COURSE SYLLABUS

Academic year 2024-2025

1. Programme Information

Higher education institution	**Lucian Blaga University of Sibiu**
Faculty	Faculty of Engineering
Department	Department of Computer Science and Electrical and Electronics Engineering
Field of study	Computer Science and Information Technology
Level of study	Master
Programme of study/qualification	ADVANCED COMPUTING SYSTEMS

2. Course Information

2.1. Name of course	Research Activities			Code	ACS.206.ZO	
2.2. Course coordinator	Assist. Prof. Antoniu Gabriel PITIC, PhD					
2.3. Seminar/laboratory coordinator	Assist. Prof. Antoniu Gabriel PITIC, PhD					
2.4. Year of study[1]	1	2.5. Semester[2]	2	2.6. Evaluation form[3]		A/R
2.7. Course type[4]	O	2.8. The formative category of the course[5]				Z

3. Estimated Total Time

3.1. Course Extension within the Curriculum – Number of Hours per Week					
3.1.a. Lecture	3.1.b. Seminar	3.1.c. Laboratory	3.1.d. Project	3.1.e. Other	Total
				12	**12**
3.2. Course Extension within the Curriculum – Total Number of Hours within the Curriculum					
3.2.a. Lecture	3.2.b. Seminar	3.2.c. Laboratory	3.2.d. Project	3.2.e. Other	Total[6]
				168	**168**

Time Distribution for Individual Study[7]	**Hours**
Learning by using course materials, references and personal notes	
Additional learning by using library facilities, electronic databases and on-site information	20
Preparing seminars / laboratories, homework, portfolios and essays	0
Tutorial activities[8]	12
Exams[9]	
3.3. Total Individual Study Hours[10] *($NOSI_{sem}$)*	**32**
3.4. Total Hours in the Curriculum *($NOAD_{sem}$)*	**168**
3.5. Total Hours per Semester[11] *($NOAD_{sem}$ + $NOSI_{sem}$)*	**200**
3.6. No. of Hours / ECTS	**25**
3.7. Number of credits[12]	**8**

4. Prerequisites (if needed)

4.1. Courses that must be successfully completed first (from the curriculum)[13]	Basic knowledge of programming plus domain knowledge to enable the development of a dissertation.
4.2. Competencies	Bibliographic research skills and of software application development.

5. Conditions (where applicable)

5.1. For course/lectures[14]	Active participation in classes, lecture + discussion, video-projector, whiteboard
5.2. For practical activities (lab/sem/pr/app) [15]	Developing and supporting the planned work. Laboratory with computers usually of the company where is carrying the internship

6. Specific competencies acquired[16]

Number of credits assigned to the discipline[17]		8	Credits distribution by competencies[18]
6.1. Professional competencies	PC5	applies principles of ethics and scientific integrity in research activities	1
	PC15	conducts scientific research	2
	PC18	manages research data	1
	PC20	interact professionally in research and professional environments	1
	PC27	publishes academic research papers	1
6.2. Transversal competencies	TC1	demonstrates commitment	1
	TC4	works in teams	1

7. Course objectives (resulted from developed competencies)

7.1. Main course objective	• Research and development of hardware and software technologies in the field of advanced computing systems • Identify the main sources of information. • To accommodate master students with the practical requirements of the field of computer science. Preparing them to deal with the real challenges of the day-to-day work of their employees. • Forming habits of concepts, methods and developing skills to use computer algorithms to address a variety of problems for specific topic;
7.2. Specific course objectives	Stimulation moral attitude and fairness in evaluating and auto evaluating. Appreciation of work into a team and a work of each member from the team

8. Content

8.2 Practical activities

8.2.c. Project		**Teaching methods[19]**	**Hours**
Project 1	The choice of topic / area of research. Contacting the teacher coordinator. Design research and development plan for the work. Linking the topic with the student's training program, with the competence area of the supervisor and with master specific	Internet search, study in library	17

	studies.		
Project 2	Project Planning. Presentation and discussion of research plan.	Internet search, study in library	24
Project 3	Stages of (methodology in) Research: Research question, Background, Formulate hypothesis, Design experiment, Test hypothesis by collecting data, Analyze results, Publish the research work and Dissemination.	Internet search, study in library	31
Project 4	Analysis and documentation of project requirements. *Documentation stages about state of the art. Finding the research niche.*	Internet search, study in library	24
Project 5	Making "use-case" and development analysis documents. Implementation.	Internet search, study in library	31
Project 6	Collecting data, testing and debugging.	Internet search, study in library	24
Project 7	Complete documentation (report) research emphasizing the practical side of research work undertaken. Brief presentation of theoretical concepts practice devoted exclusively to research carried out. Each student will deliver a technical report (TR), code and PowerPoint presentation (PPT) in which will present the solution proposed. Validation of TR by professor supervisor. Based on the TR it will be developed a scientific paper.	Internet search, study in library	17
Project 8	Project Planning. Presentation and discussion of research plan.	Internet search, study in library	24
		Total lab hours:	168

9. Bibliography

9.1. Recommended Bibliography	The bibliography is based on the chosen theme and approach.

10. Conjunction of the discipline's content with the expectations of the epistemic community, professional associations and significant employers of the specific study program[20]

Periodical discussions with representatives of companies in the area of Computer Engineering.

11. Evaluation

Activity Type	11.1 Evaluation Criteria	11.2 Evaluation Methods		11.3 Percentage in the Final Grade	Obs.[21]
11.4a Exam / Colloquy	• Theoretical and practical knowledge acquired (quantity, correctness, accuracy)	Tests during the semester[22]:	50%	70%	
		Homework:	15%		
		Other activities[23]:	5%		
		Final evaluation:	0%		
11.4d Project	• The quality of the project, the correctness of the	• Self-evaluation, project presentation		30%	

	project documentation, the appropriate justification of the chosen solutions	• Critical evaluation of a project		
11.5 Minimum performance standard[24]	Minimum grade equal with 5,00			

The Course Syllabus will encompass components adapted to persons with special educational needs (SEN – people with disabilities and people with high potential), depending on their type and degree, at the level of all curricular elements (skills, objectives, contents, teaching methods, alternative assessment), in order to ensure fair opportunities in the academic training of all students, paying close attention to individual learning needs.

Filling Date: 13.09.2024

Department Acceptance Date: 16.09.2024

	Academic Rank, Title, First Name, Last Name	Signature
Course Teacher	Assist. Prof. Antoniu Gabriel PITIC, PhD	
Study Program Coordinator	Prof. Adrian FLOREA, PhD	
Head of Department	Assoc. Prof. Radu George CREȚULESCU, PhD	
Dean	Prof. Maria VINȚAN, PhD	

[1] *1-4 for bachelor, 1-2 for master*
[2] *1-8 for bachelor, 1-3 for master*
[3] *Exam, colloquium or VP A/R - from the curriculum*
[4] *Course type: R = Compulsory course; E = Elective course; O = Optional course*
[5] *Formative category: S = Specialty; F = Fundamental; C = Complementary; I = Fully assisted; P = Partially assisted; N = Unassisted*
[6] *Equal to 14 weeks x number of hours from point 3.1 (similar to 3.2.a.b.c.)*
[7] *The following lines refer to individual study; the total is completed at point 3.37.*
[8] *Between 7 and 14 hours*
[9] *Between 2 and 6 hours*
[10] *The sum of the values from the previous lines, which refer to individual study.*
[11] *The sum (3.5.) between the number of hours of direct teaching activity (NOAD) and the number of hours of individual study (NOSI) must be equal to the number of credits assigned to the discipline (point 3.7) x no. hours per credit (3.6.)*
[12] *The credit number is computed according to the following formula, being rounded to whole neighbouring values (either by subtraction or addition*

$$No.credits = \frac{NOCpSpD \times C_C + NOApSpD \times C_A}{TOCpSdP \times C_C + TOApSdP \times C_A} \times 30\ credits$$

Where:

- NOCpSpD = Number of lecture hours / week / discipline for which the credits are calculated
- NOApSpD = Number of application hours (sem./lab./pro.) / week / discipline for which the credits are calculated
- TOCpSdP = Total number of course hours / week in the Curriculum
- TOApSdP = Total number of application hours (sem./lab./pro.) / week in the Curriculum
- C_C/C_A = Course coefficients / applications calculated according to the table

Coefficients	**Course**	**Applications (S/L/P)**
Bachelor	2	1
Master	2,5	1,5
Bachelor - foreign language	2,5	1,25

[13] *The courses that should have been previously completed or equivalent will be mentioned*
[14] *Board, video projector, flipchart, specific teaching materials, online platforms, etc.*
[15] *Computing technology, software packages, experimental stands, online platforms, etc.*
[16] *Competences from the Grids related to the description of the study program, adapted to the specifics of the discipline*
[17] *From the curriculum*
[18] *The credits allocated to the course are distributed across professional and transversal competences according to the specifics of the discipline*
[19] *Case study, demonstration, exercise, error analysis, etc.*
[20] *The relationship with other disciplines, the usefulness of the discipline on the labour market*
[21] *CPE – Conditions Exam Participation; nCPE – Does Not Condition Exam Participation; CEF - Conditions Final Evaluation; N/A – not applicable*
[22] *The number of tests and the weeks in which they will be taken will be specified*
[23] *Scientific circles, professional competitions, etc.*
[24] *The minimum performance standard in the competence grid of the study program is customized to the specifics of the discipline, if applicable*