SYLLABUS

Research project

University year 2025-2026

1. Information regarding the programme

1.1. Higher education institution	Babeș-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	Computer Science
1.7. Form of education	Full time

2. Information regarding the discipline

2.1. Name of the discipline	Research project					Discipline code	MLE5161
2.2. Course coordinator				Prof. dr. CZIBULA Istvan Gergely			
2.3. Seminar coordinator				Prof. dr. CZIBULA Istvan Gergely			
2.4. Year of study	3	2.5. Semester	5	2.6. Type of evaluation	C	2.7. Discipline regime	Optional

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

3.1. Hours per week	2	of which: 3.2 course	0	3.3 seminar/laboratory/project	2 lab 2 pr
3.4. Total hours in the curriculum	28	of which: 3.5 course	0	3.6 seminar/laboratory/project	28
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)					10
Preparation for seminars/labs, homework, papers, portfolios and essays					5
Tutorship					2
Evaluations					2
Other activities:					
3.7. Total individual study hours	22				
3.8. Total hours per semester	50				
3.9. Number of ECTS credits	2				

4. Prerequisites (if necessary)

4.1. curriculum	Computer Science Research Methodology
4.2. competencies	-

5. Conditions (if necessary)

5.1. for the course	-
5.2. for the seminar /lab activities	None

6.1. Specific competencies acquired [1]

Professional/essential competencies	- use of theoretical foundations of computer science as well as of formal models - use of software tools in an interdisciplinary context
Transversal competencies	- application of organized and efficient work rules, of responsible attitudes towards the didactic-scientific field, to bring creative value to own potential, with respect for professional ethics principles and norms - use of efficient methods and techniques to learn, inform, research and develop the abilities to bring value to knowledge, to adapt at the requirements of a dynamical society and to communicate efficiently in Romanian language and in an international language

6.2. Learning outcomes

Knowledge	The student knows: - the methods, algorithms, paradigms and techniques used in various branches of computer science. - using computers, developing software programs and applications, information processing. - to conduct a literature review.
Skills	The student is able to: - present and explain methods, algorithms, paradigms and techniques used in various branches of computer science. - to write a scientific/technical report. - to understand and communicate information effectively.
Responsibility and autonomy:	The student has the ability to work independently to: - write a scientific/technical report. - develop, design and create new applications, systems or products using best practices of the field.

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

7.1 General objective of the discipline	This research project represents the individual work the student performs with the purpose to write a scientific report on a given research topic.
7.2 Specific objective of the discipline	At the completion of this course, the student should: have documentation abilities on an established topic; be able to design the table of contents of the research report; know how to write a research report in many iterations.

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[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.

8. Content

8.1 Course	Teaching methods	Remarks
8.2 Seminar / laboratory	Teaching methods	Remarks
1. Establishing the research title/topic	Conversation, debate, case studies	
2. Methodology of scientific research	Conversation, debate, case studies	
3. Draft of table of contents	Conversation, debate, case studies	
4. Bibliographical documentation	Conversation, debate, case studies	
5. Relevance of the bibliographical sources	Conversation, debate, case studies	
6. Assignment of references to the designed structure	Conversation, debate, case studies	
7. Software system design	Conversation, debate, case studies	
8. Software system implementation	Conversation, debate, case studies	
9. Document software	Conversation, debate, case studies	
10. Decision on experimental modelling	Conversation, debate, case studies	
11. Document experiments and tests	Conversation, debate, case studies	
12. First draft of the report	Conversation, debate, case studies	
13. Prepare for the final delivery	Conversation, debate, case studies	
14. Final form of the research report	Evaluation	
Bibliography - to be decided by the student based on his/her research topic - Internet resources on research 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

•   The course respects the IEEE and ACM Curricula Recommendations for Computer Science studies; •   The course exists at the major universities in Romania, offering similar study programs; •   Graduating a bachelor's program assumes initiation in doing 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 write a research report and present the obtained results.	Each of the activities has a due date and a corresponding mark, on a 10-point scale. A penalty of 1pt per week are considered for delays.	
		Phase 1. Docs 1, 2, 3	10%
		Phase 2. Docs 4, 5, 6	20%
		Phase 3. Docs 7, 8, 9	20%
		Phase 4. Docs 10. 11	20%
		Phase 5. Docs 12, 13	20%
		Phase 6. Final presentation	10%
10.6 Minimum standard of performance			
At least grade 5 (from a scale of 1 to 10)			

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

Not applicable.

Date:
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Signature of course coordinator

Prof. PhD CZIBULA Istvan Gergely

Signature of seminar coordinator

Prof. PhD CZIBULA Istvan Gergely

Date of approval:
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Signature of the head of department

Assoc. prof. phd. Adrian STERCA

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[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.*".