COURSE DATA SHEET

Academic year 2024-2025

Course title[1]	**Complex Dynamical Systems Analysis and Control**					Course code			MLRC.IA.107
Course type[2]	DA	Category[3]	DO	Year of study	1	Term	2	Credit points	4

Faculty	Automatic Control and Computer Engineering	Number of hours per term[4]					
Major	Systems engineering	Total	C	S	L	P	SI
Specialization	**Machine Learning, Robotics and Control**	100	28	0	14	14	58

Prerequisite courses[5]	Required	
	Recommended	Mechanics, Physical Modeling Systems, Systems theory

Course objective[6]	Developing student's ability to use numerical and experimental methods to analyze structural dynamic systems. Basic mathematical methods for describing dynamics of elastic bodies. Systems with one degree of freedom and systems with multiple degrees of freedom.
Specific objectives[7]	● Basic mathematical methods for describing dynamics of elastic bodies. ● Systems with one degree of freedom and systems with multiple degrees of freedom. ● Developing teamwork skills ● Looking for efficient use of resources and learning techniques for their own development
Content[8]	● Basic mathematical methods for describing dynamics of elastic bodies. ● Systems with one degree of freedom and systems with multiple degrees of freedom. ● The response in the time domain, frequency domain response ● Experimental Modal Analysis

Assessment			Schedule[9]	Percentage of the final grade (minimum grade)[10]
Final assessment form[11] A. Exam / Colloquium	Interim tests	-	-	70% (min. 5)
	Assignments, homework	20%	week 10	
	Other activities	-	-	
	Examination procedures and conditions: Computer solving problem, open-book.	80% (min. 5)	week 14	
B. Seminar	Activity during seminar			-)
C. Laboratory	Activity during laboratory work			30% (min. 5)

[1] See program curriculum
[2] DA – deepening course, DS – specialization course (see program curriculum)
[3] DI – required, DO – optional – see program curriculum
[4] Sections 3.8, 3.5, 3.6a,b,c, 3.7 in the Extended Course Data Sheet
[5] According to section 4.1 – Prerequisite courses in the Extended Course Data Sheet
[6] According to section 7.1 in the Extended Course Data Sheet
[7] According to section 7.2 in the Extended Course Data Sheet
[8] Keywords and main descriptors of the course detailed in section 8 of the Extended Course Data Sheet
[9] For continuous assessment: weeks 1 – 14, for final assessment – colloquium: week 13 or 14, for final assessment-exam: exam period
[10] A minimum grade might be imposed for some assessment stages
[11] Exam or Colloquium

D. Project	Activity during project development	-

Grading basis			Timming[12]	Weight (minimum grade)[13]
Interim evaluation	Assignments, homeworks		Weeks 9-12	20%
	Seminar / project / experimental activity		Weeks 1-14	30% (min. 5)
Final grading	Final grading by[14]	C	Week 14	50% (min. 5)
	Tasks and working conditions: Exercises – open-book – 100%			

Course instructor	Codrin Alexandru Lupașcu, PhD	
Seminar / experimental / project activities instructor	Codrin Alexandru Lupașcu, PhD	

[12] For interim evaluation: Week 1-14, for preliminary exam – Week 14, for regular exams – Exam session
[13] For some evaluation tests a minimum grade may be required, while the terms of the re-evaluation are clearly specified.
[14] Session exam (E) or preliminary exam (C)