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	**Computers and Information Technology**
1.5 Study cycle	**Bachelor**
1.6 Study programme / Qualification	**Information Engineering**

2. Information regarding the discipline

2.1 Name of the discipline (en) (ro)				Human-Computer Interfaces Interfete Om-Masina				
2.2 Course coordinator				PhD. Assoc. Prof. Adriana-Mihaela Guran				
2.3 Seminar coordinator				PhD. Assoc. Prof. Adriana-Mihaela Guran				
2.4. Year of study	**4**	2.5 Semester	**7**	2.6. Type of evaluation	**VP**	2.7 Type of discipline	**Compulsory DS**	
2.8 Code of the discipline		MLE5182						

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

3.1 Hours per week	3	Of which: 3.2 course	2	3.3 seminar/laboratory	1 LP
3.4 Total hours in the curriculum	42	Of which: 3.5 course	28	3.6 seminar/laboratory	14

Time allotment:	Hours
Learning using manual, course support, bibliography, course notes	30
Additional documentation (in libraries, on electronic platforms, field documentation)	20
Preparation for seminars/labs, homework, papers, portfolios and essays	20
Tutorship	10
Evaluations	3
Other activities:	

3.7 Total individual study hours	83
3.8 Total hours per semester	125
3.9 Number of ECTS credits	5

4. Prerequisites (if necessary)

4.1. curriculum	●
4.2. competencies	●

5. Conditions (if necessary)

5.1. for the course	• A room with Internet access and presentation devices
5.2. for the seminar /lab activities	• A room with computers and Internet access

6. Specific competencies acquired

Professional competencies	C3.2 Using interdisciplinary knowledge, solution patterns and tools, making experiments and interpreting their results C3.3 Applying solution patterns using specific engineering tools and mehods C3.4 Comparatively and experimentaly evaluation of the alternative solutions for performance optimization C3.5 Developing and implementing information system solutions for concrete problems
Transversal competencies	CT1 Honorable, responsible, ethical behavior, in the spirit of the law, to ensure the professional reputation CT3 Demonstrating initiative and pro-active behavior for updating professional, economical and organizational culture knowledge •

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

7.1 General objective of the discipline	• • Students will understand the role of interdisciplinary approaches in the design of interactive systems and will apply user-centric software design methods.
7.2 Specific objective of the discipline	• Students will be able to identify users' needs and translate them into requirements • Students will be able to design usable and accessible systems • Students will be able to evaluate the usability of a computer product and provide solutions to improve it • Students will be able to develop interactive systems for people with disabilities

8. Content

8.1 Course	Teaching methods	Remarks
1. Introduction • What is Human-Computer Interaction? • HCI history • HCI interdisciplinarity • Why study HCI • HCI in the career of a designer / programmer	Exposition, open discussions, problematization, case studies	
2. Components of the interaction: THE HUMAN • Perception • Memory • Problem solving • Mental models • Human error	Exposition, open discussions, problematization, case studies	
3. Components of the interaction: COMPUTER	Exposition, open	

• Input / output channels • Display devices • Information storage • Information processing • Devices for virtual reality and 3D interaction	discussions, problematization, case studies
4. Components of the interaction: DIALOGUE • Models of interaction • Interaction styles • WIMP interface • Methods for describing the dialogue • Accessibility of information systems	Exposition, open discussions, problematization, case studies
5. Interaction design • The process of designing the interaction • People • Navigation design • Prototyping	Exposition, open discussions, problematization, case studies
6. Models of interaction • Cognitive models • Linguistic models • Physical models	Exposition, open discussions, problematization, case studies
7. Interaction design • Usability principles • Standards • Rules	Exposition, open discussions, problematization, case studies
8. Presentation design (1) • Graphics (widgets) in the human-computer interface • Presentation of graphic elements, criteria and recommendations for their use	Exposition, open discussions, problematization, case studies
9. Presentation design (2) • Presentation of graphic elements, criteria and recommendations for their use	Exposition, open discussions, problematization, case studies
10. Information architecture • Grouping • Alignment • Focus • Spatial layout	Exposition, open discussions, problematization, case studies
11. Usability • Usability definitions • Operationalization of the concept of usability • Usability issues • Heuristics	Exposition, open discussions, problematization, case studies
12. Usability Evaluation • What is evaluation? • Purposes of the evaluation • Evaluation methods	Exposition, open discussions, problematization, case studies
13. Task Analysis in systems design • What is task analysis? • Methods of task analysis: HTA, GTA • Tools for task analysis: CTTE, Euterpe	Exposition, open discussions, problematization, case studies

14. Evaluation • Presentation and evaluation of the team project	Open discussions, problematization, case studies	

Bibliography
1. Alan Dix, Janet Finlay, Gregory D Abowd, Russell Beale - Human-Computer Interaction, Prentice Hall, third edition, 2004
2. Donald A. Norman - Emotional Design - Why we love (or hate) everiday things, basic Books, 2004
3. Martijn van Welie - Task-based User Interface Design, 2001
4. Donald A Norman - The design of everyday things, basic Books, 2013
5. Fabio Paterno - Model-based design and evaluation of interactive applications, Springer, 1999
6. Jennifer Tidwell - Designing Interfaces: Patterns for Effective Interaction Design, O'Reilly, 2020
7. Jacob Nielsen - Usability Engineering, Academic Press, 1993
8. Adriana Guran – Proiectarea sistemelor interactive, Casa Cartii de Stiinta, 2009, 210 pagini
9. Dan Saffer – Designing for Interaction, 2009, ISBN 978-0321432063
10. Ozseven, T., Human-computer interaction (T. Ozseven, Ed.). Nova Science Publishers.2020
11. Becker Cristopher, Learn Human-Computer Interaction: Solve human problems and focus on rapid prototyping and validating solutions through user testing, Packt Publishing, 2020
12. Cipolla-Ficarra, F., & Cipolla-Ficarra, F. V. , Optimizing human-computer interaction with emerging technologies (F. V. (Francisco V. Cipolla-Ficarra, Ed.). IGI Global, 2018
13. Brown, J. N. A., Anthropology-Based Computing Putting the Human in Human-Computer Interaction (1st ed. 2016.). Springer International Publishing. https://doi.org/10.1007/978-3-319-24421-1, 2016
14. Johnson, J., Designing with the Mind in Mind: Simple Guide to Understanding User Interface Design Guidelines, Morgan Kaufmann Publ Inc, 2020

8.2 Seminar / laboratory	Teaching methods	Remarks
1-2. Identifying examples of objects / interfaces with design problems with arguments and proposing solutions		
3. Redesigning the interface of an application made by students to other subjects (eg databases)		
4. Checking the accessibility of web pages of wide interest for people with disabilities using existing tools		
5. User-centered design of an interactive system (prototyping)		
6-7. Evaluating the usability of a computer product designed by students		

Bibliography

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 content of the course influences the development of skills for collecting requirements and developing usable products, knowledge required in the software industry.

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	Project - designing a product using a user-centered approach and evaluating its usability.	Oral presentation of the designed product accompanied by written documentation describing the development process and arguing the design decisions.	50%
	Laboratory Activity		50%
10.6 Minimum performance standards			
➢ Students must operationalize the dimensions of usability in the design of interactive products. Students need to obtain at least grade 5 for each activity (project and laboratory activity).			

Date   Signature of course coordinator   Signature of seminar coordinator

10.05.2022

Date of approval   Signature of the head of department

Prof. dr. Laura Dioşan

24.05.2022