



WEB AND MULTIMEDIA TECHNOLOGIES

Enrollment year	2020/2021
Academic year	2021/2022
Regulations	DM270
Academic discipline	ING-INF/05 (DATA PROCESSING SYSTEMS)
Department	DEPARTMENT OF ELECTRICAL, COMPUTER AND BIOMEDICAL ENGINEERING
Course	COMPUTER ENGINEERING
Curriculum	Embedded and Control Systems
Year of study	2°
Period	1st semester (27/09/2021 - 21/01/2022)
ECTS	6
Lesson hours	52 lesson hours
Language	English
Activity type	WRITTEN AND ORAL TEST
Teacher	PORTA MARCO (titolare) - 6 ECTS
Prerequisites	Basic knowledge of Internet technologies (client/server architectures, protocols, etc.).
Learning outcomes	<p>The student must be able to:</p> <ul style="list-style-type: none">- Understand the theoretical and practical bases of web technologies and of on-line and off-line multimedia;- Apply web and multimedia technologies to build static, dynamic, and interactive websites;- Critically select the best web and multimedia technologies depending on the application contexts.
Course contents	<p>- On-line/off-line Multimedia:</p> <p>. Images and graphics: color, bitmap graphics (global/local/pixel-level editing), vector (object-oriented) graphics, overview of graphic formats</p>

(characteristics, use), graphics for the Web (requirements, tools);

- . Digital audio: characteristics, formats, use;
- . Digital animation: bitmap animation, vector animation;
- . Digital video: formats, non-linear editing, requirements for the Web;

- Elements of off-line Multimedia.

- World Wide Web:

- . HTML language;
- . Cascading Style Sheets (CSS);
- . XML technologies;
- . Client-side interaction (JavaScript, Java);
- . Server-side interaction (CGI programs and application servers);
- . Content Management Systems (CMS);
- . Web 2.0;
- . Semantic Web;
- . Some HTML/CSS/JavaScript templates and frameworks;
- . Elements of Web Styling, Usability, Accessibility, and Information Architecture.

- Advanced forms of interaction in Multimedia:

- . Mobile technologies;
- . Elements of (immersive/non-immersive) virtual reality, augmented reality, telepresence, and perceptual interfaces.

Teaching methods

The course is structured into theory lectures (36 hours) and practical classes (16 hours).

Reccomended or required readings

Mainly slides and links to on-line material.

Assessment methods

Written test composed of open questions and exercises (optionally followed by an oral exam) and project (implementation of a dynamic website).

Further information

Sustainable development goals - Agenda 2030

Goal 9: Industry, Innovation and Infrastrucure:

- 9.1 Develop quality, reliable, sustainable and resilient infrastructures;
- 9.4 By 2030, upgrade infrastructures and modernize industries to make them sustainable;
- 9.5 Strengthen scientific research, promote the technological capabilities of industrial sectors in all countries.

[\\$lbi legenda sviluppo sostenibile](#)