MODELLO D (inglese)	
General Information	Academic Year 2020-2021
Academic subject	Human-Computer Interaction for Cyber-Security
Degree course	Computer Science (second-level degree in Computer Science)
Curriculum	
ECTS credits	9
Compulsory attendance	No
Language	English

Subject teacher	Name Surname	Mail address	SSD
	Maria Francesca Costabile	maria.costabile@uniba.it	INF/01

Office Hours	Location	Day and time
	Room 519	Thursday 10.30am - 12.30pm

ECTS credits details			
Basic teaching activities	Lectures (6 credits) Practice session (2 credits) Student small projects or case studies (1 credit)		

Class schedule	
Period	Second semester
Year	First year
Type of class	Lectures, practice session

Time management	
Hours	78
Hours of lectures	48
Hours of practice session	30

Academic calendar	
Class begins	March 1st, 2021
Class ends	June 4th, 2021

Syllabus	
Prerequisites/requirements	There are not mandatory requirements, but it is better if students know basic elements of Human-Computer Interaction (HCI)
Expected learning outcomes (according to Dublin Descriptors) (it is recommended that they are congruent with the learning outcomes contained in the Didactic Regulation and Prospectus a.a. 2017-2018)	*Knowledge and understanding* Cyberattacks are emerging as problems caused not only by technological aspects but also by human factors neglected when designing interactive systems. Thus, it is important for security and privacy experts to have an understanding of how people will interact with the systems they develop. The course's learning outcomes are: 1) students will learn HCI principles, methodologies and techniques that consider security and privacy aspects in developing interactive systems; 2) students will learn about advanced interaction technology for secure systems; 3) by discussing a variety of usability and user-interface problems related to privacy and security, students will make

experience to design studies aimed at evaluating usability issues system security and privacy.

Students acquire this knowledge through teacher's lectures and possibly specific seminars, as well as discussions and exercises through which they practice what they have learned. In this way, they also gain awareness of their understanding and learning skills and on how these skills can be improved.

Applying knowledge and understanding
In order to enable students to apply the acquired knowledge, they perform both individual and collaborative exercises. In addition, students are required to develop, mostly by collaborating in group, small projects and/or case studies in which they apply some of techniques presented in class, having selected the most appropriate ones for the specific case. These projects/case studies contribute to the final assessment of the student and thus to the final grade the student gets for the course.

Making judgements
An important objective of the course is that the student achieves the ability to integrate knowledge, handle complexity and make decisions during the design, development and evaluation of the system software modules related to the interaction with users.
Exercises, projects and case studies performed during the course, which are discussed by teacher and students, are a means to train students to make judgements. This ability is evaluated by the teacher and contributes to the final grade, which also takes into account the active participation of the student to the discussions in class and the presentation of projects/case studies.

Communication
Students are encouraged to work in groups and are often invited to illustrate the outcome of exercises carried out individually or in groups, with the goal of developing their communication and collaboration skills. Students are also required to develop small projects/case studies in which they apply some of the learned techniques, selecting those ones that they feel most appropriate (based on their ability to make judgments). Projects/case studies are presented in class or at the oral examination; this allows the student to demonstrate his/her communicative abilities by illustrating the performed work, possibly using some slides previously prepared.

Learning skills
In order to stimulate their own learning skills, students are solicited to deepen some topics not discussed in detail by the teacher, using the recommended books and/or other sources. Student might present in class these topics and might also discuss them during the final examination.
Students are also invited to attend seminars held by other lecturers, internal to the department or visiting researchers,

	and they might be asked to discuss later in class the content of such seminars.
Contents	
Course program (preliminary)	- Basic concepts of HCI: Interaction design, Usability and User eXperience (UX), Human-centred design (brief recall from previous courses) - Human in the Loop in secure systems - Usable security: password, (biometric) authentication, security devices, warning messages - Usable privacy: access control and policy configuration - Design of user interfaces for secure systems - Principles, guidelines, heuristics and patterns for usable security - Evaluation of usable privacy and usable security - Analysis of qualitative and quantitative data - Privacy and Anonymity Tools - Visualizations for Security **Practice session** Exercise and discussions on: Design and evaluation of prototypes and/or interactive systems, user studies; Application of statistical methods in use studies; Interaction with intelligent systems.
Bibliography	1. Simson Garfinkel, Heather Richter Lipford, "Usable Security – History, Themes and Challenges", Morgan & Claypool, 2014. 2. Preece, J., Rogers, Y., Sharp, H. "Interaction Design, beyond human-computer interaction", John Wiley & Sons, 4th Edition, 2015. 3. Lazar, J., Feng J.K., Hocheiser, H. Research methods in Human-Computer Interaction, 2005, Morgan Kaufmann Publisher, 2nd Edition, 2017. 4. Scientific articles indicated by the teacher.
Notes	Book n. 1 is the textbook; topics of all chapters are discussed in class. Book n. 2: some chapters to look at will be indicated in class. Book n. 3: some chapters to look at will be indicated in class.
Teaching methods	Lectures in class with the support of slides prepared by the teacher. Practice session. Workshop-style sections to deepen with students the topics presented in class and to discuss projects and/or case studies presented by students.
Assessment methods (indicate at least the type written, oral, other)	The main assessment method is the final examination that includes: 1) a written test asking the student to answer both closed and open questions about the course program; 2) an oral exam where the written test is discussed. A partial examination takes place at the middle of the course; it is similar to the written test of the final examination and it is composed of open and/or closed questions on the program already completed. Only students who attend about 90% of the classes can take advantage of this partial examination, in order to stimulate them to attend classes.

	For the students attending classes, projects/case studies are carried out during the class semester. Students who do not attend the classes must meet the teacher at the beginning of the semester so that they may tell the teacher that will not attend the classes and discuss about their projects/case study. The description of the projects/case studies students have to perform will be reported in the area dedicated to the course on the ADA platform used by students.
Evaluation criteria (Explain for each expected learning outcome what a student has to know, or is able to do, and how many levels of achievement there are).	In order to assess the knowledge acquired by student, and also the acquired abilities to make judgments and to communicate as well as their learning skills, the written test (individual) is evaluated on the basis of the correctness of the answers provided by the student and, considering the open answers, his/her ability to synthesise, the clarity of the presentation, the examples provided to better illustrate the written text, the ability to make comparisons and provide their own critical views. Projects and/or case studies will be evaluated by taking into account how they has been thoroughly carried out, the appropriateness of the techniques used, the originality of the solutions, the clarity and the synthesis capabilities that result from the produced documentation (written report and/or slide presentation). The written test scores approximately 80% of the overall examination rating, while project/case studies about 15% and the remaining 5% takes into account the student's active and autonomous participation in classroom discussions, exercises and other activities performed during the course.
Further information	In order to participate to the final exam, students mut make reservation at least 7 days before the date of the written exam and of the oral exam, by using the ESSE3 system. Without reservation in ESSE3, students cannot participate to the exam.