Main information on the course

Course name	**Human-Computer Interaction**	
Degree	Computer Science (First-level degree in Computer Science)	
Academic year	2023-2024	
European Credit Transfer and Accumulation System (ECTS), in Italian Crediti Formativi Universitari (CFU)		6 CFU (each CFU corresponds to 25 hours (h) of student's time); CFU are of type T1, T2 or T3 T1 = 8 h lecture + 17 h individual study T2 = 15 h practice + 10 h individual study T3 = 25 h individual study
Settore Scientifico Disciplinare	INF/01	
Course language	Italian	
Course year	Third	
Course period	First Semester—exact dates can be found in the didactic regulations	
Course attendance requirement	None, but it is highly recommended to attend classes	
Website of Computer Science curriculum	https://www.uniba.it/it/corsi/informatica/corso-di-laurea-in-informatica	

Teacher(s)

Name and Surname	Maria Francesca COSTABILE
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e-learning platform	available at https://elearning.uniba.it/
Teacher's homepage	https://ivu.di.uniba.it/people/costabile.htm
Office hours	Office hours: Monday 9:30-11:00 in the lecturer's office. Students may send an email to the teacher to require an appointment also out of the above indicated times

Syllabus	
Course goals	The course on Human-Computer Interaction covers the design of software systems that are not only functional, but also safe, efficient, effective, and pleasurable to use. This includes the design of effective user interfaces, but also implies the comprehension of the nature of the work that people want to perform and the environment in which they perform it. The goal of the course is to illustrate principles, models, methodologies, and techniques for developing interactive user-centered software systems and to prepare students to apply learned concepts in case studies.
Prerequisites/requirements	It is better that the students know programming languages and basic data structures (from the course on "Algorithms and Data Structures"). No prerequisites are required that are not listed in the didactic regulations of the degree (the student is compelled to verify any prerequisites before taking the exam, as otherwise the exam will be invalidated by the administration and the student will need to do the exam again).
Course program	• ***User Interfaces:*** Definitions, Evolutions of interaction paradigms, User interface usability, User Experience, General principles and guidelines for designing user interfaces, Norman interaction model, Styles of interaction, Visual interfaces, Metaphors, Desktop metaphor, Gestalt rules, Designing graphics, designing text, designing for errors. • ***User Centered Design:*** Human-centered design model, Iterative design, Context analysis and user analysis, Prototypes, Evaluation, Wizard of Oz technique, Methods for gathering user requirements, Onsite visits, Interviews, Questionnaires, Scenarios, Personas, Task analysis. Methods to evaluate interactive system usability: inspection methods, heuristics evaluation, cognitive walkthrough, user testing, thinking aloud. Usability metrics, accessibility of interactive systems. • ***Basics of Web Programming:*** HTML5, CSS3, introduction to JavaScript. *Practice.* Application of the methods presented during classes and exercises. Application of User-Centered Design Sprint through a case study (with an emphasis on user requirements analysis, generation of prototypes using Figma, and usability evaluations). Use of HTML5, CSS3, JavaScript.
Books of reference	1. R. Polillo, Facile da usare – Una moderna introduzione alla ingegneria dell'usabilità, Edizioni Apogeo, giugno 2010. 2. Gamberini L., Chittaro L., Paternò F., Human-Computer Interaction I fondamenti dell'interazione tra persone e tecnologie, 2012.
Notes to the books	The content of book 1 is presented and discussed in class; to prepare for the exam, it is strongly recommended to study this book, which is fully available on the web. Book 2 is recommended for students interested in further perspectives on the course content; the student must at least study Chapter 8, which discusses content that is not detailed in book 1. The following books, also available in the library of the Department of Computer Science, are suggested if the students want to deepen their knowledge on specific topic or to search examples used by the teacher: - A. Dix, J. Finlay, G. Abowd, R. Beale, Interazione uomo-macchina, McGraw-Hill, 2004, cap 10. - J. Nielsen, Usability Engineering, Academic Press, Inc, 1993, chapters 1 and 2.

	- S. Lauesen, User Interface Design: A Software Engineering Perspective, Addison Wesley, Pearson Education, 2005, chapter 3. In the e-learning platform, the teacher publishes the slides used for presenting in class the course content, as well as additional material useful for the students. The dates of classes are also available (numbered in order of their date) showing the topic, duration, and type of class (lecture or practice). For each class or group of classes, slides and any additional materials are available to aid the students, especially those who do not attend classes, in studying the specific topic.

Organization of the didactic activities

Hours			
Total (in class)	Lectures (in class)	Practice sessions (in class)	Individual study
62 hours (32 + 30)	32 hours	30 hours	88 hours
CFU/ETCS			
6 CFU	4 CFU	2 CFU	

Teaching methods

	Lectures in class, supported by projected slides or videos that also show examples to better illustrate the discussed topics. Practice sessions on the application of the presented methods and technologies, in class with the aid of the teacher as well as though exercises and/or case studies to develop individually or in groups and to be discussed in class.

Expected learning outcomes

Knowledge and understanding	The main intended learning outcome is knowledge about fundamental principles, paradigms, methodologies, techniques and technologies for user interaction design. Thus, the student wil get the knowledge required to develop user-centered interactive software systems that have the software qualities defined in the ISO 9241 and ISO 25000 standards. This course emphasizes qualitiesthat are meaningful from the user's perspective, particularly usability and User eXperience (UX), also because other qualities are considered in other courses of the curriculum . Students acquire this knowledge both through lectures and possible participation in specific seminars, and through practice and individual or group exercises, at home and/or in the classroom, and case studies that allow them to practice and verify what they have learned, thus gaining awareness of their understanding and how to improve it.

Applying knowledge and understanding	To enable students to apply the knowledge they have acquired, they conduct individual or group exercises, in the classroom and/or at home. Students, particularly those who do not participate to the practice sessions, are required to develop a case study in group, in which they must apply some of the methods presented in class. The evaluation of the performed exercises and the case study contributes to the student's overall evaluation and thus to the grade earned on the final exam.

Other skills	• *Autonomy of Judgment*
	  ○ An important objective of the course is for the student to achieve significant autonomy of judgment regarding: (1) choice of the software qualities to be emphasized in the product to be developed; (2) further decisions during the design and development of the software modules related to user interaction; and (3) management of issues related to the techniques for system design and usability and UX evaluation during the software development process.
	• *Communication Skills*
	  ○ To develop their communication skills, students are encouraged to work in groups and are often asked to present the result of exercises carried out independently or in groups. To this end, students are also required to develop case studies in groups, in which they apply some of the techniques they have learned, possibly selecting those they consider most appropriate (based on their autonomous judgment). For the students who attend the classes, the presentation of the case studies will take place during the semester; for students who do not attend the classes, the resentation is part of the oral examination and allows the student to show his or her communication skills, since he or she must illustrate the work done, possibly using slides he or she has prepared, according to the teacher's instructions.
	• *Ability to Learn Independently*
	  ○ To stimulate the ability to learn independently, in addition to the main textbook, other texts are also suggested to the students to delve into some specific topics of interest, some not covered in detail by the teacher, on which the student can discuss in class and/or report during the exam. Students are invited to attend events or seminars held by other lecturers -of the department or visiting the department, and in successive classes the students are asked to discuss the content of such seminars.

Assessment	
Assessment methods	The assessment of the educational results achieved takes place mainly during the final examination, which includes: 1) a written test in which the student is asked to answer questions, both closed and open, related to the course topics; 2) an oral exam in which the written test is discussed and, if the case study carried out has not yet been presented, the case study is presented with the participation of the entire group that carried it out. The written test takes a maximum of 3 hours (from the moment in which all the students enter the classroom to the moment in which they are all out after the test); the test is performed in one of the classrooms in the Department of Computer Science or in the Classroom Building (the classroom is indicated in the schedule displaying the daily occupancy of classrooms, whose link can be found on the home page of the Department of Computer Science website). Before starting the test, the teacher reminds the students of the exam modalities reported in this document, defines with

	the students the schedule for the oral exam so as to take into account the needs of the students (the first date of this schedule may be later than the date of the oral test indicated on ESSE3 or a successive date), and illustrates the test questions. From the time the test begins, students have about 2 hours to complete it. The exam is therefore organized into two parts, called written and oral part, which are held at different times and often on different days. *Reservation to the exam.* A student who wants to take his or her exam in one of the official dates MUST ALWAYS register on ESSE3 to both the written and oral part of the exam. For each official exam date, it is indicated in ESSE3 the deadline for registering to the exam, which is usually 5 days before the date of the written part of the exam. Therefore, the teacher will not permit to participate to the exam if the student is not registered by the deadline indicated in ESSE3. A student who participates only to the oral part of the exam only to present the the case study with his or her group MUST NOT REGISTER for neither the written nor the oral exam. For the academic year 2023-2024, a middle term partial exam will take place on November 16, 2023. This partial exam is like the written test described above, including closed and open questions related to topics of the first part of the course, i.e., the topics presented up to the class break of the first semester, n; only students who have attended classes in the first part of the semester, i.e., up to the week of class break, may participate in this test. Passing this test exempts the student from discussing the first part of the course during the final exam in the January-February 2024 periods. Such a test is an additional incentive for students to actively attend classes and to study in parallel with the lectures. Students who do not attend classes are strongly recommended to meet with the lecturer at the beginning of the semester to notify that they will not be attending and to provide a contact to the teacher, so that they can be contacted for useful information and for case studies and/or other activities to be performed in groups. To pass the exam, it is recommended to study at least the chapters in reference Book 1 and the material indicated in the e-learning platform.
Evaluation criteria	The written test is evaluated to ascertain the student's acquired knowledge, ability to make independent judgments, and ability to communicate through a written text. Of the written test, the correctness of the answers provided by the student is also assessed and, for the open-ended answers, the ability to summarize, the clarity of exposition, the examples provided to better illustrate what the student reports, the ability to make comparisons among different methodologies, techniques, technologies and to report his/her own critical judgment. During the semester of class, practice sessions are performed, and students present their exercises. This is considered to assess the verbal communication skills, as well as the application of the methods covered in the exercises. Students, particularly those who do not participate in the practice sessions, are required to develop a case study in groups, in which they must apply some of the methods presented in class. The evaluation of the performed exercises and case study contributes to the student's overall grade and thus to the grade earned on the final exam. The case study to be performed is described in the e-learning platform. The case study is given a score from 1 to 5. This score is added to the written test grade only after the student passes the individual written test e, thus determining the final grade. The total score of the questions in the written test is 27. If the final grade reaches or exceeds 32, honors are awarded. For the student who presents the case study in group before taking the written test, the case study score is valid for all exam dates in the academic year in which the case study is presented, so the student can choose to take the exam in any date of that academic year.
Measurements and final grade	The written test includes open-ended questions and exercises on topics of the course; For each question, the maximum score is indicated. Closed-ended questions, each

	worth 0.5 points, are also included. An incorrect answer to a closed-ended question is valued -0.25. Exercises may be given during the semester of class to which the teacher states in advance the score that will be given; this is an additional score that contributes to the final grade. The teacher may assign an additional score that considers the student's active and independent participation in classroom discussions, exercises and other activities conducted during the course.
Further information	Students are advised to rely exclusively on the information/communication provided on the official websites of the degree and of the Department of Computer Science, or also on social groups if they are formed and administered exclusively by the course teacher: • https://www.uniba.it/it/informatica/corsi-di-laurea-in-informatica • https://www.uniba.it/it/ricerca/dipartimenti/informatica • https://elearning.uniba.it/ Information that all students should know is written in the didactic regulations and study plans available on the website: • https://www.uniba.it/it/ricerca/dipartimenti/informatica/didattica/corsi-di-laurea • Students are recommended to be wary of information and materials circulating on unofficial sites or social groups, as they are often found to be unreliable, incorrect or incomplete. If you have any doubts, ask for a meeting with the teacher according to his/her office hours.