UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Culture e società
ACADEMIC YEAR	2023/2024
BACHELOR'S DEGREE (BSC)	COMMUNICATION SCIENCES
SUBJECT	COMPUTER TECHNOLOGIES FOR THE WEB - WORKSHOP
TYPE OF EDUCATIONAL ACTIVITY	C
AMBIT	10679-Attività formative affini o integrative
CODE	23057
SCIENTIFIC SECTOR(S)	ING-INF/05
HEAD PROFESSOR(S)	PIRRONE ROBERTO Professore Ordinario Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	10
INDIVIDUAL STUDY (Hrs)	150
COURSE ACTIVITY (Hrs)	100
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	1
TERM (SEMESTER)	Annual
ATTENDANCE	Mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**PIRRONE ROBERTO** Wednesday 11:30 13:00 Studio del docente, Edificio 6, terzo piano, stanza 3025

DOCENTE: Prof. ROBERTO PIRRONE

PREREQUISITES	No prerequisites.
LEARNING OUTCOMES	Knowledge and understanding When having attended the course, students will own knowledge and advanced methodologies to both understand and manage all the aspects related to the development of a web-based communication project. She/he will own a clear basic knowledge of the theoretical aspects related to Internet commnunication, and the software architectures encompassing the back-end and the front-end of a web application. Moreover, the student will own deep knowledge of the issue related to the design of a front-end web application, of its tight connection to mobile apps, and of both usability and accessibility concerns. Such an objective will be reached through lessons, and it will be verified through the development of the project work. Applying knowledge and understanding When having attended the course, students will know how the front-end and the back-end of a web application communicate with each other. They will own discrete knowledge of HTML5, CSS, Javascript, JQuery e Bootstrap. Moreover they will have basic knowledge of the React library for developing front-end web applications, and of the visual programming paradigms that use React for fast prototyping. Such an objective will be reached through exercises, and it will be verified through the discussion of the methodological aspects of the project work. Making judgements Students will be able to make judgements on the arrangement of the user interface of a web application, and on the need of applying particular solutions to develop their project work. compare the features of the different imaging modalities for assessing the best suited images and acquisition parameters to be used in different application contexts. Moreover, students will be able to assess the best analysis pipeline to be used for processing such images. To reach this objective, the course is arranged in workgroups for developing case studies, and the presentation of the workgroup results to the whole class. Such an objective will be reached through the partial development of the project work during the class, and it will be verified through the discussion of the design choices during the exam. Communication Students will deepen their computer related lexicon, and in particular the correct language use in the field of web development. They will be able to interact professionally with experts in the field of computer science. Such an objective will be reached through lessons, and it will be verified through the development of the project work. Lifelong learning skills Students will be able to face autonomously whatever text related to the design and development of web systems. With the support of a domain expert, they will be able to acquire knowledge in other programming languages than Javascript as they already know the foundations of OOP. Finally, they will be able to gain new knowledge in the field of software architectures for web applications. To reach such objective, the course is arranged in workgroups for analyzing some case studies related to the development of a complete pipeline for medical image analysis; moreover, the workgroup results will be presented to the whole class. Such an objective will be reached through exercises and project work, and it will be verified through the discussion of the design choices during the exam.
ASSESSMENT METHODS	Final examination is arranged as the discussion of the technical details of a web application designed by groups of students. Evaluation will be based on verifying the methodological correctness of the design; also correct use of language will be evaluated along with the ability to deepen the topics outlined during the discussion. An approximate grade ranking follows: •18-23: sufficient or limited knowledge of web design techniques, and the related aspects of Computer-Human Interaction. •24-26: discrete knowledge of web design techniques, and the related aspects of Computer-Human Interaction. •27-28: good knowledge of web design techniques, and the related aspects of Computer-Human Interaction. •29-30: very good knowledge of web design techniques, and the related aspects of Computer-Human Interaction. With the final decision of the teacher, particular excellence and originality in designing the web application along with autonomous deepening of the related CHI topics, will allow for receiving honors.

EDUCATIONAL OBJECTIVES	The Laborarory of “Information Technology for the Web” is aimed at providing students with advanced skills related to web technologies as regards content presentation, and a solid knowledge of the software architecture of a web application as regards both the implementation of the back-end and the tight link between web and mobile applications. Professional design of web application will be faced with a particular focus on usability and accessibility. The Lab allows acquiring 10 ECTS, and it is arranged in lessons, exercises, and a project work for developing a complete front-end web application. Lessons will start describing both the architecture and the functions of the Internet. Next we will move to studying HTML5 and CSS3 to develop simple web pages. The main concepts of the Document Object Model (DOM) will be introduced, then core Javascript will be studied. The lessons will continue studying the web oriented Javascript features as DOM and style manipulation, event management, and asynchronous requests to the server. Next JQuery and Bootstrap will be faced to allow developing an entire web front-end. Base React will be faced to understand multi-platform front-end development, along with some framework for programming it visually. Finally, concepts of Computer-Human Interaction, Information Architecture, and User Experience fro web development will be introduced. The Lab will end with the start of the project work.
TEACHING METHODS	Lessons, exercises, and workgroups for designing a complete web application.
SUGGESTED BIBLIOGRAPHY	Materiale in forma elettronica fornito dal docente.

SYLLABUS

Hrs	Frontal teaching
1	Introduction
9	Internet, HTML5, CSS3, DOM
10	Base Javascript
10	Advanced Javascript: DOM and style manipulation, asynchronous requests
10	JQuery and Bootstrap
10	React for building multi-platform front-ends
5	Introduction to Computer Human Interaction

Hrs	Practice
5	Building a HTML5/CSS3 page
5	OOP programming in Javascript
5	Manipulating the DOM and the style in Javascript
5	Event management and asynchronous requests
8	Building a complete front-end in JQuery/Bootstrap
7	Using React

Hrs	Others
10	Developing a complete front-end application, starting form a case study proposed by the teacher