Fakultät für Ingenieurwesen
Facoltà di Ingegneria
Faculty of Engineering

COURSE DESCRIPTION – ACADEMIC YEAR 2025/2026

Course title	**Humans and Systems**
Course code	42800
Scientific sector	IINF-05/A
Degree	Master in Smart Technologies for Sports and Health (LM-32)
Semester	2
Year	1
Credits	12
Modular	Yes

Total lecturing hours	72
Total lab hours	48
Attendance	Preferrable. Non-attending students should contact the lecturer at the start of the course to agree on the modalities of the independent study. Office hours are available throughout the course upon prior contact via email.
Prerequisites	None
Course page	Teams, OLE

Specific educational objectives	The course belongs to the type "caratterizzanti". **MODULE 1: Human-system interaction** • Basic knowledge of the principles of person-system and person-system mediated interaction in terms of user experience evaluation and requirements enabling user-centred design; basic knowledge of different evaluation methods and types of interfaces. **MODULE 2: Sports and health behavior and system recommendation** • Basic knowledge of the concepts of compliance, trust and adoption that may influence technology acceptance, as well as theoretical models of user acceptance; • Basic knowledge of methods to influence human decision-making based on gamification, recommendation systems and pervasive and mobile technology.

Module 1	**Human-system interaction**
Module code	42800A
Module scientific sector	IINF-05/A
Credits	6
Lecturing hours	36
Lab hours	24
Lecturer	Prof. Antonella de Angeli
Contact	Antonella.DeAngeli@unibz.it
Scientific sector of lecturer	IINFO-01/A Informatics
Teaching language	English
Office hours	After consultation and agreement with lecturers
Lecturing assistant (if any)	-
Contact LA	-

Office hours LA	-
List of topics	• Usability engineering: the human factor; • User experience: the human actor; • User-centered design; • User requirements; • Formative and summative evaluation; • Tangible and embodied interfaces; • Mobile and ubiquitous interfaces.
Teaching format	Frontal lectures, group work, and laboratories.

Module 2	**Sports and health behavior and system recommendation**
Module code	42800B
Module scientific sector	IINF-05/A
Credits	6
Lecturing hours	36
Lab hours	24
Lecturer	**Prof. XXX**
Contact	**XXX.XXX@unibz.it**
Scientific sector of lecturer	IINFO-01/A Informatics
Teaching language	English
Office hours	After consultation and agreement with lecturers
Lecturing assistant (if any)	-
Contact LA	-
Office hours LA	-
List of topics	• Compliance, trust and adoption; • Technology acceptance model; • Integrated behavioral model; • Human decision-making and gamification; • Recommender systems; • Pervasive and mobile technology.
Teaching format	Frontal lectures, group work, and laboratories.

Learning outcomes	**Knowledge and understanding** • Knowledge of the basic principles and mechanisms of interaction between users and systems and their application in behavioral control and recommendations. **Applying knowledge and understanding** • Application of knowledge to effectively design user and user-to-user interaction with and via mobile, embedded and robotic systems, and guide users according to objectives. **Making judgments** • Ability to independently select documentation from various sources, including technical literature, digital library, technical and scientific journals, web portals, hardware or open-source software tools; • Ability to set work objectives that are realistic and compatible with available resources;

	Communication skills • Ability to develop and present technical content in English; • Ability to interact and collaborate with peers or professionals in the context of a project or research activity; • Ability to communicate in interdisciplinary teams by classifying technical terms from other disciplines and presenting complex technical concepts in an understandable manner; • Ability to synthesize knowledge acquired through reading and studying scientific and technical documentation; preparation of reports and presentations. **Learning skills:** • Ability to independently and continuously update oneself on developments in the most important areas of smart systems for sport and health; • Ability to expand knowledge, including incomplete knowledge, in the area of problem solving, taking into account the primary objective of the project; • Ability to formulate and test theories and to define new methods through empirical induction and the tools of next-generation scientific research.

Assessment	Final exam: the exam covers the topics addressed in MODULE 1 and MODULE 2 and consists of two parts: ● MODULE 1 (50% of the final exam): Coursework and oral exam The coursework consists of a user-centred design project from ideation to medium-fidelity prototype (a tool the user can interact with). This project verifies whether the student is able to apply the concepts taught or presented in the course to solve concrete interaction design problems. It is assessed through a written report and can be carried out in group of students (normally 4, but may vary due to the class size) only if they are attending the classes. Else, it will be carried out individually.- The oral exam starts from the presentation of the project work including a demo of the artefact. This is performed in group or individually according to how students worked in the course. The presentation lasts 15 minutes and is followed by verification questions to test knowledge application skills and open question to test critical thinking. ● MODULE 2 (50% of the final exam): Coursework and oral exam The coursework consists of the evaluation of a recommender system with respect to usability, user experience and trust. The project

	verifies whether the student is able to apply the concepts taught or presented in the course to understand the impact systems may have on people and make-decisions on adoption. The project is assessed through a written report and can be carried out in group of students (normally 4, but may vary due to the class size) only if they are attending the classes. Else, it will be carried out individually. The oral exam starts from the presentation of the project results This is performed in group or individually according to how students worked in the course. The presentation lasts 15 minutes and is followed by verification questions to test knowledge application skills and open question to test critical thinking.
Assessment language	English
Assessment Typology	Monocratic
Evaluation criteria and criteria for awarding marks	• MODULE 1: The final mark is computed as the average of the oral exam and the project. The exam is considered passed when both marks are valid, i.e., in the range 18-30. Otherwise, the individual valid marks (if any) are kept for all 3 regular exam sessions, until also all other parts are completed with a valid mark. After the 3 regular exam sessions, all marks become invalid. Relevant for the oral exam: clarity of answers; ability to recall principles and methods, and deep understanding about the course topics presented in the lectures; skills in applying knowledge to solve exercises about the course topics; skills in critical thinking. Relevant for the project: skill in applying knowledge in a practical setting; ability to summarize in own words; ability to develop correct solutions for complex problems; ability to write a quality report; ability in presentation; ability to work in teams. Non-attending students have the same evaluation criteria and requirements for passing the exam as attending students. • MODULE 2: The final mark is computed as the average of the oral exam and the project. The exam is considered passed when both marks are valid, i.e., in the range 18-30. Otherwise, the individual valid marks (if any) are kept for all 3 regular exam sessions, until also all other parts are completed with a valid mark. After the 3 regular exam sessions, all marks become invalid. Relevant for the oral exam: clarity of answers; ability to recall principles and methods, and deep understanding about the course topics presented in the lectures; skills in applying knowledge to solve exercises about the course topics; skills in critical thinking.

	Relevant for the project: skill in applying knowledge in a practical setting; ability to summarize in own words; ability to develop correct solutions for complex problems; ability to write a quality report; ability in presentation; ability to work in teams. Non-attending students have the same evaluation criteria and requirements for passing the exam as attending students.

Required readings	All the required reading material will be provided during the course and will be available in electronic format. Copy of the slides will be available as well.
Supplementary readings	Additional reading material will be provided via OLE in electronic format.
Software used	Will be announced in the first lecture