SYLLABUS

AI Solutions-based Projects Development

University year 2025-2026

1. Information regarding the programme

1.1. Higher education institution	Babes-Bolyai University
1.2. Faculty	Faculty of Mathematics and Computer Science
1.3. Department	Department of Computer Science
1.4. Field of study	Computer Science
1.5. Study cycle	Bachelor
1.6. Study programme/Qualification	Artificial Intelligence
1.7. Form of education	Full time

2. Information regarding the discipline

2.1. Name of the discipline	**AI Solutions-based Projects Development**					Discipline code	**MLE5211**
2.2. Course coordinator					Assoc. Prof. Vescan Andreea, PhD		
2.3. Seminar coordinator					Assoc. Prof. Vescan Andreea, PhD		
2.4. Year of study	3	2.5. Semester	5	2.6. Type of evaluation	C	2.7. Discipline regime	DS

3. Total estimated time (hours/semester of didactic activities)

3.1. Hours per week	**1**	of which: 3.2 course	**0**	3.3 seminar/laboratory/project	**1LP 3P**
3.4. Total hours in the curriculum	14	of which: 3.5 course	0	3.6 seminar/laboratory/project	**14**

Time allotment for individual study (ID) and self-study activities (SA)	**hours**
Learning using manual, course support, bibliography, course notes (SA)	3
Additional documentation (in libraries, on electronic platforms, field documentation)	20
Preparation for seminars/labs, homework, papers, portfolios and essays	9
Tutorship	2
Evaluations	2
Other activities:	
3.7. Total individual study hours	**36**
3.8. Total hours per semester	**50**
3.9. Number of ECTS credits	**2**

4. Prerequisites (if necessary)

4.1. curriculum	• Research methodology in computer science
4.2. competencies	• Programming knowledge in at least one hih-level programming language

5. Conditions (if necessary)

5.1. for the course	•
5.2. for the seminar /lab activities	• none

6.1. Specific competencies acquired [1]

[1] One can choose either competences or learning outcomes, or both. If only one option is chosen, the row related to the other option will be deleted, and the kept one will be numbered 6.

Professional/essential competencies	• supervise software development • analyze software specifications • define the process • develop the prototype for the software • design the IT system
Transversal competencies	• show initiative • work in teams • assume responsibility • think analytically

6.2. Learning outcomes

Knowledge	The student knows: • The graduate has knowledge of programming, mathematics, engineering and technology and has the skills to use them in creating complex computer systems. • The graduate has the necessary knowledge to review the literature and use international databases and international digital research libraries.
Skills	The student is able to • The graduate is able to formally describe issues addressed in various areas, and to model them as problems that can be addressed using Artificial Intelligence techniques. • The graduate is able to design and implement software systems that are using methods of Artificial Intelligence and to evaluate their performance. • The graduate has the ability to develop, design and create new applications, systems or products using best practices in the field of Computer Science.
Responsibility and autonomy:	The student has the ability to work independently to obtain • The graduate has the necessary knowledge to select and use the appropriate training procedures to facilitate the process of assimilation of knowledge.

7. Objectives of the discipline (outcome of the acquired competencies)

7.1 General objective of the discipline	• This activity involves acquiring the knowledge and skills necessary for a process of managing a software application of medium complexity, which uses solutions from the field of artificial intelligence, including the research work that the student does with the aim of realizing the project and a related scientific report.

7.2 Specific objective of the discipline	• Upon completion of this course, the student must: o To have documentation skills on a certain topic related to artificial intelligence. o To identify the main elements that constitute success factors in a project with artificial intelligence solutions. o To implement the proposed solution, using artificial intelligence techniques. o To respect an Agile project development process. o To be able to make a research report content. o To know how to write a research report in several iterations.

8. Content

8.1 Course	Teaching methods	Remarks
Bibliography		
8.2 Seminar / laboratory	Teaching methods	Remarks
1. Establishing the theme of the project. Identification of solutions using artificial intelligence techniques	Conversation, debate, case studies	
2. Design of the software application	Conversation, debate, case studies	
3. Decision on the experimental design	Conversation, debate, case studies	
4. Integration of the experiments in the software application	Conversation, debate, case studies	
5. Documenting the experiments	Conversation, debate, case studies	
6. First version of the research report	Conversation, debate, case studies	
7. Final version of the software application and of the research report	Conversation, debate, case studies	
Bibliography - to be decided by student based on his/her research topic - Internet resources on software projects and on the particular topics of the projects		

9. Corroborating the content of the discipline with the expectations of the epistemic community, professional associations and representative employers within the field of the program

- This course follows the IEEE and ACM curriculum recommendations for the study of computer science.
- The completion of a study program implies the initiation of a research activity.

10. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course			
10.5 Seminar/laboratory	The ability to identify artificial intelligence solutions for a studied problem, to implement	Each activity has a deadline and a corresponding grade Phase 1: Establish of	10%

	a software project using the proposed models, to write a research report and present the obtained results.	the theme+AI solutions Faza 2: Design of the software application Faza 3: Design of experiments Faza 4: Integration of experiments into the software application Faza 5: Research report Faza 6: Software application	10% 20% 20% 20% 20%

10.6 Minimum standard of performance

- A minimum grade of 5 is required for passing the discipline.
- Attend 90% of lab activities during semester.

11. Labels ODD (Sustainable Development Goals)[2]

Not applicable.

Date:
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Signature of course coordinator

Assoc. Prof. Vescan Andreea, PhD

Signature of seminar coordinator

Assoc. Prof. Vescan Andreea, PhD

Date of approval:
...

Signature of the head of department

Assoc.prof.phd. Adrian STERCA

[2] Keep only the labels that, according to the *Procedure for applying ODD labels in the academic process*, suit the discipline and delete the others, including the general one for *Sustainable Development* – if not applicable. If no label describes the discipline, delete them all and write „*Not applicable.*".