syllabus

1. Information regarding the programme

1.1 Higher education institution	Babeş-Bolyai University
1.2 Faculty	Faculty of Mathematics and Computer Science
1.3 Department	Department of Computer Science
1.4 Field of study	Computers and Information Technology
1.5 Study cycle	Bachelor
1.6 Study programme / Qualification	Information Engineering

2. Information regarding the discipline

2.1 Name of the discipline (en) (ro)	Web Programming Programare Web						
2.2 Course coordinator	Lect. PhD. Bădărînză Ioan						
2.3 Seminar coordinator	Lect. PhD. Bădărînză Ioan						
2.4. Year of study	2	2.5 Semester	4	2.6. Type of evaluation	E	2.7 Type of discipline	Compulsory DS
2.8 Code of the discipline	MLE5015						

3. Total estimated time (hours/semester of didactic activities)

3.1 Hours per week	4	Of which: 3.2 course	2	3.3 seminar/laboratory	2 LP
3.4 Total hours in the curriculum	56	Of which: 3.5 course	28	3.6 seminar/laboratory	28
Time allotment:					hours
Learning using manual, course support, bibliography, course notes					20
Additional documentation (in libraries, on electronic platforms, field documentation)					20
Preparation for seminars/labs, homework, papers, portfolios and essays					30
Tutorship					9
Evaluations					15
Other activities:					0

3.7 Total individual study hours	94
3.8 Total hours per semester	150
3.9 Number of ECTS credits	6

4. Prerequisites (if necessary)

4.1. curriculum	• • Computer Networks, Distributed Operating Systems, Databases, Data Structures and Algorithms, Object Oriented Programming
4.2. competencies	• • Elementary knowledge on working with an SQL database server, fundamental knowledge about the structure of the Internet and the way the Internet works, basic knowledge on data structures and algorithms, programming languages, object oriented programming.

5. Conditions (if necessary)

5.1. for the course	• • Class rooms with a video projector device
5.2. for the seminar /lab activities	• •

6. Specific competencies acquired

Professional competencies	Identifying and describing technologies, programming environments and various concepts that are specific to programming engineering Explaining the role, interaction and operation patterns of software system components Developying specifications and designing information systems using specific methods and tools Managing the life cycle of hardware, software and communications systems based on performance evaluation Developing, implementing and integrating software solutions
Transversal competencies	Honorable, responsible, ethical behaviour, in the spirit of the law, to ensure the professional reputation Demonstrating initiative and pro-active behaviour for updating professional, economical and organisational culture knowledge

7. Objectives of the discipline (outcome of the acquired competencies)

7.1 General objective of the discipline	• • To introduce students to modern techniques for web programming using both server-side and client-side technologies. The course is meant as an introductory course in web technologies.
7.2 Specific objective of the discipline	• • Understanding how the World Wide Web is built and functions • • Knowing the main technologies/languages used in web development: HTML/XML, CSS, Javascript/DOM, PHP, JSP/Servlet, ASP.NET

8. Content

8.1 Course	Teaching methods	Remarks
1. WWW history and concepts: The Internet addressing mechanism, name servers, URLs and URIs	Exposure: description, explanation, examples, discussion of case studies	
2. HTML – HyperText Markup Language. HTML 5	Exposure: description, explanation, examples, discussion of case studies	
3. HTTP – HyperText Transfer Protocol	Exposure: description, explanation, examples, discussion of case studies	
4. CSS – Cascading Style Sheets. CSS3. Responsive design. Web fonts and icons. CSS preprocessors.	Exposure: description, explanation, examples, discussion of case studies	
5. XML languages. XHTML, XML, XSLT	Exposure: description, explanation, examples, discussion of case studies	

6. DOM – Document Object Model. The Javascript language: fundamental concepts, functions, objects, collections, async programming (setTimeout, promises). Javascript browser API.	Exposure: description, explanation, examples, discussion of case studies	
7. Javascript	Exposure: description, explanation, examples, discussion of case studies	
8. Javascript libraries: jQuery	Exposure: description, explanation, examples, discussion of case studies	
9. Javascript frameworks: Angular	Exposure: description, explanation, examples, discussion of case studies	
10. JSON – Javascript Object Notation	Exposure: description, explanation, examples, discussion of case studies	
11. Server-side technologies: CGI (Common Gateway Interface. AJAX	Exposure: description, explanation, examples, discussion of case studies	
12. Server-side technologies: PHP	Exposure: description, explanation, examples, discussion of case studies	
13. Server-side technologies: JSP and Java servlets	Exposure: description, explanation, examples, discussion of case studies	
14. Server-side technologies: JSP and Java servlets	Exposure: description, explanation, examples, discussion of case studies	

Bibliography

1. http://www.cs.ubbcluj.ro/~ionutb/PW
2. Anghel T. Dezvoltarea aplicatiilor web folosind XHTML, PHP si MySQL. Editura Polirom, Iasi, 2005 3. Boian F. M. Programare distribuita în Internet; metode si aplicatii. Editura Albastra, MicroInformatica, Cluj, 2005
4. Boian F.M., Boian R.F. Tehnologii fundamentale Java pentru aplicatii Web. Editura Albastra, MicroInformatica, Cluj, 2005
5. Buraga S. Tehnologii web. Editura Matrix Rom, Bucuresti, 2001
6. Buraga S. Proiectarea siturilor web. Editura Polirom, Iasi, 2002
7. Castro E. HTML for the World Wide Web with XHTML and CSS. 5'th edition, Visual QuickStart Guide, 2004
8. Hall M., Brown L. Core web programming. 2nd edition. Prentice Hall, 2001
9. Negrino T., Smith D. JavaScript for the World Wide Web. 4th edition, Visual QuickStart Guide, 2001
10. Varlan C. Macromedia FLASH; concepte, exemple, studii de caz. Editura Polirom, Iasi, 2004
11. W3Schools Online Web Tutorials, http://www.w3schools.com
12. http://www.php.net
13. Flanagan David, Javascript: The Definitive Guide: Master the World's Most-Used Programming Language, Oreilly Media, 2020
14. Vivek Gupta, Java for Web Development, BPB Publications, 2022

8.2 Seminar / laboratory	Teaching methods	Remarks
1. Laboratory work: using HTML 5 main tags	Dialogue, debate, case studies, examples	
2. Laboratory work: CSS tasks	Dialogue, debate, case studies, examples	
3. Laboratory work: CSS layouts	Dialogue, debate, case studies, examples	
4. Laboratory work: XML and XSLT	Dialogue, debate, case studies, examples	
5. Laboratory work: Javascript and DOM (DHTML)	Dialogue, debate, case studies, examples	
6. Laboratory work: Javascript and DOM (DHTML)	Dialogue, debate, case studies, examples	
7. Laboratory work: jQuery	Dialogue, debate, case studies, examples	
8. Laboratory work: jQuery	Dialogue, debate, case	

	studies, examples	
9. Laboratory work: AJAX and PHP	Dialogue, debate, case studies, examples	
10. Laboratory work: AJAX and PHP	Dialogue, debate, case studies, examples	
11. Laboratory work: Java servlets and JSP	Dialogue, debate, case studies, examples	
12. Laboratory work: Java servlets and JSP	Dialogue, debate, case studies, examples	
13. Students deliver the last laboratory tasks. Preparing the final exam.	Dialogue, debate, case studies, examples	
14. Students deliver the last laboratory tasks. Preparing the final exam.	Dialogue, debate, case studies, examples	

Bibliography

1. http://www.cs.ubbcluj.ro/~ionutb/PW
2. W3Schools Online Web Tutorials, http://www.w3schools.com
3. Jennifer Niederst, Web Design in a Nutshell, O'Reilly, 2001;
4. Chuck Musciano, Bill Kennedy, HTML & XHTML: The Definitive Guide, O'Reilly, 2002;
5. Colin Moock, ActionScript: The Definitive Guide - Mastering Flash Programming, O'Reilly, 2001;
6. Varlan C, Macromedia FLASH; concepte, exemple, studii de caz. Editura Polirom, Iaşi, 2004;
7. Negrino T., Smith D, JavaScript for the World Wide Web. 4th edition, Visual QuickStart Guide, 2001. 8. https://jsfiddle.net/ 9. https://codepen.io/
8. Flanagan David, Javascript: The Definitive Guide: Master the World's Most-Used Programming Language, Oreilly Media, 2020
9. Vivek Gupta, Java for Web Development, BPB Publications, 2022

9. Corroborating the content of the discipline with the expectations of the epistemic community, professional associations and representative employers within the field of the program

- The course respects the IEEE and ACM Curriculla Recommendations for Computer Science studies;
- The course exists in the studying programs of all major universities in Romania and abroad;
- The content of the course is considered by software companies as important for average programming skills

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the grade (%)
10.4 Course	Knowing the theoretical issues discussed during the course. Being able to solve small practical problems similar to the ones students get during the laboratory activity	Practical exam	60%
10.5 Seminar/lab activities	Applying the knowledge received from the course. Students get in each laboratory class a task they need to solve in maximum two weeks.	The lab mark is the average of the marks the student gets on the laboratory work performed by him/her during the semester.	40%
10.6 Minimum performance standards			
• In order to successfully pass this class, the practical exam mark and the laboratory mark must be at least 5. The course requirements are described at: http://www.cs.ubbcluj.ro/~ionutb/PW			

Date	Signature of course coordinator	Signature of seminar coordinator
05.05.2022	Lect. PhD. Bădărînză Ioan	Lect. PhD. Bădărînză Ioan

Date of approval

Signature of the head of department

Prof. dr. Laura Dioşan

24.05.2022