

## SYLLABUS

### 1. Information regarding the programme

1.1 Higher education institution	<b>Babe Bolyai University</b>
1.2 Faculty	<b>Faculty of Mathematics and Computer Science</b>
1.3 Department	<b>Department of Computer Science</b>
1.4 Field of study	<b>Computer Science</b>
1.5 Study cycle	<b>Bachelor</b>
1.6 Study programme / Qualification	<b>Computer Science</b>

### 2. Information regarding the discipline

2.1 Name of the discipline	<b>Web design and optimization</b>						
2.2 Course coordinator	<b>Lect. PhD. Sanda-Maria Drago</b>						
2.3 Seminar coordinator	<b>Lect. PhD. Sanda-Maria Drago</b>						
2.4. Year of study	<b>3</b>	2.5 Semester	<b>6</b>	2.6. Type of evaluation	<b>C</b>	2.7 Type of discipline	<b>Optional</b>

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

3.1 Hours per week	3	Of which: 3.2 course	2	3.3 seminar/laboratory	1
3.4 Total hours in the curriculum	36	Of which: 3.5 course	24	3.6 seminar/laboratory	12
Time allotment:					hours
Learning using manual, course support, bibliography, course notes					15
Additional documentation (in libraries, on electronic platforms, field documentation)					35
Preparation for seminars/labs, homework, papers, portfolios and essays					20
Tutorship					9
Evaluations					10
Other activities: .....					0
3.7 Total individual study hours			89		
3.8 Total hours per semester			125		
3.9 Number of ECTS credits			5		

### 4. Prerequisites (if necessary)

4.1. curriculum	•
4.2. competencies	• Basic programming skills in web client-side technologies (CSS, HTML, JavaScript)

### 5. Conditions (if necessary)

5.1. for the course	• A lecture class with video projector
5.2. for the seminar /lab activities	• Laboratory with computers connected to the Internet; web servers for hosting websites.

## 6. Specific competencies acquired

<b>Professional competencies</b>	<ul style="list-style-type: none"> <li>• Knowledge, understanding and use of basic concepts of theoretical Computer Science</li> <li>• Ability to work independently and/or in a team in order to solve problems in defined professional contexts.</li> <li>• Abilities to develop and maintain software systems</li> </ul>
<b>Transversal competencies</b>	<ul style="list-style-type: none"> <li>• Knowledge, understanding of web standards (HTML and CSS)</li> <li>• Ability to design optimal websites.</li> <li>• Developing website evaluation and validation skills so that the developed sites to comply with the standards, be responsive and perform better for search engines and accessibility.</li> </ul>

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

7.1 General objective of the discipline	<ul style="list-style-type: none"> <li>• Learning, understanding and applying the web standards (HTML and CSS).</li> <li>• Developing website creation, evaluation and validation skills so that the developed sites to comply with the standards, be responsive (i.e., adapt to any device: telephone, tablet, netbook, laptop, desktop or TV) and perform better for search engines and accessibility.</li> </ul>
7.2 Specific objective of the discipline	<ul style="list-style-type: none"> <li>• Using HTML for structure and CSS for presentation</li> <li>• Acquire knowledge about the web site development process</li> <li>• Evaluating and Optimizing a website</li> <li>• Developing skills to use the most advanced web design skills such as:             <ul style="list-style-type: none"> <li>○ Using preprocessors like SASS or LESS</li> <li>○ Using object oriented CSS (OOCSS)</li> <li>○ Using the block-element-model (BEM)</li> <li>○ Using web fonts and knowing the typography elements</li> <li>○ Using the golden ratio and the color theory in web design</li> <li>○ Create responsive web sites that can adapt to any device</li> <li>○ Use the progressive enhancement process</li> <li>○ Accessibility (create sites for everyone)</li> </ul> </li> </ul>

## 8. Content

8.1 Course	Teaching methods	Remarks
1-3 Understanding the standards <ul style="list-style-type: none"> <li>- HTML from HTML 2.0 to HTML 5</li> <li>- CSS from CSS 1.0 to CSS 3</li> <li>- HTML Markup for structure</li> <li>- CSS for presentation</li> </ul>	Exposure: description, explanation, examples, discussion of case studies	This lecture is held during the second semester of the final year of bachelor study and therefore there are only 12 weeks/lectures.
4-9 The site development process; <ul style="list-style-type: none"> <li>- Planning and site definition</li> </ul>	Exposure: description,	Here, students will learn about responsive design

<ul style="list-style-type: none"> <li>- Interface design</li> <li>- Site design</li> <li>- Page design</li> <li>- Typography</li> <li>- Graphics</li> <li>- Multimedia</li> <li>- Tracking, evaluation and maintenance</li> </ul>	<p>explanation, examples, discussion of case studies</p>	<p>and progressive enhancement, accessibility and the most innovative web development techniques like OOCSS, SAMCS, BEM, pre-processors, minification and mixins. They also find out about useful existing instruments like resets, grids and frameworks.</p>
<p>10-12 Web site optimization</p> <ul style="list-style-type: none"> <li>- Speed optimization</li> <li>- Search engine optimization</li> <li>- Web analytics</li> </ul>	<p>Exposure: description, explanation, examples, discussion of case studies</p>	<p>Here students will find out about code quality, best practices, validation and evaluation instruments used for optimization.</p>

**Bibliography**

1. Patrick J. Lynch and Sarah Horton, *Web Style Guide: Basic Design Principles for Creating Web Sites*, Yale University Press, 3rd edition, ISBN-13: 978-0300137378, January 15, 2009, <http://www.webstyleguide.com/>
2. Ethan Watrall and Jeff Siarto, *Head First Web Design*, O'Reilly Media, ISBN: 978-0-596-52030-4, 2008, <http://it-ebooks.info/book/378/>
3. Steve Krug, *Don't Make Me Think. A Common Sense Approach to Web Usability*, New Riders, Second Edition, ISBN: 0-321-34475-8, 2006, <http://web-profile.com.ua/wp-content/uploads/steve-krug-dont-make-me-think-second-edition.pdf>
4. Steve Krug, *Rocket Surgery Made Easy. The Do-It-Yourself Guide to Finding and Fixing Usability Problems*, New Riders, ISBN:978-0321657299, 2010
5. Ethan Marcotte, *Responsive Web Design*, A Book Apart, ISBN: 978-0984442577, 2011
6. Aaron Gustafson, *Adaptive Web Design. Crafting Rich Experiences with Progressive Enhancement*, Easy Readers, ISBN: 978-0-9835895-2-5, 2011, <http://kammerkunst.de/data/Adaptive-Web-Design.pdf>
7. Lyza Danger Gardner, Jason Grigsby, *Head First Mobile Web*, O'Reilly Media, 2011
8. <http://www.w3.org/standards/webdesign/>

8.2 Seminar / laboratory	Teaching methods	Remarks
1. Analyzing a website	Explanation, dialogue, case studies	The seminar is structured as 2 hours classes every second week.
2. Develop a simple site	Dialogue, debate, case studies, examples, proofs	
3. Complying with the standards; HTML and CSS validation	Dialogue, debate, case studies, examples, proofs	
4. Building the optimal structure for a specified type of site; building the optimal layout	Dialogue, debate, case studies, examples, proofs	
5. Typography, graphics and multimedia	Dialogue, debate, case studies, examples, proofs	
6. Evaluating the site; structure, elements, speed and accessibility; improve site as result of the evaluation	Dialogue, debate, case studies, examples, proofs	

**Bibliography**

1. Patrick J. Lynch and Sarah Horton, *Web Style Guide: Basic Design Principles for Creating Web Sites*, Yale University Press, 3rd edition, ISBN-13: 978-0300137378, January 15, 2009,

<http://www.webstyleguide.com/>

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4. <http://www.w3.org/standards/webdesign/>

**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 addresses a relatively new domain that is rising in recent years (from 2008) and enjoys increasing interest from the scientific community and industry.
- The course is reflected in the curricula of other universities, with similar syllabus. At the same time the content presented in the course is discussed in the literature.
- The content of the course is considered by the 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	- know the basic principle of the domain; - apply the course concepts - problem solving	Project presentation	60%
10.5 Seminar/lab activities	- be able to implement with the standards; a small project that proves HTML and CSS correct usage.	- Practical examination -documentation -portfolio -continuous observations	20%
	Developing a personal project: creating a website or a web page structure on a certain theme that complies with the HTML and CSS standards and applies the concepts presented during the course.	Early stages of the final project	20%
10.6 Minimum performance standards			
➤ At least grade 5 (from a scale of 1 to 10) at the written exam, final project and laboratory work.			

Date

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Signature of course coordinator

Lect. PhD. Sanda-Maria Dragos

Signature of seminar coordinator

Lect. PhD. Sanda-Maria Dragos

Date of approval

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Signature of the head of department

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