

Syllabus

Descrizione corso

Titolo insegnamento	Engineering of Mobile Systems
Codice insegnamento	76416
Titolo aggiuntivo	
Settore Scientifico-Disciplinare	INFO-01/A
Lingua	Inglese
Corso di Studio	Corso di laurea in Informatica e Management delle Aziende digitali
Altri Corsi di Studio (mutuati)	
Docenti	dr. Muhammad Azfar Yaqub, MuhammadAzfar.Yaqub@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/47326
Assistente	
Semestre	Secondo semestre
Anno/i di corso	2
CFU	6
Ore didattica frontale	40
Ore di laboratorio	20
Ore di studio individuale	90
Ore di ricevimento previste	18
Sintesi contenuti	- 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
Argomenti dell'insegnamento	This course provides an introduction to the principles, technologies, and methodologies involved in the development of modern mobile and connected applications. It explores functional and declarative

	programming paradigms, focusing on techniques that improve software modularity, maintainability, and responsiveness through concepts such as reactive programming, immutable data, and declarative user interface design. The course also examines the design and architecture of mobile applications, emphasizing usability, accessibility, responsive interfaces, and scalable software structures. Students gain familiarity with development frameworks, software development kits, and platforms used to create native and cross-platform mobile applications, while also learning about testing, debugging, and deployment processes within contemporary mobile ecosystems.
Parole chiave	- Mobile Application Development - Functional and Declarative Programming - Mobile Frameworks and Platforms - User Interface and User Experience Design - Cross-Platform Development - Native Mobile Development - Mobile Device Sensors
Prerequisiti	- Basic web and programming background - Basic principles of Software engineering
Insegnamenti propedeutici	
Modalità di insegnamento	- Frontal lectures - In-class exercises - Projects in the lab - Work in teams
Obbligo di frequenza	Attendance is not compulsory, but is highly recommended, as practical exercises will be done during labs and lectures.
Obiettivi formativi specifici e risultati di apprendimento attesi	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. - 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.
Obiettivi formativi specifici e risultati di apprendimento attesi (ulteriori info.)	
Modalità di esame	The assignments aim at ensuring a continuous interaction with the course content and will be assessed according to correctness and completeness. The project activity aims at assessing how students approach the development of an application and how they interact with each other in order to achieve a common goal. The oral exam assesses the acquisition and the understanding of the theoretical knowledge presented during lectures.
Criteri di valutazione	Oral exam (50%), assignments/Project (50%). The project and the assignments are valid for the 3 regular exam sessions within the same academic year. The assignments must be submitted during the semester, and the project can be presented before the written exam of the first exam session or before the second regular exam session on the dates announced at the beginning of the semester. Further details will be provided during the lectures and on the course web page.
Bibliografia obbligatoria	Lecture material will be provided on the course page.
Bibliografia facoltativa	Links to mainly online resources will be provided in the course web page.
Altre informazioni	Software used: - React: https://reactjs.org

	- Native: https://reactnative.dev - Expo: https://expo.io - Visual Studio Code
Obiettivi di Sviluppo Sostenibile (SDGs)	Istruzione di qualità