

SYLLABUS

1. Information regarding the programme

1.1 Higher education institution	Babeş-Bolyai University Cluj-Napoca
1.2 Faculty	Mathematics and Computer Science
1.3 Department	Computer Science
1.4 Field of study	Computer Science
1.5 Study cycle	Bachelor
1.6 Study programme / Qualification	Computer Science English/Romanian

2. Information regarding the discipline

2.1 Name of the discipline (en) (ro)	<ul style="list-style-type: none"> - Designing innovative products - Proiectarea produselor inovative 						
2.2 Course coordinator	Drd. Ileni Tudor Alexandru						
2.3 Seminar coordinator	Drd. Ileni Tudor Alexandru						
2.4. Year of study	3	2.5 Semester	1	2.6. Type of evaluation	VP	2.7 Type of discipline	OP
2.8 Code of the discipline	MLE0095						

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

3.1 Hours per week	2	Of which: 3.2 course	3.3 seminar/laboratory	2
3.4 Total hours in the curriculum	28	Of which: 3.5 course	3.6 seminar/laboratory	28
Time allotment:				hours
Learning using manual, course support, bibliography, course notes				3
Additional documentation (in libraries, on electronic platforms, field documentation)				5
Preparation for seminars/labs, homework, papers, portfolios and essays				10
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	•
4.2. competencies	<ul style="list-style-type: none"> • Write code in a high-level programming language • Being able to work in a software development team • Familiar with versioning control tools as GIT

5. Conditions (if necessary)

5.1. for the course	
5.2. for the seminar /lab activities	<ul style="list-style-type: none">• Use Microsoft Teams for file sharing and news

6. Specific competencies acquired

Professional competencies	<ul style="list-style-type: none">• The discipline will enable the students to understand what innovation means in building a digital product.• Elaboration of the IT components of some interdisciplinary projects.
Transversal competencies	<ul style="list-style-type: none">• The application of the rules of organized and efficient work, of responsible attitudes towards the didactic-scientific field, for the creative exploitation of one's own potential, in compliance with the principles and norms of professional ethics.• The efficient organization of activities in an interdisciplinary group and the development of empathetic capacities for inter-personal communication, relating and collaborating with diverse groups• The use of effective methods and techniques of learning, information, research and development of the capacities to capitalize on knowledge, to adapt to the requirements of a dynamic society and to communicate in the Romanian language and in a language of international circulation

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

7.1 General objective of the discipline	<ul style="list-style-type: none">• The discipline will enable the students to understand what innovation means in building a digital product.
7.2 Specific objective of the discipline	<ul style="list-style-type: none">• Identify and describe a real-world problem• Find a viable digital solution for the identified problem• Define and understand the end user• Using innovative tools and processes, create a digital solution.

8. Content

8.1 Seminar / laboratory	Teaching methods	Remarks
1. Innovation in project Management	discussion, teamwork	
2. Market research, opportunities and needs assessment	discussion, brainstorming, teamwork	
3. Innovation in UX/UI	discussion, brainstorming, teamwork	
4. Customer segmentation, empathy map and persona	discussion, teamwork	
5. Innovative products with AI. Part 1	discussion, case study	
6. Lean Startups Canvas	discussion, teamwork	

7. Innovative products with AI. Part 2	discussion, teamwork	
8. Value proposition design	discussion, case study	
9. IoT and Cloud	discussion, teamwork	
10. Business Model Canvas design 1	discussion, teamwork, research,	
11. Data driven innovation	discussion, research, teamwork	
12. Prototyping	discussion, teamwork	
13. Habit forming products	discussion, case study	
14. Final pitch	evaluation	

Bibliography

- George Anderson, Design Thinking for Tech: Solving Problems and Realizing Value, Pearson, 2023
- Nigel Cross, Design Thinking: Understanding how designers think and work, 2023
- Michael Lewrick, Design Thinking and Innovation Metrics, 2023
- Melissa Schilling, Strategic Management of Technological Innovation, McGrawHill, 2022
- Harold Kersner, Innovation Project Management, Wiley, 2023
- Angelo Bonomi, Technology Innovation: Models, Dynamics, and Processes, CRC Press, 2023
- Richard McCuen, Critical Thinking, Idea Innovation, and Creativity, CRC Press, 2023
- Nir Eyal, Hooked: How to Build Habit-Forming Products, Penguin, 2014
- Jim Collins Jerry, Porras: Built to Last: Successful Habits of Visionary Companies, Random House, 2005.
- Jakob Nielsen and Raluca Budiu: Mobile Usability, MITP-Verlags GmbH & Co. KG, 2013.
- Nielsen Norman Group, World Leaders in Research-Based User Experience <https://www.nngroup.com/>
- Application development for innovative applications <https://learn.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/considerations/apps>

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

- Enhancing the innovative thinking of the students from both business and technical perspectives prepares them for the current more demanding workspaces. The proposed methods are beneficial for them even if they choose to become entrepreneurs and create their own startups, with the innovative solutions, or if they join a company as employee.
- Industry and society demand entrepreneurial and innovation skills to be taught in university

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	Seminar activity	Continuous observation	50%
	Final project pitch	Oral examination	50%
10.6 Minimum performance standards			
<ul style="list-style-type: none"> • At least grade 5 (from a scale from 1 to 10) to pass the discipline • Basic notions of entrepreneurship, and basic product development phases to be acquired 			

Date

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Signature of course coordinator

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Signature of seminar coordinator

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Date of approval

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Signature of the head of department

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