

Field of study: Computer and Information Technology/ Calculatoare si tehnologia informatiei
Programme of study: MACHINE LEARNING / INVATARE AUTOMATA

Form of education: with frequency
Length of study: 2 years

Fundamental domain of study (DFI): Engineering Sciences/ Stiinte ingineresti
Branch of science (RSI): System Engineering, Computer and Information Technology/ Ingineria sistemelor, calculatoare si tehnologia informatiei
Domain of study of master (DSU_M): Computer and Information Technology/ Calculatoare si tehnologia informatiei

Cod DFI	Cod RSI	Cod DSU_M
20	60	10

level	c1c2c3	a1a2
M	00y	20

CURRICULUM
Academic year 2020 - 2021
1st YEAR

	SEMESTER 1										SEMESTER 2										
1	Core 1 (choose one from positions 1-5)										Core 3 (choose one from positions 1-5)										
	M00y.20.01.*1	7	E	28	0	28	0	0	0	***	119	M00y.20.02.*1	7	E	28	0	28	0	0	***	119
2	Core 2 (choose one from positions 1-5)										Core 4 (choose one from positions 1-5)										
	M00y.20.01.*2	7	E	28	0	28	0	0	0	***	119	M00y.20.02.*2	7	E	28	0	28	0	0	***	119
3	Elective 1 (choose one from Master ML/ IT/ CI/ SE)										Elective 2 (choose one from Master ML/ IT/ CI/ SE)										
	M00y.20.01.*3	7	E	28	0	28	0	0	0	***	119	M00y.20.02.*3	7	E	28	0	28	0	0	***	119
4	Research Topics in ML										Introduction to Research										
	M00y.20.01.V4	9	D	28	0	0	0	0	168	DCAV	29	M00y.20.02.V4	7	D	28	0	0	0	140	DCAV	7
5											Academic Ethics and Integrity										
												M00y.20.02.S5	2	D	14	7	0	0	0	DS	29
6																					
7																					
total / semester	VAi:	196	VPI:		386						VAi:	217	VPI:		393						
	VA (VAi+VAp):	364	VCA (VA+VPI):		750						VA (VAi+VAp):	357	VCA (VA+VPI):		750						
	credits	30	evaluations:		3E, 1D						credits	30	evaluations:		3E, 2D						
total / week	VAi:	14	VPI:		28						VAi:	16	VPI:		28						
	VA (VAi+VAp):	26	VCA (VA+VPI):		54						VA (VAi+VAp):	26	VCA (VA+VPI):		54						
	distribution		8	0	6	0	12	(c, s, l, p, VAp)			distribution		9	1	6	0	10	(c, s, l, p, VAp)			

Academic year 2020 - 2021
2nd YEAR

	SEMESTER 3										SEMESTER 4										
1	Core 5 (choose one from positions 1-5)										Research Activity and Internship										
	M00y.20.03.*1	7	E	28	0	28	0	0	0	***	119	M00y.20.04.S1	10	C					168	DS	82
2	Core 6 (choose one from positions 1-5)										Master Thesis Development										
	M00y.20.03.*2	7	E	28	0	28	0	0	0	***	119	M00y.20.04.S2	10	C					196	DS	54
3	Elective 3 (choose one from Master ML/ IT/ CI/ SE)										Master Thesis Defense										
	M00y.20.03.*3	7	E	28	0	28	0	0	0	***	119	M00y.20.04.S3	10	E						DS	
4	Directed Thesis Research																				
	M00y.20.03.S4	9	D	0	0	0	28	168	DS	29											
5																					
6																					
7																					
total / semester	VAi:	196	VPI:		386						VAi:	0	VPI:		136						
	VA (VAi+VAp):	364	VCA (VA+VPI):		750						VA (VAi+VAp):	364	VCA (VA+VPI):		500						
	credits	30	evaluations:		3E, 1D						credits	30	evaluations:		1E, 2C						
total / week	VAi:	14	VPI:		28						VAi:	0	VPI:		10						
	VA (VAi+VAp):	26	VCA (VA+VPI):		54						VA (VAi+VAp):	26	VCA (VA+VPI):		36						
	distribution		6	0	6	2	12	(c, s, l, p, VAp)			distribution		0	0	0	0	26	(c, s, l, p, VAp)			

Competences:

- Advanced knowledge of the main topics and problems in the field of machine learning;
- Knowledge of the current technologies and abilities to select and apply them in the development of machine learning projects;
- Combining knowledge from the area of computer and information technology, with skills to critically analyze and innovate, in order to research, design, optimize, implement and test specific methods and systems;
- Development of techniques, technologies, methods and methodologies specific to computer systems and information technology.

ELECTIVE COURSES
Academic year 2020 - 2021
1st YEAR

SEMESTER 1											SEMESTER 2										
01	Fundamentals of Machine Learning										Natural Language Processing										
	7	E	28	0	28	0	0	0	DCAV	119	7	E	28	0	28	0	0	0	DCAV	119	
02	Optimization in Machine Learning										Probabilistic Graphical Models										
	7	E	28	0	28	0	0	0	DCAV	119	7	E	28	0	28	0	0	0	DCAV	119	
03	Deep Learning										Reinforcement Learning										
	7	E	28	0	28	0	0	0	DCAV	119	7	E	28	0	28	0	0	0	DCAV	119	
04	Fundamentals of Computer Vision										Computer Vision										
	7	E	28	0	28	0	0	0	DCAV	119	7	E	28	0	28	0	0	0	DCAV	119	
05	Big Data Analytics										Big Data Visualization										
	7	E	28	0	28	0	0	0	DCAV	119	7	E	28	0	28	0	0	0	DCAV	119	
06																					

ELECTIVE COURSES
Academic year 2020 - 2021
2nd YEAR

SEMESTER 3											SEMESTER 4										
01	Robotics																				
	7	E	28	0	28	0	0	0	DCAV	119											
02	Text Mining and Recommender Systems																				
	7	E	28	0	28	0	0	0	DCAV	119											
03	Autonomous Driving																				
	7	E	28	0	28	0	0	0	DCAV	119											
04	Advanced Computer Vision																				
	7	E	28	0	28	0	0	0	DCAV	119											
05	Big Data in Health and Bioinformatics																				
	7	E	28	0	28	0	0	0	DCAV	119											
06																					

Legenda

Title of discipline										
Code	nc	FE	c	s	l	p	VAp	CF	VPI	

Code = code of discipline
nc = no. of the subject transferable credits
FE = forma de evaluare
FE ∈ {E, D, C}
E=exam
D=distributive assessment
C=colloquy
c=no. of course hours/semester
s=no. of seminar hours
l=no. of laboratory hours
p=no. of project hours
VAp = no. of hours needed for partially assisted activities

Notes

- The first two independent electives ("Core x") in each semester will be selected from the table "ELECTIVE COURSES", corresponding semester, and can be of the types DCAV, DA, or DS, as specified in the cell marked with ***.
- The third independent elective ("Elective y") in each semester will be selected from the the Master programs in the CTI field (Master ML/ IT/ CI/ SE), corresponding semester, and can be of the types DCAV, DA, or DS, as specified in the cell marked with ***.
- The electives in the table "ELECTIVE COURSES" will be activated based on student options, number of students and financial coverage.

Example										
Advanced measuring technologies										
M170.17.01.V1	8	E	28	0	28	0	0	49	DCAV	50

CF=the category the discipline belongs to
CF=(DA, DCAV, DS, DC)
DA - thoroughgoing study discipline
DCAV - advanced knowledge discipline
DS - synthesis discipline
DC - complementary discipline
VPI =no. of unattended hours during a 14 weeks semester plus 4 weeks of examination session
VAi - no. of hours needed for entirely assisted activities=c+s++p
VA - no. of hours needed for entirely assisted activities and partially assisted activities=VAi+Vap
VCA - cumulated no. of hours for all activities= VA+VPI

RECTOR,
Conf.dr.ing. Florin DRĂGAN

DECAN,
Prof.univ.dr.ing. Marius-George MARCU