SYLLABUS

1. Data about the program of study

1.1 Institution	The Technical University of Cluj-Napoca
1.2 Faculty	Faculty of Automation and Computer Science
1.3 Department	Computer Science
1.4 Field of study	Computer Science and Information Technology
1.5 Cycle of study	Master of Science
1.6 Program of study/Qualification	Data Science / Master
1.7 Form of education	Full time
1.8 Subject code	20.00

2. Data about the subject

2.1 Subject name				***Research Practice***		
2.2 Subject area				Artificial Intelligence		
2.2 Course responsible/lecturer				Not necessary.		
2.3 Lecturers/ Teachers in charge with seminars/ labs./ projects				Not necessary.		
2.4 Year of study	II	5Semester	4	2.6 Assessment	E–exam, C–colloq., V-verif.	V
2.7 Subject category	Formative category: DD–**d**eepening, SD–**s**ynthesis, CD–**c**omplementary					SD
	Optionality: MD-**m**andatory, ED-**e**lective, OD-**o**ptional					MD

3. Estimated total time

3.1 Number of hours per week	14	of which	Course	-	Seminar	-	Laborator	-	Proiect	14
3.2 Total hours in the curriculum	196	of which	Course	-	Seminar	-	Laborator	-	Proiect	196
3.3 Individual study:										
(a) Manual, lecture material and notes, bibliography										
(b) Supplementary study in the library, online and in the field										25
(c) Preparation for seminars/laboratory works, homework, reports, portfolios, essays										25
(d) Tutoring										
(e) Exams and tests										4
(f) Other activities										-

3.4 Total hours of individual study (summ (3.7(a)…3.7(f)))	54
3.5 Total hours per semester (3.4+3.8)	250
3.6 Number of credit points	10

4. Pre-requisites (where appropriate)

4.1 Curriculum	Research Activity 1,2 and 3
4.2 Competence	Related to the disciplines above

5. Requirements (where appropriate)

5.1 For the course	It's not necessary
5.2 For the seminar / laboratory / project	Computers, equipment and specific software

6. Specific competences

6.1 Professional competences	**C5** - The creative combination of multidisciplinary knowledge in the field of computer science and information technology in order to research, specify, design, optimize, implement, test and evaluate original theories, algorithms, techniques, methods and methodologies specific to complex artificial intelligence and vision systems. • **C5.1** - Demonstrated knowledge of artificial intelligence and vision systems research, design, implementation, optimization and testing methodologies • **C5.2** - Demonstrating the ability to analyze and interpret new situations through the prism of fundamental knowledge in the field of computers and information technology • **C5.3** - The creative combination, based on the discovery of new semantic and functional links, of various modern design principles in the field of computers and information technology to solve optimization problems • **C5.4** - Basing the research activity and innovative design in the field of computers on correct evaluation criteria • **C5.5** - Carrying out research activities with practical purpose demonstrated through functional software and / or hardware prototypes
6.2 Cross competences	**CT1** - Demonstrating knowledge of the economic, ethical, legal and social context of exercising the profession for identifying tasks, planning activities and opting for responsible decisions, culminating in the conception, drafting and presentation of a scientific paper **CT2** - The clear and concise description of the flow of activities, tasks and results in the field of activity, obtained either after assuming the role of leader / project manager, or as a member of a research team, thanks to: the ability to synthesize information from the field, the overall global vision, communication skills with collaborators, the ability to define activities by stages **CT3** - Practicing the continuous self-education and demonstrating critical, innovative and research skills

7. Discipline objectives (as results from the *key competences gained*)

7.1 General objective	Development of research and design skills and competencies in the field of intelligence and artificial vision, computers and information technology
7.2 Specific objectives	Assimilation of knowledge and skills regarding: • integration of the components of the completed application system • testing and validating the completed application • development of product documentation • development of the user manual • elaboration of a scientific presentation

8. Contents

8.1. Lecture (syllabus)	Hours	Teaching methods	Notes
-			
Bibliography: Not necessary			

8.2 Applications - Seminars / Laboratory / Project	Hours	Teaching methods	Notes
Realization of at least one validation of the obtained results		Individual work and periodic checks.	
Elaboration of conclusions resulting from a research activity			
Evidence of personal contributions obtained as a result of a research activity;			
Evidencing the possibilities of continuing research through a doctorate			
Documentation on the dissertation topic;			
Creation of a report summarizing the activities carried out.			
Bibliography: Establishd by each advisor in accordance with the research topics			

9. Bridging course contents with the expectations of the representatives of the community, professional associations and employers in the field

It is carried out through periodic meetings with representatives of the economic environment

10. Evaluation

Activity type	Assessment criteria	Assessment methods	Weight in the final grade
Course	Not necessary		
Applications (Seminars /Laboratory /**Project)**	Based on the practical results and the elaborated report	Oral examination, Report evaluation	60% 40%
Minimum standard of performance: Average 5			

Date of filling in: 26.02.2025	**Responsible**	**Title First name Last name**	**Signature**
	Course	-	
	Applications	-	

Date of approval in the department 17.09.2025	Head of department, Prof.dr.eng. Rodica Potolea
Date of approval in the Faculty Council 19.09.2025	Dean, Prof.dr.eng. Vlad Mureșan