SYLLABUS

1. Program Information

1.1 Higher education institution	Technical University of Cluj-Napoca
1.2 Faculty	Faculty of Automation and Computer Science
1.3 Department	Department of Automation
1.4 Field of study	Automation, Applied Informatics and Intelligent Systems
1.5 Cycle of studies	Bachelor
1.6 Study Programme/Qualification	Intelligent Automation Systems (dual, in English language)
1.7 Form of education	IF – full-time education
1.8 Course code	58.00

2. Course information

2.1 Course title	**Project Elaboration Methodology**					
2.2 Course lecturer	*Prof.Dr.Ing. Ovidiu Stan – Ovidiu.Stan@aut.utcluj.ro*					
2.3 Seminar / Laboratory / Project Lecturer						
2.4 Year of study	4	2.5 Semester	2	2.6 Type of assessment		V
2.7 Course status	Formative category *(DF, DS, DC)*					DS
	Optionality *(DOB, DOP, DFac)*					DOB

3.Total estimated time

3.1 Number of hours per week	1	of which:	HEI	Lecture	1	Seminar	0	Laboratory	0	Project	0
			CO		0		0				
3.2 Number of hours per semester	14	of which:	HEI	Lecture	14	Seminar	0	Laboratory	0	Project	0
			CO		0		0		0		0

3.3 Distribution of time allocation (hours per semester) for:	HEI	CO
(a) Study based on textbook, course support, bibliography, and notes	14	
(b) Additional documentation in library, specialized electronic platforms, and fieldwork	7	
(c) Preparation of seminars/laboratories, assignments, papers, portfolios and essays		
(d) Tutoring	7	
(e) Examinations	4	
(f) Other activities:	4	
3.4 Total individual study hours (sum (3.3(a)... 3.3(f)))	36	
3.5 Total hours per semester (3.2+3.4)	50	
3.6 Number of credits per semester	2	

(HEI = Higher Education Institution, CO = Company)

4. **Prerequisites** (where applicable)

4.1 Curriculum Prerequisites	• Core courses in automation, process control, and project management. • Familiarity with industrial documentation standards.
4.2 Competency Prerequisites	• 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 (e.g., DeltaV). • Ability to work with common project documentation tools and visualization software.

5. Conditions (where applicable)

5.1. Course Organization Conditions	• Access to example documentation from Emerson • Access to DeltaV environment (if applicable) • Bachelor theses template • Presentation and collaborative tools (e.g., Teams, Miro, Google Docs)
5.2. Seminar / Laboratory / Project organization conditions	NA

6. Specific Competencies Acquired

Professional Competencies	• PC04 Conduct literature research • PC06 Define technical requirements • PC12 Gather technical information • PC15 Manage research data • PC21 Report analysis results • PC23 Synthesise information • PC26 Use information technology tools
Transversal Competencies	• TC02 Think analytically • TC05 Interpret mathematical information

7. 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.
Responsibility 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

8.1 General objective of the course	To develop the students' ability to elaborate, document, and defend a technical-scientific project (Bachelor thesis), ensuring alignment with industrial practices and academic standards.
8.2 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 Lectures	No. of hours	Teaching methods	Obs.
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	1		At least 1 x Emerson as a jury
L14 -> Examination – pitching contest	1		At least 1 x Emerson as a jury
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
10. Scott Berkun, Making Things Happen: mastering project management, O'Reilly media, 978-0596517717, 2008

9.2 Seminar / laboratory / project	Hours HEI	Hours CO	Teaching methods	Obs.
Bibliography				

10. Correlation of course content with the expectations of the epistemic community representatives, professional associations, and major employers in the field related to the program

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 and the dual learning objectives between academia and Emerson.

11. Evaluation

Activity Type	**Evaluation criteria**	**Evaluation methods**	**Weight in final grade**
11.1 Lecture	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	Final grade = Cp * 0.1 + WPM * 0.3 + PD * 0.2 + E * 0.4

		- Structure, relevance, visuals, alignment with documentation - Clarity, persuasiveness, technical depth, confidence, Q&A handling - Oral presentation + jury scoring (Emerson + academic)	
11.2 Seminar/ Laboratory/Project	**NA**		

11.3 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 completion:	Lecturers	Title First Name LAST NAME	Signature
15.09.2025	Course	Prof.Dr.Ing Ovidiu Stan	
	Applications		

Date of approval by the Department of Automation Council 24.11.2025 Date of approval by the Faculty of Automation and Computer Science Council 28.11.2025	Director of the Department of Automation Prof.dr.ing. Honoriu VĂLEAN Dean Prof.dr.ing. Vlad MUREȘAN