

## SYLLABUS

### 1. Data about the program of study

1.1 Institution	Technical University of Cluj-Napoca
1.2 Faculty	Faculty of Electronics, Telecommunications and information Technology
1.3 Department	Applied Electronics
1.4 Field of study	Electronic Engineering, Telecommunications and Information Technologies
1.5 Cycle of study	Bachelor of Science
1.6 Program of study / Qualification	Applied Electronics / Engineer
1.7 Form of education	Full time
1.8 Subject code	35.00

### 2. Data about the subject

2.1 Subject name	Web Technologies						
2.2 Subject area	Theoretical area Methodological area Analytic area						
2.3 Course responsible	Assist. Prof. Jano Rajmond, PhD eng. <a href="mailto:Rajmond.Jano@ael.utcluj.ro">Rajmond.Jano@ael.utcluj.ro</a>						
2.4 Teacher in charge with seminar / laboratory / project	Assist. Prof. Jano Rajmond, PhD eng. <a href="mailto:Rajmond.Jano@ael.utcluj.ro">Rajmond.Jano@ael.utcluj.ro</a> Eng. Ilies Adelina Ioana, PhD student <a href="mailto:Adelina.Ilies@ael.utcluj.ro">Adelina.Ilies@ael.utcluj.ro</a>						
2.5 Year of study	III	2.6 Semester	1	2.7 Assessment	V	2.8 Subject category	DS/DI

### 3. Estimated total time

3.1 Number of hours per week	4	of which: 3.2 course	2	3.3 seminar / laboratory	2
3.4 To Total hours in the curriculum	56	of which: 3.5 course	28	3.6 seminar / laboratory	28
Distribution of time					hours
Manual, lecture material and notes, bibliography					28
Supplementary study in the library, online specialized platforms and in the field					28
Preparation for seminars / laboratories, homework, reports, portfolios and essays					7
Tutoring					2
Exams and tests					4
Other activities: .....					-
3.7 Total hours of individual study	69				
3.8 Total hours per semester	125				
3.9 Number of credit points	5				

### 4. Pre-requisites (where appropriate)

4.1 curriculum	
4.2 competence	- Basic principles of computer operation - Basic principles of navigation and Internet use - Basic HTML principles

### 5. Requirements (where appropriate)

5.1. for the course	Amphitheatre, Cluj-Napoca
5.2. for the seminars / laboratories / projects	Laboratory, Cluj-Napoca

## 6. Specific competences

Professional competences	<p>C3. Application of the theoretical knowledge, the concepts and the methods used in designing and programming of microprocessor-based systems.</p> <ul style="list-style-type: none"> <li>- C3.2. Knowledge on the use of microprocessor programming for electronic/ telecommunications applications and interpretation of the experimental results</li> <li>- C3.3. Skills on designing hardware-software solutions to solve practical problems in the electronic/telecommunications field</li> <li>- C3.4. Abilities on microprocessor programming, starting from functional specifications, development, debugging and interpretation of the results</li> <li>- C3.5. Skills on the designing and implementation of microprocessor-based hardware and software solutions</li> </ul> <p>C4. Design and use of low complexity hardware and software applications specific to the applied electronics</p> <ul style="list-style-type: none"> <li>- C4.1 Defining the concepts, principles and methods used in the fields: computer programming, high-level and specific languages, CAD techniques for making electronic modules, microcontrollers, computer systems architecture, programmable electronic systems, graphics, reconfigurable hardware architectures</li> <li>- C4.2 Explanation and interpretation of the specific requirements of the hardware and software structures in the fields: computer programming, high-level and specific languages, CAD techniques for making electronic modules, microcontrollers, computer systems architecture, programmable electronic systems, graphics, reconfigurable hardware architectures</li> <li>- C4.4 Use of appropriate performance criteria for the evaluation, including by simulation, of hardware and software of dedicated systems or of service activities in which microcontrollers or computing systems of reduced or medium complexity are used</li> </ul> <p>C5. To apply knowledge, concepts and basic methods from power electronics, automated systems, electric energy management, electromagnetic compatibility</p> <ul style="list-style-type: none"> <li>- C5.3 Elaboration of technical specifications, installation and operation of equipment in the fields of applied electronics: power electronics, automatic systems, electricity management, medical electronics, electronics</li> </ul>
Cross competences	N.A.

## 7. Discipline objectives (as results from the key competences gained)

7.1 General objective	Development of competencies in the field of design and front-end implementation for web technologies
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7.2 Specific objectives	<ol style="list-style-type: none"> <li>1. Assimilation of theoretical and practical knowledge regarding the operation and implementation of web pages</li> <li>2. Obtaining the skills to create user friendly, interactive and responsive web pages.</li> <li>3. Uploading and storing user data from the web</li> </ol>
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## 8. Contents

8.1 Lecture (syllabus)	Teaching methods	Notes
<p>Course content. Bibliography. Method of evaluation. The Internet, computer networks, WWW. URI, URL, URN. HTTP (S). ISP, DNS. Speed, equipment and means of data transmission</p> <p>Static vs. web pages dynamic. Front-end and back-end. Server and client. The structure of a web page. HTML. Common tags and attributes. Choosing an editor.</p> <p>CSS in HTML. CSS syntax. CSS selectors. IDs and classes. Selector combinations. Priority of selectors. Inheritance. Stylizing the color, the font. Specifying the dimensions in CSS. Positioning of the elements. Transparency and shadows.</p> <p>CSS. Animations. Variable in CSS. Media queries. Float and display. Flexbox. CSS grid. Importing CSS files. CSS browser support. Examples.</p> <p>SASS and SCSS. Installing SASS. Compiling SASS / SCSS in CSS. Nesting. Variables. Functions. Operators. Mixins. Enlargement and inheritance. Partial and imports. Conditional instructions. Example of responsive SCSS. LESS</p> <p>CSS frameworks. Bootstrap 4. Bootstrap 4 components. Bootstrap 4 demo.</p> <p>JavaScript. Including JavaScript in HTML. Identifying elements in HTML. Output. Instructions. Keywords. Comments. Variables. Vectors. Operators. Functions. Objects.</p> <p>JavaScript. Events. Conditional instructions. Loops. Strict mode. Handling errors. Troubleshooting. Style guide and coding conventions. Useful practices. Common mistakes. Performance suggestions.</p> <p>JavaScript. HTML DOM. HTML BOM. Timing of events. Local storage. Examples.</p> <p>JavaScript. JSON and AJAX</p> <p>jQuery. Syntax. Selectors. Events and methods. Cross DOM. Animations. AJAX with jQuery. Examples. Templating engines.</p> <p>Angular. Creating a project. The structure of a project. Building a project in Angular. Deployment of an Angular project.</p>	<p>Presentation. Discussions</p>	<p>Projector</p>

Bibliography		
<ol style="list-style-type: none"> <li>1. Online courses: <a href="http://www.ael.utcluj.ro">www.ael.utcluj.ro</a> -&gt; Information for Students-&gt; Educational materials -&gt; Web Technologies</li> <li>2. Online tutorials: <a href="http://www.w3schools.com">www.w3schools.com</a></li> </ol>		
8.2 Seminar / laboratory / project	Teaching methods	Notes
Introduction of laboratory equipment. The Internet, computer networks, WWW. URI, URL, URN. HTTP (S). ISP, DNS. Speed, equipment and means of data transmission	Presentation. Discussions	Computer, Microsoft Office 365 Suite, Microsoft Windows 10, Visual Studio Code, browser
Static vs. web pages dynamic. Front-end and back-end. Server and client.		
The structure of a web page. HTML. Common tags and attributes. Choosing an editor.		
CSS in HTML. CSS syntax. CSS selectors. IDs and classes. Selector combinations. Priority of selectors. Inheritance. Stylizing the color, the font. Specifying the dimensions in CSS. Positioning of the elements. Transparency and shadows.		
CSS. Animations. Variable in CSS. Media queries. Float and display. Flexbox. CSS grid. Importing CSS files. CSS browser support. Examples.		
SASS and SCSS. Installing SASS. Compiling SASS / SCSS in CSS. Nesting. Variables. Functions. Operators. Mixins. Enlargement and inheritance. Partial and imports. Conditional instructions. Example of responsive SCSS. LESS		
CSS frameworks. Bootstrap 4. Bootstrap 4 components. Bootstrap 4 demo.		
JavaScript. Including JavaScript in HTML. Identifying elements in HTML. Output. Instructions. Keywords. Comments. Variables. Vectors. Operators. Functions. Objects.		
JavaScript. Events. Conditional instructions. Loops. Strict mode. Handling errors. Troubleshooting. Style guide and coding conventions. Useful practices. Common mistakes. Performance suggestions.		
JavaScript. HTML DOM. HTML BOM. Timing of events. Local storage. Examples.		
JavaScript. JSON and AJAX		
jQuery. Syntax. Selectors. Events and methods. Cross DOM. Animations. AJAX with jQuery. Examples. Templating engines.		
Angular. Creating a project. The structure of a project. Building a project in Angular. Deployment of an Angular project.		
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2. Online tutorials: [www.w3schools.com](http://www.w3schools.com)

### 9. Bridging course contents with the expectations of the representatives of the community, professional associations and employers in the field

The discipline content and the acquired skills are in agreement with the expectations of the professional organizations and the employers in the field, where the students carry out the internship stages and/or occupy a job (in the field of Web Technologies), and the expectations of the national organization for quality assurance (ARACIS).

### 10. Evaluation

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade
10.4 Course	The level of acquired theoretical knowledge and practical skills	Two evaluations during the semester (written and practical)	17.5% 22.5%
10.5 Seminar/ Laboratory	The level of acquired knowledge and abilities	Two evaluations during the semester (written and practical)	27.5% 32.5%
10.6 Minimum standard of performance			
<b>Quality level:</b> Minimum knowledge: <ul style="list-style-type: none"> <li>✓ Knowledge of CSS in HTML</li> <li>✓ Knowledge of CSS frameworks</li> <li>✓ Knowledge of JavaScript (JavaScript in HTML, Events, Handling errors)</li> </ul> Minimum competences: <ul style="list-style-type: none"> <li>✓ To design the front end of a web page</li> <li>✓ Use specific frameworks (Bootstrap) for styling a web page</li> <li>✓ Import and save data using AJAX calls</li> </ul> <b>Quantitative level:</b> <ul style="list-style-type: none"> <li>✓ Perform all laboratory work</li> <li>✓ The exam and laboratory marks must be at least 5</li> </ul>			

Date of filling in:	Responsible	Title Surname NAME	Signature
23.06.2023	Course	Assist. Prof. Jano Rajmond, PhD eng.	
	Applications	Assist. Prof. Jano Rajmond, PhD eng.	
		Eng. Ilies Adelina Ioana, PhD Stud.	

Date of approval in the Department of Applied Electronics

30.06.2023

Head of Department

Prof. Dorin PETREUS, PhD Eng.

Date of approval in the Council of Faculty of Electronics,  
Telecommunications and Information Technology

12.07.2023

Dean

Prof. Ovidiu Aurel POP, PhD eng.