where appropriate)

5.1. For the course	• Classroom equipped with a multimedia projector and Internet access. • Institutional template for the preparation of the bachelor's thesis. • Collaborative platforms and digital tools (e.g., Microsoft Teams, Miro, Google Docs, or equivalent). • Access to bibliographic databases and reference management software (e.g., Zotero)
5.2. For the applications	

6. Specific competences

Professional competences	Upon successful completion of the course, the student will be able to: - apply project management principles and methods to plan and organize an engineering project; - prepare the technical documentation associated with a Bachelor's thesis, in accordance with academic and industrial standards; - define project objectives, expected outcomes, functional requirements, and technical specifications for projects in the field of Automation and Applied Informatics; - use modern tools for project planning, risk analysis, and technical documentation management; - communicate and professionally present the developed technical solutions. The course contributes primarily to the development of the following programme learning competencies: - C2. Operate with fundamental concepts in computer science, information technology, and communications. - C5. Develop applications and implement control algorithms and control structures by applying project management principles, programming environments, and technologies based on microcontrollers, digital signal processors, programmable logic controllers, and embedded systems. - C6. Apply knowledge of legislation, economics, marketing, business, and quality assurance in economic and managerial contexts.
Cross competences	Upon successful completion of the course, the student will be able to: - organize individual and team activities effectively; - comply with the principles of academic integrity and intellectual property rights; - apply modern methods for scientific documentation and lifelong learning; - communicate effectively, both in writing and orally, with specialist and non-specialist audiences; - assume responsibility for the quality of the technical documentation produced and for meeting established deadlines. The course contributes primarily to the development of the following programme transversal competencies: - CT1. Apply, in compliance with applicable legislation, the principles of intellectual property rights (including technology transfer), product certification methodologies, and the principles, norms, and values of professional ethics within a rigorous, efficient, and responsible work strategy. - CT2. Identify roles and responsibilities within multidisciplinary teams, support decision-making and task allocation, and apply effective teamwork and interpersonal communication techniques. - CT3. Identify opportunities for lifelong learning and effectively use learning resources and strategies to support continuous professional and personal development.

7. Expected learning outcomes

Knowledge	• The student will be able to **explain** the key elements and structure of a Bachelor thesis in engineering. • The student will be able to **describe** the role and format of functional and design specifications in industrial projects. • The student will be able to **identify** best practices in documentation and risk analysis aligned with professional standards
Skills	• The student will be able to **apply** industrial documentation standards to produce well-structured technical documents (e.g., risk matrices, Gantt charts, functional specs). • The student will be able to **draft and revise** project objectives, literature reviews, and specifications in a structured and logical manner. • The student will be able to **prepare and deliver** professional technical presentations and pitch decks.
Responsibilities and autonomy	• The student will be able to **work independently and collaboratively** to define project goals, scope, and deliverables. • The student will be able to **incorporate feedback** to refine and improve project documentation and presentations. • The student will demonstrate **responsibility and initiative** in managing project-related tasks and documentation.

8. Course objectives

General objective	To develop the students' ability to **elaborate, document, and defend** a technical-scientific project, ensuring alignment with industrial practices and academic standards.
Specific objectives	• To **understand the structure, roles, and purpose** of each section of a Bachelor thesis. • To **analyze and integrate industrial standards** in functional and design specifications. • To **create and document project risk assessments** and timeline charts (Gantt/CPM).

	• To **draft clear, concise, and well-structured** project milestones, functional specs, and preliminary designs. • To **present and defend** the project effectively to academic and industrial audiences, demonstrating professionalism and clear communication.

9. Contents

9.1 Lecture	**No.hours**	**Teaching methods**	**Notes**
L1. Introduction. Why do projects fail. Motivation + context in technical projects	1	Interactive lecture + Guided discussion	Includes industrial examples
L2. Literature review: tools, techniques, and critical review	1	Workshop + Demo	How to use Zotero
L3. How to formulate objectives: general vs. specific	1	Workshop	
L4. Bachelor thesis structure and evaluation criteria	1	Case-based learning	Review of successful/unsuccessful thesis examples
L5. Functional Design vs. Functional Requirements	1	Hands-on writing	Templates will be provided
L6. Risk matrix & Gantt/CPM Chart elaboration	1	Group exercise	ISO 31000/ ISO 10010:2023/PMBOK references
L7. Project check-in & feedback (formative)	1	Peer review + individual mentoring	Quick feedback on title, objectives, and draft structure
L8. ICSS Network and PAS Hardware Functional Specifications	1	Technical review	documentation; includes diagrams and network layout examples; Focus on modularity, historian trends, and versioning
L9. PAS Software Functional Specification & Process Historian Requirements	1		
L10. Preliminary Front-End Engineering Design (FEED) and Third-party Interface Specifications	1	Mini project + Template use	Students draft partial FEED based on their project; explore interface mapping / mockups
L11. Storytelling for engineers – preparing the pitch deck (from Docs to Deck)	1	Guided discussion + Pitch training	Focus on structure, clarity, and visual storytelling; Bridging Technical Docs with the Pitch Narrative; How your Gantt/FEED/objectives appear in your pitch
L12. Storytelling for engineers – preparing the pitch deck (from Docs to Deck)	1		
L13. Examination – pitching contest	2		

Bibliography

1. Ovidiu Stan, Szilard Enyedi, Introducere in managementul proeictelor, 978-973-662-811-5, U.T.PRESS, 2013
2. Iulia Clitan, Flavia Jascau, Vlad Muresan, Ovidiu Stan, Manualul profesorului pentru proiectarea cursurilor de antreprenoriat incluziv în învățământul superior, 978-606-737-591-6, UTPRESS, 2022
3. Ovidiu Stan, Din sala de curs la o carieră de succes: o privire corespunzătoare asupra relației dintre educația furnizată de Universitatea Tehnică din Cluj Napoca și ocuparea forței de muncă, 978-606-737-611-1, UTPRESS, 2022
4. Ovidiu Stan, Vlad Burnete, Stefan Cirstea, Denisa Stet, Tendințe și evoluții emergente în universitățile tehnice, 978-606-737-615-9, UTPRESS, 2022
5. Jason Puckett, Zotero: a guide for librarians, researchers, and educators, 978-0-8389-8589-2, 2011

6. Project management Institute, A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – Seventh Edition and The Standard for Project Management (ENGLISH), 978-1628256642, 2021
7. ISO 21500:2021Project, programme and portfolio management — Context and concepts, Edition 2, 2021
8. ISO 31000:2018, Risk management — Guidelines, Edition 2, 2018
9. ISO 10010:2022, Quality management — Guidance to understand, evaluate and improve organizational quality culture, Edition 1, 2022

Scott Berkun, Making Things Happen: mastering project management, O'Reilly media, 978-0596517717, 2008

9.2 Aplications (seminar/laboratory/project/practical work)	No.hours	Teaching methods	Notes
Bibliography			

10. Bridging course contents with the expectations of the representatives of the community, professional associations and employers in the field

The course addresses the expectations of employers and professional associations by focusing on:

- Application of IEEE/ISA standards in process automation documentation.
- Adherence to PMBOK and ISO 21500 principles for project planning and risk analysis.
- Ability to produce high-quality documentation (functional and design specifications) relevant to real-world industrial projects.
- Development of strong written and oral communication skills, essential for project proposals and presentations in industrial contexts.
- Cultivation of responsibility and autonomy in managing technical projects, directly aligning with ARACIS learning outcomes

11. Evaluation

Activity type	11.1 Assessment criteria	11.2 Assessment methods	11.3 Weight in the final grade
11.4 Course	Class participation (CP) + written project milestones (WPM) + pitch deck (PD) + final pitch (E)	- Attendance, active involvement in discussions and workshops - Clarity of objectives, literature review synthesis, Gantt chart, functional specs - Structure, relevance, visuals, alignment with documentation - Clarity, persuasiveness, technical depth, confidence, Q&A handling - Oral presentation	Final grade = Cp * 0.1 + WPM * 0.3 + PD * 0.2 + E * 0.4
11.5 seminar/ laboratory/ project/ practical work			
11.6 Minimum performance standard To pass the discipline, the student must: - Participate in at least 70% of the sessions - Submit the minimum required project milestones (objectives, structure, and one specification)			

- Score at least 5/10 in the final pitch presentation
- Demonstrate a basic ability to connect functional documentation with thesis content

Show progressive improvement based on feedback (especially in L7 and L11)

Date of filling in:		**Title Firstname NAME**	**Signature**
	Course	Prof.dr.ing. Ovidiu Petru Stan	
10.07.2026	Aplications		

Date of approval by the Department Board	Head of Departament Prof.dr.ing. Honoriu VĂLEAN
Date of approval by the Faculty Council	Dean Prof.dr.ing. Vlad MUREȘAN