SYLLABUS

Elaboration of the Dissertation Thesis

University year 2025-2026

1. Information regarding the programme

1.1. Higher education institution	Babeş 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	Master
1.6. Study programme/Qualification	High Performance Computing and Big Data Analytics
1.7. Form of education	Full time

2. Information regarding the discipline

2.1. Name of the discipline	*Elaboration of the Dissertation Thesis*					Discipline code	MME3042
2.2. Course coordinator				Assoc. Prof.Dr. Virginia Niculescu			
2.3. Seminar coordinator				Assoc. Prof.Dr. Virginia Niculescu			
2.4. Year of study	2	2.5. Semester	4	2.6. Type of evaluation	V	2.7. Discipline regime	Compulsory

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

3.1. Hours per week	**5**	of which: 3.2 course	**0**	3.3 seminar/laboratory/project	**5**
3.4. Total hours in the curriculum	60	of which: 3.5 course	0	3.6 seminar/laboratory/project	**60**
Time allotment for individual study (ID) and self-study activities (SA)					**hours**
Learning using manual, course support, bibliography, course notes (SA)					8
Additional documentation (in libraries, on electronic platforms, field documentation)					8
Preparation for seminars/labs, homework, papers, portfolios and essays					12
Tutorship					8
Evaluations					4
Other activities:					
3.7. Total individual study hours	40				
3.8. Total hours per semester	100				
3.9. Number of ECTS credits	4				

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	

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	• analysis, design, and implementation of software systems; • proficient use of methodologies and tools specific to programming languages and software systems;
Transversal competencies	•professional communication skills; concise and precise description, both oral and written, of professional results , negociation abilities; • good English communication skills.

6.2. Learning outcomes

Knowledge	- The graduate has the necessary knowledge to devise, model and design of complex software application - The graduate possesses the fundamental knowledge for modelling, being able to analyse real life problems and to translate them in concrete requirements and to design a corresponding software model
Skills	- The graduate has the ability to follow the entire life cycle of software system development - The graduate has the ability to communicate and develop relation and partnerships with industrial partners and with all actors involved in the software development process
Responsibility and autonomy:	- The graduate can use specific language and terminology for software engineering being able to communicate and interact with members of a team - The graduate has the ability of interdisciplinary vision between computer science subdomains in order to combine them in a software system - The graduate proves the capacity to reflect over own learning resources

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

7.1 General objective of the discipline	The course represents the individual work the student performs with the purpose to prepare the Master Degree thesis on a given 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 a thesis - know how to write a technical document (research paper) in several iterations

8. Content

8.1 Course	Teaching methods	Remarks
Bibliography		
8.2 Seminar / laboratory	Teaching methods	Remarks
Establish title and topic	Conversation, debate, case study	
Bibliographic documentation	Conversation, debate, case study	
Synthesis of literature results	Conversation, debate, case study	
Investigate possible original contributions; discuss and debate problem modelling	Conversation, debate, case study	

Thesis writing	Conversation, debate, case study	
Final version of the thesis	Evaluation	
Bibliography M. Frenţiu, I.A.Rus, Metodologia Cerceta rii Ştiinţifice î n Informatica , Ed. Presa Universitara Clujeana , 2014. - 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

- The course respects the IEEE and ACM Curricula Recommendations for Software Engineering studies;
- The course exists at the major universities in Romania offering similar study programs;
- Graduating a master program assumes experience in developing a research project.

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	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.	Portfolio, research report. Assessment by dissertation coordinator	
		1. title and table of contents 2. bibliographical documentation 3. contents v1.0 4. relevance of references, assignment to structure 5. original and experimental contribution 6. full text of the report	10% 20% 20% 10% 10% 30%
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:
...

Signature of course coordinator

.Assoc. Prof.Dr. Virginia Niculescu

Signature of seminar coordinator

Assoc. Prof.Dr. Virginia Niculescu

Date of approval:
...

Signature of the head of department

[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.*".

Assoc.prof.phd. Adrian STERCA