Fakultät für Ingenieurwesen
Facoltà di Ingegneria
Faculty of Engineering

COURSE DESCRIPTION – ACADEMIC YEAR 2023/2024

Course title	**Engineering of Mobile Systems**
Course code	76416
Scientific sector	INF/01
Degree	Bachelor in Informatics and Management of Digital Business (L-31)
Semester	2
Year	2
Credits	6
Modular	No

Total lecturing hours	40
Total lab hours	20
Attendance	Attendance is not compulsory, but is highly recommended, as practical exercises will be done during labs and lectures.
Prerequisites	• Basic web and programming background • Basic principles of Software engineering
Course page	Microsoft Teams

Specific educational objectives	The course belongs to the type "caratterizzante - informatica". Students will learn the key concepts of mobile application development and the internet of things. Practical experience will be gained by using state of the art technologies for the development of mobile applications. Upon completion of the course, students shall have acquired expertise in writing mobile applications that leverage advanced mobile APIs and connect to outside web services, and shall be aware of the various tradeoffs in the development of mobile applications.

Lecturer	Muhammad Azfar Yaqub
Contact	Office POS 1.11, first floor, Faculty of Computer Science, muhammadazfar.yaqub@unibz.it
Scientific sector of lecturer	ING-INF/05
Teaching language	English
Office hours	By previous email appointment.
Lecturing assistant (if any)	--
Contact LA	--
Office hours LA	--
List of topics	• Functional and declarative programming • Design of mobile applications • Frameworks and platforms for mobile development • Data and resource management in a mobile context • Mobile device sensors • Internet of Things
Teaching format	Frontal lectures, in-class exercises, projects in the lab.

Learning outcomes	**Knowledge and understanding:**

- D1.11 - Know software design and development methodologies with particular regard to the mobile environment.

Applying knowledge and understanding:
- D2.6 - Ability to design, describe and present IT solutions to policy makers.
- D2.8 - Ability to develop applications in the web area.

Making judgments
- D3.4 - Ability to assess fundamental economic and business facts on the basis of numerical data.

Communication skills
- D4.4 - Ability to structure and prepare technical documentation.

Learning skills
- D5.3 - Ability to follow rapid technological developments and to learn about innovative aspects of the latest generation of information technology and systems.

Assessment	• Oral exam (50%) • Project and assignments (50%)	
Assessment language	English	
Assessment Typology	Monocratic	
Evaluation criteria and criteria for awarding marks	The students will implement a mobile application as a project. The application should include the topics covered during the lectures and labs. The outputs of the project are: • a written report describing the application (problem statement, proposed solution, application design and architecture, functionality, development problems/solutions) • a working demo of the application • a project presentation The goal of the project is to assess to which degree students have achieved the following learning outcomes: applying knowledge and understanding, making judgments, communication skills and ability to learn. The aim of the written exam is to assess to which degree students have achieved the learning outcomes concerning applying knowledge and understanding, making judgments, communication skills and ability to learn.	

Required readings	Reading material will be provided on the MS teams of the course.	
Supplementary readings	--	
Software used	• React: https://reactjs.org • Native: https://reactnative.dev	• Expo: https://expo.io • Visual Studio Code