COURSE SYLLABUS

1. **Program information**

Faculty	Faculty of Electrical Engineering and Computer Science
Department	Computer Science
Field of study	Computers and Information Technology
Cycle of studies	Master's Degree
Study Program	Artificial Intelligence & Social Robotics Applied to Global Health

2. **Course information**

Course name		**CLOUD COMPUTING FOR AI APPLICATIONS**				
Year of study	1	Semester	2	Type of assessment	Exam	
Course regime		Course category by educational content: DF – Fundamental, DS – Specialization, DC – Complementary				DS
		Course category by optionality: DOB – Compulsory, DOP – Optional, DFA – Elective				DOB

3. **Total estimated time (hours allocated to teaching activities)**

I a) Number of hours per week	3	Lecture	2	Seminar	-	Laboratory / practical work	1	Project	-
I b) Total number of hours per semester according to curriculum	42	Lecture	28	Seminar	-	Laboratory / practical work	14	Project	-

Distribution of time allocation per semester (hours)	No. hours
II. Individual study	105
III. Examinations	3
IV. Other activities (specify):	-

Total individual study hours (II+III)	108
Total hours per semester (I.b+II+III+IV)	150
Number of credits	6

4. **Specific competencies acquired**

Transversal competencies	CT1 – work in teams
Professional competencies	CP1 – perform scientific research CP2 – develop product design CP3 – design prototypes CP4 – develop data processing applications CP12 – perform project management

5. **Learning outcomes**

Knowledge	**Skills**	**Responsibility and autonomy**
The student/graduate identifies, critically evaluates, and applies specialized concepts and methods from cloud technologies as a foundation for original research.	The student/graduate designs software architectures and manages complex software projects by integrating cloud technologies for artificial intelligence applications with high-performance requirements.	The student/graduate manages software development processes within a team across various contexts and platforms, taking responsibility for architectural and implementation decisions.

6. **Course objectives** (derived from the grid of specific competencies acquired)

General objective of the course	Development of advanced competencies in architectures and technologies specific to cloud computing for artificial intelligence applications, with an emphasis on the design, implementation, and deployment to production of scalable artificial intelligence solutions using cloud platforms.

7. **Teaching and learning content**

Lectures	**No. of hours**	**Teaching methods**	**Remarks / Notes**
1. Introduction 1.1. Fundamentals of Cloud Computing. 1.2. Motivation for Cloud-Based AI. 1.3. Cloud Computing in the AI Ecosystem.	4	Lecture, discussion, exemplification, demonstration	
2. Software as a Service 2.1. Core Concepts of SaaS. 2.2. SaaS for AI Applications. 2.3. Case Study.	4		
3. Infrastructure as a Service 3.1. Components of IaaS. 3.2. IaaS for AI Workloads. 3.3. Case Study.	4		
4. Platform as a Service 4.1. Deployment of AI applications using PaaS. 4.2. Advantages and Limitations of PaaS in AI Systems. 4.3. Case Study.	4		
5. Cloud Architectures for AI Systems 5.1. Distributed and Scalable Architectures. 5.2. Data-Centric Architectures for AI. 5.3. Serverless Architectures for AI.	4		
6. Cloud-Based Machine Learning and Deep Learning 6.1. Cloud Platforms for Model Training. 6.2. Model Deployment in the Cloud.	4		
7. Security, Ethics, and Governance in Cloud AI 7.1. Security and Privacy in Cloud-Based AI Systems. 7.2. Ethical and Responsible AI in the Cloud. 7.3. Governance and Regulatory Considerations.	4		
Recommended minimum bibliography			
1. Ovidiu-Andrei SCHIPOR (2022), *Fundamentals of Front-End Web Development. A Study Guide*, Ed. USV, Suceava, 150 pages. 2. David DAVIS, *Fundamentals of Cloud Computing.* https://www.pluralsight.com 3. GCP Google Cloud Platform Concepts. https://www.udemy.com 4. François Fleuret, *The Little Book of Deep Learning.* https://fleuret.org/francois/lbdl.html			

Applications (Laboratory)	**No. of hours**	**Teaching methods**	**Remarks / Notes**
Using online, cloud-based tools to support AI applications. Working within a team and defining responsibilities.	2	Practical work, experiment, discussion, case study	
Utilizing SaaS solutions to build an AI application for data management within an organization.	2		
Implementing a scalable IaaS-based architecture.	2		
Employing PaaS for developing AI applications.	4		
Working with AI models on cloud platforms.	2		
Presentation and evaluation of AI applications.	2	Demonstration	
Attendance at compulsory activities is regulated by USV's "Framework Regulation on Student Assessment". Make-up for mandatory practical activities scheduled during the semester is carried out in accordance with the provisions of this regulation. Practical activities scheduled throughout the semester may be replaced by the completion and presentation of high-complexity projects from the course syllabus, with the approval of the course instructor.			
Recommended minimum bibliography			
1. Ovidiu-Andrei SCHIPOR (2022), *Fundamentals of Front-End Web Development. A Study Guide*, Ed. USV, Suceava, 150 pages. 2. David DAVIS, *Fundamentals of Cloud Computing.* https://www.pluralsight.com 3. GCP Google Cloud Platform Concepts. https://www.udemy.com 4. François Fleuret, *The Little Book of Deep Learning.* https://fleuret.org/francois/lbdl.html			

8. **Evaluation**

Type of activity	Evaluation criteria	Evaluation methods	Weight in final grade
Final evaluation	Clear presentation of theoretical concepts and correct application of notions and methods specific to cloud computing and AI applications.	Written test, followed by oral verification of the extent to which the requirements in the written work are met.	50%
Evaluation of ongoing practical activities	Correct design and functional implementation of four cloud-based AI applications. Participation in various practical activities related to the specific objectives of the course.	Project evaluation, systematic observation	50%

Physical accessibility: activities are conducted in classrooms and laboratories accessible to wheelchair users via ramps/lifts (USV buildings C/D); **Accessibility of teaching materials:** documents are available in digital PDF format with selectable text and slides with large fonts; **Evaluation accessibility:** ongoing evaluation through projects; possibility of extended time for the written tests and oral verification.

Date	Academic title, Name, Surname, Signature of Course Instructor	Academic title, Name, Surname, Signature of Practical Work Instructor
23.09.2026	Prof. univ. dr. ing. Ovidiu-Andrei SCHIPOR	Prof. univ. dr. ing. Ovidiu-Andrei SCHIPOR

Date of approval	Academic title, Name, Surname, Signature of Program Coordinator
24.09.2026	Prof. univ. dr. ing. Radu-Daniel VATAVU

Date of departmental approval	Academic title, Name, Surname, Signature of Head of Department
24.09.2026	Prof. univ. dr. ing. Ovidiu-Andrei SCHIPOR

Date of Faculty Council Approval	Academic title, Name, Surname, Signature of Dean
25.09.2026	Prof. univ. dr. ing. Laurentiu-Dan MILICI