

Domain .NULL.

Program Name ARTIFICIAL INTELLIGENCE IN CONSTRUCTION ENGINEERING AND MANAGEMENT

Study Level RESEARCH MASTERS

## CURRICULA

Valid for the Academic Year

2023-2024

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COURSE CODE AND TITLE	Year I										Methods of Assessment	Nr.of Hours/Discipline				ECTS/Sem		Discipline			
	SEM 1 14 weeks					SEM 2 14 weeks						E	C	V	Total	C	Apl	Indiv. St.	1	2	cat
	C	S	L	P	Pr/Ce	C	S	L	P	Pr/Ce											
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	2	0	1	0	0						Gr	125	28	14	83			5.0		DS	DI
4.00 Experimental methods for structural behavior in Civil Engineering	2	0	1	0	0						Gr	125	28	14	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						2	0	1	0	0	Gr	100	28	14	58			4.0		DS	DI
8.00 Artificial Intelligence; Deep Learning, Neural Nethworks and Fuzzy Logic						2	0	1	0	0	Gr	100	28	14	58			4.0		DA	DI
9.00 Computer Vision Problems						2	0	1	0	0	Gr	100	28	14	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 Academic Ethics and 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	9	0	5	0	14	9	0	5	0	14	sem1	4	2	0	1500	252	532	716	30.0	30.0	
				14.00					14.00		sem2	4	3	0							

Rector,  
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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					Total	C	Apl	Indiv. St.	1	2	cat	type
	C	S	L	P	Pr/Ce	C	S	L	P	Pr/Ce								
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 3D Concrete Printing - 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
18.06 Management methods in construction projects	2	0	1	0	0						Gr	100	28	14	58	4.0	DS	DO

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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

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	C	S	L	P	Pr/Ce	Credite	Examene	Colocvii si verificari	Total evaluari	Nr.examene/tot.evaluari
Anul I	252	0	140	0	392	60	8	5	13	62 %
Anul II	126	0	70	98	490	60	4	5	9	44 %
TOTAL	378	0	210	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 924

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 378

TOTAL ORE ACTIVITATI APLICATIVE 308

RAPORT CURS / ACTIV. PRACTICE 1.23 0.80-1.20

TOTAL ORE ACTIV.APLIC.FARA DISC.PARTIAL ASIST. 308

RAPORTAT LA ACTIV.APLIC.FARA DISC.PARTIAL ASIST. 1.23

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