SYLLABUS

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**

2. Information regarding the discipline

2.1 Name of the discipline				**Research Project in High Performance Computing and Big Data Analytics**			
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	**C**	2.7 Type of discipline	**Compulsory**

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

3.1 Hours per week	3	Of which: 3.2 course	0	3.3 seminar/laboratory	3
3.4 Total hours in the curriculum	36	Of which: 3.5 course	0	3.6 seminar/laboratory	36
Time allotment:					hours
Learning using manual, course support, bibliography, course notes					24
Additional documentation (in libraries, on electronic platforms, field documentation)					24
Preparation for seminars/labs, homework, papers, portfolios and essays					36
Tutorship					24
Evaluations					6
Other activities:					-

3.7 Total individual study hours	114
3.8 Total hours per semester	150
3.9 Number of ECTS credits	6

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. Specific competencies acquired

Professional competencies	• Analysis and formalization of problems requiring big data analysis. • Use high performance computing for speeding up the problems to be solved. • Analysis, design, and implementation of software systems for big data analysis or for high performance based systems oriented on different domains. • 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

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 realize a scientific report on a given research topic. This research project is associated to the internship project: the research project is the scientific and experimental documentation
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 technical document (research report) in many iterations

8. Content

8.1 Course	Teaching methods	Remarks
8.2 Seminar / laboratory	Teaching methods	Remarks
1. Establishing the research title/topic - due week 2	Conversation, debate, case studies	
2. Bibliographical documentation - due week 4	Conversation, debate, case studies	
3. Table of contents: version 1.0 - due week 5	Conversation, debate, case studies	
4. Relevance of the bibliographical sources and their assignment to the designed structure - due week 7	Conversation, debate, case studies	
5. Detecting possible original contribution; discussion and decision on experimental modeling – due week 8	Conversation, debate, case studies	
6. Processing of selected documents and writing the paper – first draft of the report – due week 10	Conversation, debate, case studies	
7. Final form of the research report – due week 12	Evaluation	
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

- 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 master program assumes experience in developing a research project

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the grade (%)
10.4 Course			
10.5 Seminar/lab activities	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. The weights are as follows:	Portfolio, research report	
	1. title (10%)		10%
	2. bibliographical documentation (10%)		10%
	3. table of contents v1.0 (10%)		10%
	4. assigning sources to structure (20%)		20%
	5. original contribution + experimental (10%)		10%
	6. final version of the research report (40%)		40%
10.6 Minimum performance standards			
➢ At least grade 5 (from a scale of 1 to 10)			

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

.... Prof. Dr. Anca Andreica