

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	Știința Datelor în Industrie și Societate

2. Information regarding the discipline

2.1 Name of the discipline (en) (ro)		Creativity, Innovation and Transformation Creativitate, inovare și transformare					
2.2 Course coordinator		-					
2.3 Seminar coordinator		-					
2.4. Year of study	1	2.5 Semester	2	2.6. Type of evaluation	E	2.7 Type of discipline	Optional
2.8 Code of the discipline		MME8211					

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

3.1 Hours per week	4	Of which: 3.2 course	2	3.3 seminar/laboratory	2
3.4 Total hours in the curriculum	56	Of which: 3.5 course	28	3.6 seminar/laboratory	28
Time allotment:					hours
Learning using manual, course support, bibliography, course notes					30
Additional documentation (in libraries, on electronic platforms, field documentation)					40
Preparation for seminars/labs, homework, papers, portfolios and essays					41
Tutorship					4
Evaluations					4
Other activities:					-
3.7 Total individual study hours					119
3.8 Total hours per semester					175
3.9 Number of ECTS credits					7

4. Prerequisites (if necessary)

4.1. curriculum	•
4.2. competencies	• programming skills in a high-level language

5. Conditions (if necessary)

5.1. for the course	<ul style="list-style-type: none"> • Projector
5.2. for the seminar /lab activities	<ul style="list-style-type: none"> • For the lab activity, computers with high processing speed are needed.

6. Specific competencies acquired

Professional competencies	<p>C3.1 Description of concepts, theories and models used in the field of application</p> <p>C3.2 Identification and explanation of the basic IT models appropriate to the field of application</p> <p>C3.4 Analysis of data and models</p> <p>C3.5 Elaboration of the IT components of some interdisciplinary projects</p>
Transversal competencies	<p>CT1. Application of efficient work rules and responsible attitudes towards the scientific domain, for the creative exploitation of one's own potential according to the principles and rules of professional ethics</p> <p>CT2. Efficient conduct of activities organized in an interdisciplinary group and development of empathic capacity of interpersonal communication, networking and collaboration with diverse groups</p> <p>CT3. Use of efficient methods and techniques for learning, information, research and development of abilities for knowledge exploitation, for adapting to the needs of a dynamic society and for communication in a widely used foreign language.</p>

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

7.1 General objective of the discipline	To explore the different levels of creativity and understand how to foster a creative environment within the context of computer science.
7.2 Specific objective of the discipline	<p>Discuss the spectrum of creativity levels, from incremental improvements to radical innovations.</p> <p>Explore factors that influence creativity, such as psychological safety, diverse perspectives, and organizational culture.</p> <p>Highlight the importance of creating an environment that encourages experimentation, risk-taking, and idea-sharing.</p> <p>Provide practical strategies for promoting creativity in teams and projects.</p> <p>To equip computer science students with insights into entrepreneurship, co-founder dynamics, and the stages of company development.</p>

8. Content

8.1 Course and seminars	Teaching methods	Remarks
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<p>Topics:</p> <ol style="list-style-type: none"> 1. Innovation and creativity – levels of creativity, creative environments 2. Where do ideas come from? Creative tools, Brainstorming principles and techniques 3. Why should you become a founder? How to pick a co-founder, what are the stages a company goes through? What problems to solve? 4. Roles in the company — who does what, advisors, compensation, culture, hiring, recruiting 5. Customer research, product-market fit, user personas, how to talk to users 6. Thinking styles - principles, Design thinking 7. MVPs - their idea, what to build, how, what's important in an MVP), what to build, how (project canvas, business model) 8. Design & tech — should be easy, straightforward, and solve a single problem 9. What and how to measure - Analytics? Marketing — where how? 10. Finance, investors, rounds, board management 11. Pitch deck <p>Structure:</p> <ul style="list-style-type: none"> • 2 x 6-week projects (could be 3 if the team decides that the second idea does not work, and wants to try another one, but they have to complete it in 6 weeks) • Teams of 2, max 3 people (if they have different areas of interest) <p>Nice to have:</p> <ol style="list-style-type: none"> 1. Would it be possible to receive some marketing budgets from Google or Microsoft for each team (100\$ worth of ads)? 2. What services can we let them use, which are normally paid (Azure? AI tools?) 3. Can we have students from other faculties attend (marketing)? 	<p>Exposure Conversation Practical examples Case-study discussions</p>	
<p>Bibliography</p> <ol style="list-style-type: none"> 1. Developing the Cambridge learner attributes, 2024, link 2. McCormack, J. (2018). Improvisational creativity. <i>Digital Creativity</i>, 29(1), 1-4. 3. Saini, H. S., Sayal, R., Govardhan, A., & Buyya, R. (2022). Innovations in Computer Science and Engineering. <i>Proceedings of the Tenth ICICSE</i>, 1. 4. Giza, P. (2021). Creativity in computer science. <i>Creativity Studies</i>, 14(2), 444-460. 		

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 follows IEEE and ACM curricula recommendations for computer science studies
- The course exists in the studying program of major universities abroad

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the grade (%)
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10.4 Course & seminars	<ul style="list-style-type: none"> • Know basic concepts of the domain • Apply intelligent principles from the course content to solve complex and difficult problems 	Systematic observation of the student during practical work and project implementation	20%
		Number of users - 40% (full — the team with the highest number of users) Engagement - 60% (full - team with the highest engagement)	40%
		Implementation	20%
		final presentation and pitch deck	20%
10.6 Minimum performance standards			
<ul style="list-style-type: none"> • Each student must demonstrate achieving an acceptable level of knowing and understanding the domain, the ability to express knowledge in a coherent form, the capacity to establish certain connections and use knowledge to solve problems. • To pass the exam the student must: <ul style="list-style-type: none"> ○ Realize at least 70% from the project 			

Date

29 martie 2024

Signature of course coordinator

PhD. Dobrean Dragoş

Signature of seminar coordinator

PhD. Dobrean Dragoş

Date of approval

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Signature of the head of department