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	Computer Science
1.5 Study cycle	Bachelor
1.6 Study programme / Qualification	Computer Science

2. Information regarding the discipline

2.1 Name of the discipline (en) (ro)			Web Programming				
2.2 Course coordinator			Lect. PhD. Sterca Adrian				
2.3 Seminar coordinator			Lect. PhD. Sterca Adrian				
2.4. Year of study	**2**	2.5 Semester	**4**	2.6. Type of evaluation	**E**	2.7 Type of discipline	**Compulsory**
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
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 functions, basic knowledge on data structures and algorithms, programming languages, object-oriented programming.

5. Conditions (if necessary)

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

6. Specific competencies acquired

Professional competencies	• Adequate description of programming paradigms and language mechanisms and also identification of semantic and syntactic differences • Identification of concepts and models for computing systems and computer networks
Transversal competencies	• Applying rules for an organized and efficient work, responsible attitude towards the didactic-scientific field for creative capitalization of one's own potential, complying to the principles and professional ethics norms. • Utilizing efficient methods and techniques for learning, knowing, research and development of knowledge capitalization capacities, adapting to the requirements of a dynamic society and the communication in Romanian or an international language.

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 libraries: jQuery	Exposure:description, explanation,examples, discussion of case studies	
8. Javascript frameworks: angular js	Exposure:description, explanation,examples, discussion of case studies	
9. JSON – Javascript Object Notation	Exposure:description, explanation,examples, discussion of case studies	
10. Server-side technologies: CGI (Common Gateway Interface. AJAX	Exposure:description, explanation,examples, discussion of case studies	
11. Server-side technologies: PHP	Exposure:description, explanation,examples, discussion of case studies	
12. Server-side technologies: JSP and Java servlets	Exposure:description, explanation,examples, discussion of case studies	
13. Server-side technologies: ASP .NET	Exposure:description, explanation,examples, discussion of case studies	
14. Other web technologies: graphics (WebGL), real-time communication (WebRTC). Web security: same-origin principle, cross-site scripting, sql injection.	Exposure:description, explanation,examples, discussion of case studies	
Bibliography		

1. http://www.cs.ubbcluj.ro/~forest/wp
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

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: jQuery	Dialogue, debate, case studies, examples	
7. Laboratory work: AJAX and PHP	Dialogue, debate, case studies, examples	
8. Laboratory work: AJAX and PHP	Dialogue, debate, case studies, examples	
9. Laboratory work: Java servlets and JSP	Dialogue, debate, case studies, examples	
10. Laboratory work: Java servlets and JSP	Dialogue, debate, case studies, examples	
11. Laboratory work: Aspx .Net	Dialogue, debate, case studies, examples	

12. Laboratory work: Aspx .Net	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/~forest/wp
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/

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/~forest/wp			

Date	Signature of course coordinator	Signature of seminar coordinator
.....	Lect.PhD. Adrian Sterca	Lect.PhD. Adrian Sterca

Date of approval	Signature of the head of department
.....	Prof. PhD. Anca Andreica