SYLLABUS

1. Information regarding the programme

1.1 Higher education institution	**Babes-Bolyai University**
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**

2. Information regarding the discipline

2.1 Name of the discipline		Design of interactive software systems					
2.2 Course coordinator		Ph. D. Assoc. Professor Adriana-Mihaela Guran					
2.3 Seminar coordinator		Ph. D. Assoc. Prof. Adriana-Mihaela Guran					
2.4. Year of study	**3**	2.5 Semester	**5**	2.6. Type of evaluation	**C**	2.7 Type of discipline	**Optional**

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	42	Of which: 3.5 course	28	3.6 seminar/laboratory	14

Time allotment:	hours
Learning using manual, course support, bibliography, course notes	15
Additional documentation (in libraries, on electronic platforms, field documentation)	5
Preparation for seminars/labs, homework, papers, portfolios and essays	16
Tutorship	4
Evaluations	2
Other activities:	

3.7 Total individual study hours	58
3.8 Total hours per semester	100
3.9 Number of ECTS credits	4

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	- C3.1 Description of concepts, theories and models used in the application domain (HCI) - C3.2 Identification and explanation of basic informatic models for the application domain (HCI) - C3.3 Use of informatic and mathematical models and tools to solve domain specific (HCI) problems - C3.5 Design and development of software components for interdisciplinary projects
Transversal competencies	- CT1 Application of efficient and organized work rules, of responsible attitudes towards the didactic-scientific domain, to creatively value one's own potential, with the respect towards the principles and norms of professional etic. - CT2 Efficient fulfillment of organized activities in an interdisciplinary group and development of empathic abilities of interpersonal communication, relationship and collaboration with various groups - CT3 Use of efficient methods and techniques to learn, inform, research and develop the abilities to value the knowledge, to adapt to requirements of a dynamic society and to communicate in 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	- Students will understand the role of interdisciplinary approaches in the design of interactive software systems - Students will learn how to apply user centered design methods
7.2 Specific objective of the discipline	At the end of the semester students must be able to: - Identify users needs and translate them into requirements - Design usable and accessible interactive systems - Assess the usability of software products and find recommendations to improve it - Develop interactive systems for people with disabilities

8. Content

8.1 Course	Teaching methods	Remarks
1. Introduction - What is HCI? - HCI history - Interdisciplinary aspects of HCI - Why studying HCI	Presentation, discussions, case studies, problem solving	

• HCI in the carrer of a software developer/designer		
2. Interaction components:THE HUMAN • Perception • Memory • Problem solving • Mental models • Human Error	Presentation, discussions, case studies, problem solving	
3. Interaction components: THE COMPUTER • Input/output channels • Output devices • Data storage • Data processing • Virtual reality and 3D interaction devices	Presentation, discussions, case studies, problem solving	
4. Interaction Components: THE DIALOGUE • Interaction models • Interaction styles • WIMP interfaces • Dialogue description methods •	Presentation, discussions, case studies, problem solving	
5. User requirements identification methods • Task analysis • Hierachical Task Analysis, Groupware Task Analysis • Task Analysis Tools: CTTE, Euterpe	Presentation, discussions, case studies, problem solving	
6. Interaction models • Cognitive models • Linguistic models • Physical models	Presentation, discussions, case studies, problem solving	
7. Interaction design • Interaction design process • Personas • Navigation design • Prototying	Presentation, discussions, case studies, problem solving	
8. Designing for accessibility • Disabilities • Accesibility • Accessibility standards • Accessibility assesments tools	Presentation, discussions, case studies, problem solving	
9. Presentation design (1) • Widgets • Criteria, recommendations for widgets usage	Presentation, discussions, case studies, problem solving	
10. Presentation design (2) • Criteria, recommendations for widgets usage	Presentation, discussions, case studies, problem	

	solving	

11. Information Architecture
  • Grouping
  • Flow
  • Focus
  • Layout
	Presentation, discussions, case studies, problem solving	

12. Usability
  • Definitions
  • Concept operationalization
  • Usability problems
  • Usability heuristics
	Presentation, discussions, case studies, problem solving	

13. Usability Assesment
  • What is usability assesment?
  • Usability Assesment goals
  • Usability Assesment Techniques
	Presentation, discussions, case studies, problem solving	

14. Assesment • Team project presentation and evaluation	Discussions, problem solving	

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, 1988
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, 2005
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. http://www.cs.ubbcluj.ro/~adriana/Teaching.html (prezentari PowerPoint)

10. Tom Tullis, William Albert – Measuring the User Experience: Collecting, Analyzing, and Presenting Usability Metrics. Morgan Kaufmann Publishers Inc., San Francisco, CA, USA, 2008

8.2 Seminar / laboratory	Teaching methods	Remarks
Finding examples of bad designed objects and improvements proposal	Discussion, Problem solving, case studies	
Usability teasting with real users of an application previously developed during laboratory classes for other subjects (ex. databases)	Discussion, Problem solving, case studies	
Accessibility assesment of a web page of large interest using an automatic tool Development of a small accessible application	Discussion, Problem solving, case studies	
Heuristic usability evaluation of an application	Discussion, Problem solving, case studies	
Project: user centered design of an interactive application		

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 curricula of this course aligns to the guidelines of ACM and IEEE
- The software organisations recognize the importance of the concepts discussed during this course for the development of usable and user-friendly products

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the grade (%)
10.4 Course	Technical report	Grading for the technical report will be done based on the following criteria: • State of the art in the approached subject • Identification of new problems/solutions to be studied • Quality of references • Oral presentation	15%
10.5 Seminar/lab activities	Project – design of an interactive software application using a User Centered Approach and evaluate its usability	Oral presentation of the designed product. The product must be accompanied by the documentation describing the design process, the design decisions and the usability evaluation results.	50%
	Laboratory Activity		25%
10.6 Minimum performance standards			
⟩ Students have to deliver a working software product that satisfies the client requirements.			

Date	Signature of course coordinator	Signature of seminar coordinator
11.04.2022	Ph.D. Assoc. Prof. Adriana Guran	Ph.D. Assoc. Prof.Adriana Guran

Date of approval   Signature of the head of department

....   Ph. D. Prof. Laura Diosan