

Domain
Program Name ARTIFICIAL INTELLIGENCE IN CONSTRUCTION ENGINEERING AND MANAGEMENT
Study Level RESEARCH MASTERS

CURRICULA Valid for the Academic Year 2025-2026

COURSE CODE AND TITLE		Year I										Methods of Assessment			Nr.of Hours/Discipline				ECTS/Sem		Discipline	
		SEM 1 14 weeks					SEM 2 14 weeks															
		C	S	L	P	Pr/Ce	C	S	L	P	Pr/Ce	E	C	V	Total	C	Apl	Indiv. St.	1	2	cat	type
1.00	Mathematics for Machine Learning and Pattern Recognition	2	0	1	0	0							Gr	100	28	14	58	4.0		DS	DI	
2.00	Statistics and Probability for Machine Learning	2	0	1	0	0							Gr	100	28	14	58	4.0		DS	DI	
3.00	Integration of AR, VR methods in CAD design and analysis	1	0	2	0	0							Gr	125	14	28	83	5.0		DS	DI	
4.00	Experimental methods for structural behavior in Civil Engineering	1	0	2	0	0							Gr	125	14	28	83	5.0		DS	DI	
5.00	Photogrammetric and topographic scanning techniques in the BIM process	1	0	1	0	0							Gr	100	14	14	72	4.0		DS	DI	
6.00	Research Activity I	0	0	0	0	14							Gr	200	0	196	4	8.0		DS	DI	
7.00	Applied Machine Learning and Pattern Recognition						1	0	2	0	0		Gr	100	14	28	58	4.0		DS	DI	
8.00	Artificial Intelligence; Deep Learning, Neural Nethworks and Fuzzy Logic						1	0	2	0	0		Gr	100	14	28	58	4.0		DA	DI	
9.00	Computer Vision Problems						1	0	2	0	0		Gr	100	14	28	58	4.0		DS	DI	
10.00	Structural Health Monitoring						1	0	1	0	0		Gr	100	14	14	72	4.0		DS	DI	
11.00	Monitoring and safety evaluation of existing and new concrete structures using digital infrastructure						1	0	1	0	0		Gr	100	14	14	72	4.0		DS	DI	
12.00	Ethics and Academic Integrity						1	0	0	0	0		Gr	50	14	0	36	2.0		DC	DI	
13.00	Research Activity II						0	0	0	0	14		Gr	200	0	196	4	8.0		DS	DI	
TOTAL AN		7	0	7	0	14	6	0	8	0	14	sem1 sem2	4 4	2 3	0 0	1500 182 602 716	30.0 30.0					

201.00 Psychopedagogy of Adolescents, Youngs and Adults	2	1	0	0	0						Gr	125	28	14	83	5.0	DC	DFac
301.00 Volunteering 1	0	1	0	0	0						A/R	50	0	14	36	2.0	DC	DFac
202.00 Design and Management of Educational Programs						2	1	0	0	0	Gr	125	28	14	83	5.0	DC	DFac
203.10 Educational Communication						1	2	0	0	0	Gr	125	14	28	83	5.0	DC	DFac
203.20 Educational Research Methodology						1	2	0	0	0	Gr	125	14	28	83	5.0	DC	DFac
203.30 Modern Trends in Assesement Theory and Practice						1	2	0	0	0	Gr	125	14	28	83	5.0	DC	DFac

Rector,
Prof.Dr.Ing.Vasile Topa

Dean,
Prof. dr. ing. Daniela - Lucia Manea

Department Director,
Conf. dr. ing. Attila Puskas

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302.00 Volunteering 2						0	1	0	0	0	A/R				50	0	14	36	2.0		DC	DFac				
TOTAL AN				2	2	0	0		0	3	4	0	0		0	sem1	1	0	1	475 70 84 321				7.0	12.0	
																sem2	2	0	1							

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COURSE CODE AND TITLE	Year II					Methods of Assessment	Nr.of Hours/Discipline				ECTS/Sem		Discipline						
	SEM 1		14 weeks				SEM 2		14 weeks			Indiv. St.	Total	C	Apl	1	2	cat	type
	C	S	L	P	Pr/Ce	C	S	L	P	Pr/Ce	E								
14.00 BIM (Building Information Modeling) for construction industry	2	0	1	0	0						Gr	125	28	14	83	5.0		DS	DI
15.00 Parametric design and Digital fabrication	2	0	1	0	0						Gr	125	28	14	83	5.0		DS	DI
16.00 Printing of various materials - Development and Technology	1	0	1	0	0						Gr	100	14	14	72	4.0		DS	DI
17.01 Software applications in road and airport engineering	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO
17.02 Road infrastructure BIM-modelling	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO
17.03 Smart Software applications in road and airport engineering mobility, traffic applications and trafic safety	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO
17.04 Digitalization in railway infrastructure	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO
17.05 Integrated Project Management in constructions	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO
17.06 Management methods in construction projects	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO
17.07 Digitalization in construction Project Management	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO
17.08 Graphics and procedures appliance in performance contracts in Civil Engineering	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO
17.09 Advance design and execution of structures using parametric design based BIM procedure	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO
17.10 Energy modelling and Parametric design of buildings	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO
17.11 BIM models of a building structure section carrying out a life cycle sustainability assessment (LCSA)	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO
17.12 Structural Optimization and Sensitivity Analysis	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO
18.01 Software applications in road and airport engineering	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO
18.02 Road infrastructure BIM-modelling	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO
18.03 Smart Software applications in road and airport engineering mobility, traffic applications and trafic safety	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO
18.04 Digitalization in railway infrastructure	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO
18.05 Integrated Project Management in constructions	2	0	1	0	0						Gr	100	28	14	58	4.0		DS	DO

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18.06	Management methods in construction projects	2	0	1	0	0			Gr	100	28	14	58	4.0	DS	DO
18.07	Digitalization in construction Project Management	2	0	1	0	0			Gr	100	28	14	58	4.0	DS	DO
18.08	Graphics and procedures appliance in performance contracts in Civil Engineering	2	0	1	0	0			Gr	100	28	14	58	4.0	DS	DO
18.09	Advance design and execution of structures using parametric design based BIM procedure	2	0	1	0	0			Gr	100	28	14	58	4.0	DS	DO
18.10	Energy modelling and Parametric design of buildings	2	0	1	0	0			Gr	100	28	14	58	4.0	DS	DO
18.11	BIM models of a building structure section carrying out a life cycle sustainability assessment (LCSA)	2	0	1	0	0			Gr	100	28	14	58	4.0	DS	DO
18.12	Structural Optimization and Sensitivity Analysis	2	0	1	0	0			Gr	100	28	14	58	4.0	DS	DO
19.00	Research Activity III	0	0	0	0	14			Gr	200	0	196	4	8.0	DS	DI
20.00	Research Practice						0	0	0	0	14			10.0	DS	DI
21.00	Field Specific Research for the Master Thesis						0	0	0	0	7			10.0	DS	DI
22.00	Dissertation Project Work						0	0	0	7	0			10.0	DS	DI
23.00	Presentation of Dissertation						0	0	0	0	0			10.0	DS	DI
TOTAL AN		9	0	5	0	14	0	0	0	7	14	sem1	3	3	0	
				14.00						14.00		sem2	1	2	0	
													1500	126	658	716
														30.0	30.0	
														+ 10		
204.00	Didactics of the Field and Developments in Didactics Specialties (High School and Post High School Education)	2	1	0	0	0			Gr	125	28	14	83	5.0	DC	DFac
205.10	School Organization Management	1	2	0	0	0			Gr	125	14	28	83	5.0	DC	DFac
205.20	Metacognitive Education	1	2	0	0	0			Gr	125	14	28	83	5.0	DC	DFac
205.30	Intercultural Education	1	2	0	0	0			Gr	125	14	28	83	5.0	DC	DFac
303.00	Volunteering 3	0	1	0	0	0			A/R	50	0	14	36	2.0	DC	DFac
206.00	Teaching Practice (in Secondary School and Tertiary Education)						0	0	0	0	3			5.0	DC	DFac
207.00	Graduation Exam - Level II						0	0	0	0	0			5.0	DC	DFac
304.00	Volunteering 4						0	1	0	0	0			2.0	DC	DFac

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TOTAL AN	3	4	0	0	0	0	1	0	0	3	sem1	2	0	1	475	42	112	321	12.0	7.0	
			7.00					1.00			sem2	0	1	1					+ 5		

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	C	S	L	P	Pr/Ce	Credite	Examene	Colocvii si verificari	Total evaluari	Nr.examene/tot.evaluari
Anul I	182	0	210	0	392	60	8	5	13	62 %
Anul II	126	0	70	98	490	60	4	5	9	44 %
TOTAL	308	0	280	98	882	120	12	10	22	55 %

NUMAR ORE TOTAL	1568		
TOTAL ORE DIDACTICE	784		
TOTAL ORE DISCIPLINE DE APROFUNDARE	42		
TOTAL ORE DISCIPLINE DE SINTEZA	1512		
TOTAL ORE DISCIPLINE COMPLEMENTARE - TIP DC	14	1.74 %	din tot.activ.didactice oblig. max 20%
NUMAR DISCIPLINE COMPLEMENTARE - TIP DC	1		
TOTAL ORE CURS	308		
TOTAL ORE ACTIVITATI APLICATIVE	378		TOTAL ORE ACTIV.APLIC.FARA DISC.PARTIAL ASIST. 280
RAPORT CURS / ACTIV. PRACTICE	0.81	0.80-1.20	RAPORTAT LA ACTIV.APLIC.FARA DISC.PARTIAL ASIST. 1.10

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