

COURSE OUTLINE

GENERAL

SCHOOL	Sciences and Engineering		
ACADEMIC UNIT	Computer Science		
LEVEL OF STUDIES	1 st Cycle		
COURSE CODE	COMP-289	SEMESTER	Spring
COURSE TITLE	Web and Mobile Development		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	WEEKLY TEACHING HOURS	CREDITS	
	2.5	6	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Specialization		
PREREQUISITE COURSES:	COMP-113		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	English		
IS THE COURSE OFFERED TO ERASMUS STUDENTS			
COURSE WEBSITE (URL)			

LEARNING OUTCOMES

<p>Learning outcomes <i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> ● <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> ● <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> ● <i>Guidelines for writing Learning Outcomes</i>
<p>After completion of the course students are expected to be able to:</p> <ul style="list-style-type: none"> ● Understand the principles of UI/UX design for web and mobile applications and apply user-centric design methodologies. ● Develop basic web pages using HTML(5) markup and employ the use of CSS(3) templates to style them. ● Apprehend the basic JavaScript syntax to write scripts for dynamic page interaction. ● Understand the structure and function of the Document Object Model (DOM) and employ JavaScript to manipulate the DOM. ● Comprehend the Model View Controller (MVC) architecture and apply MVC principles for

front-end development.

- Design responsive web pages that employ reusable web components with React.
- Explain the HTTP protocol and its role in web design.
- Apprehend the use of AJAX for asynchronous web requests.
- Design RESTful APIs and backend services using NodeJS.
- Apprehend the principles behind event-driven web services and embrace the listener/emitter pattern effectively.
- Manage state within the front-end with user sessions and cookies.
- Apprehend how to access mobile device components over different mobile development platforms (iOS, Android) and expose functionality for data processing and push notifications.
- Create basic mobile applications using relevant programming languages for popular mobile development environments.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology

Adapting to new situations

Decision-making

Working independently

Team work

Working in an international environment

Working in an interdisciplinary environment

Production of new research ideas

Project planning and management

Respect for difference and multiculturalism

Respect for the natural environment

Showing social, professional and ethical responsibility and sensitivity to gender issues

Criticism and self-criticism

Production of free, creative and inductive thinking

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Others...

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Search for, analysis and synthesis of data and information, with the use of the necessary technology

Adapting to new situations

Decision-making

Working independently

Project planning and management

Criticism and self-criticism

Production of free, creative and inductive thinking

SYLLABUS

- The HyperText Markup Language (HTML) and Cascading Style Sheets (CSS)
- JavaScript for Client-Side Programming
- The Document Object Model (DOM)
- Front-End Programming – The Model View Controller Paradigm
- Responsive Web Design with React
- Web Application Design (HTTP, AJAX, REST, Session Management)
- API Development with NodeJS/ExpressJS
- Mobile Development Platforms (iOS/Android) and Programming Languages
- User Interface Design using Storyboards and Interface Builders for Mobile Apps
- Mobile Apps Accessing Device Features

TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face-to-face														
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	<i>Use of ICT in teaching / Χρήση ΤΠΕ</i> <i>Communication with students / Επικοινωνία με Φοιτητές</i>														
TEACHING METHODS <i>The manner and methods of teaching are described in detail.</i> <i>Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</i> <i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><i>Activity</i></th> <th style="text-align: center;"><i>Semester workload</i></th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td style="text-align: center;">35</td> </tr> <tr> <td>Preparation, homework, quizzes</td> <td style="text-align: center;">48</td> </tr> <tr> <td>Projects</td> <td style="text-align: center;">40</td> </tr> <tr> <td>Exam preparation</td> <td style="text-align: center;">25</td> </tr> <tr> <td>Final Exam</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Course total</td> <td style="text-align: center;">150</td> </tr> </tbody> </table>	<i>Activity</i>	<i>Semester workload</i>	Lectures	35	Preparation, homework, quizzes	48	Projects	40	Exam preparation	25	Final Exam	2	Course total	150
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STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i> <i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i> <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	Final Exam 40% Homework Assignments 20% Midterm 20% Project 15% Class Participation 5%														

ATTACHED BIBLIOGRAPHY

Required Textbooks / Readings:				
Title	Author(s)	Publisher	Year	ISBN
Learning Web Design: A Beginner's Guide to HTML, CSS, JavaScript, and Web Graphics, 5e.	Jennifer Robbins	O'Reilly	2018	978- 1491960202
Programming the Mobile Web, 2e.	Maximiliano Firtman	O'Reilly	2018	978- 1449334970
React Native in Action	Nader Dabit	Manning	2019	978-1617294051

Developing iOS and Android apps with JavaScript				
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Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
HTML and CSS: Design and Build Websites	Jon Duckett	John Wiley & Sons	2011	978- 1118008188
Kotlin Design Patterns and Best Practices - Second Edition: Build scalable applications using traditional, reactive, and concurrent design patterns in Kotlin, 2e	Alexey Soshin	Packt	2022	978- 1801815727