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	6.00

2. Course information

2.1 Course title	**Industrial Automation Platforms**					
2.2 Course lecturer						
2.3 Seminar / Laboratory / Project Lecturer	*Ing. Roxana Sav (Emerson)* *Ing. Vlad Rosca (Emerson)*					
2.4 Year of study	1	2.5 Semester	1	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	4	of which:	HEI	Lecture	0	Seminar	0	Laboratory	0	Project	0
			CO		0		0		0		4
3.2 Number of hours per semester	56	of which:	HEI	Lecture	0	Seminar	0	Laboratory	0	Project	0
			CO		0		0		0		56

3.3 Distribution of time allocation (hours per semester) for:	HEI	CO
(a) Study based on textbook, course support, bibliography, and notes	-	28
(b) Additional documentation in library, specialized electronic platforms, and fieldwork	-	14
(c) Preparation of seminars/laboratories, assignments, papers, portfolios and essays	-	0
(d) Tutoring	-	14
(e) Examinations	-	4
(f) Other activities:	-	9
3.4 Total individual study hours (sum (3.3(a)... 3.3(f)))	-	69
3.5 Total hours per semester (3.2+3.4)	-	125
3.6 Number of credits per semester	-	5

(HEI = Higher Education Institution, CO = Company)

4. Prerequisites (where applicable)

4.1 Curriculum Prerequisites	-
4.2 Competency Prerequisites	Ability to independently navigate various software applications. Proficiency in basic computer operations and familiarity with operating systems. Ability to understand and interpret technical documentation. Capacity to execute and apply elementary tasks.

5. Conditions (where applicable)

5.1. Course Organization Conditions	-
5.2. Seminar / Laboratory / Project organization conditions	Computer, Specific software

6. Specific Competencies Acquired

Professional Competencies	• PC01 Adjust engineering designs • PC02 Analyze test data • PC06 Define technical requirements • PC08 Design automation components • PC12 Gather technical information • PC13 Interact professionally in research and professional environments • PC21 Report analysis results • PC26 Use information technology tools • PC30 Design control systems
Transversal Competen-cies	• TC01 Apply knowledge of science, technology and engineering • TC03 Demonstrate responsability • TC04 Work in teams • TC05 Interpret mathematical information

7. Learning outcomes

Knowledge	• Understand the DeltaV suite of applications • Understand the Ovation suite of applications • Understand the Mimic simulation platform • Demonstrate knowledge of Distributed Control System (DCS) fundamentals
Skills	• Define system capabilities and configure system nodes • Operate and troubleshoot control systems • Configure essential components within different applications
Responsibility and autonomy	• Demonstrate initiative in analyzing technical documentation • Collaborate effectively within a team to deepen application understanding • Apply responsible practices in using Ovation and DeltaV systems • Work independently with DeltaV, Ovation, Mimic, and related industrial tools

8. Course Objectives

8.1 General objective of the course	This course offers a comprehensive introduction to Distributed Control System (DCS) principles, control strategies, and configuration practices, with a dedicated focus on DeltaV and Ovation platforms. Students will gain insight into the role of DeltaV, Ovation, and Mimic in project implementation and industrial process control.
8.2 Specific objectives	• Explore and understand the main features of the DeltaV, Ovation, and Mimic platforms • Become familiar with the essential tools associated with each application • Develop the ability to work independently with multiple industrial systems • Design basic control logic and understand the interoperability between DeltaV and Mimic

9. Contents

9.1 Lectures	No. of hours		Teaching methods	Obs.
9.2 Seminar / laboratory / project	Hours HEI	Hours CO	Teaching methods	Obs.
1. Introduction in DCS systems	-	4		-

2. Overview of DeltaV main Applications	-	4	Trainings and presentation alongside with dedicated workshops	
3. DeltaV: Core Tools (development tools)	-	4		
4. DeltaV: Basic Configuration	-	4		
5. DeltaV: Core Tools (operate tools)	-	4		
6. Overview of Ovation main Applications	-	4		
7. Ovation: Core Tools 1 (development tools)	-	4		
8. Ovation: Basic Configuration	-	4		
9. Ovation: Core Tools 2 (operate tools)	-	4		
10. Overview of Mimic main Applications	-	4		
11. Mimic: Core Tools 1 (development tools)	-	4		
12. Mimic: Basic Configuration	-	4		
13. Mimic: Core Tools 2 (operate tools)	-	4		
14. DeltaV and Mimic integration (OPC communication)	-	4		

Bibliography

1. DeltaV Operate Implementation I - 7009
2. Ovation Engineering - OV100, OV200, OV210
3. Ovation System Fundamentals - OV215
4. DeltaV Mimic Introduction - 7632V
5. DeltaV Implementation using DeltaV Live - 7409
6. Books Online – DeltaV.

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 content is aligned with DCS industry standards and guidelines, ensuring that students acquire skills relevant for professional certification and meet industry benchmarks.

11. Evaluation

Activity Type	**Evaluation criteria**	**Evaluation methods**	**Weight in final grade**
11.1 Lecture	NA	NA	NA
11.2 Seminar/ Laboratory/Project	Practical execution skills, conceptual explanation, troubleshooting and debugging, use of tools and commands	Practical applications	100%
11.3 Minimum Performance Standard			
Grade > 5			

Date of completion: 11.05.2025	Program responsible	Conf.dr.ing. Roxana Rusu-Both	

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