SYLLABUS

Adaptive Web Design

University year 2025-2026

1. Information regarding the programme

1.1. Higher education institution	**Babeș-Bolyai University**
1.2. Faculty	**Mathematics and Computer Science**
1.3. Department	**Computer Science**
1.4. Field of study	**Computer Science**
1.5. Study cycle	**Master**
1.6. Study programme/Qualification	**Databases**
1.7. Form of education	**Full time**

2. Information regarding the discipline

2.1. Name of the discipline	**Adaptive Web Design**					Discipline code	**MME8120**
2.2. Course coordinator				**Assoc. prof. phd. Sanda-Maria AVRAM**			
2.3. Seminar coordinator				**Assoc. prof. phd. Sanda-Maria AVRAM**			
2.4. Year of study	**2**	2.5. Semester	**3**	2.6. Type of evaluation	**E**	2.7. Discipline regime	**Optional**

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/project	**1**
3.4. Total hours in the curriculum	**42**	of which: 3.5 course	**28**	3.6 seminar/laboratory/project	**14**
Time allotment for individual study (ID) and self-study activities (SA)					**hours**
Learning using manual, course support, bibliography, course notes (SA)					49
Additional documentation (in libraries, on electronic platforms, field documentation)					19
Preparation for seminars/labs, homework, papers, portfolios and essays					44
Tutorship					9
Evaluations					30
Other activities:					7
3.7. Total individual study hours	**158**				
3.8. Total hours per semester	**200**				
3.9. Number of ECTS credits	**8**				

4. Prerequisites (if necessary)

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

5. Conditions (if necessary)

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

6.1. Specific competencies acquired [1]

Professional/ essential competencies	• proficient use of verification, validation, and evaluation criteria and methods to his/her own software solutions, ability to formulate value judgements and to justify/explain constructive decisions; • demonstrate advanced skills to analysis, design, and construction of software systems, using a wide range of hardware / software platforms, programming languages and environments, and modeling, verification and validation tools;
Transversal competencies	• systematic use of computer science knowledge to model and interpret new situations, within application contexts larger than the known ones;

6.2. Learning outcomes

Knowledge	• The graduate possesses the fundamental knowledge for modelling, being able to analyse real life problems and to translate them in concrete requirements and to design a corresponding software model • The graduate has the necessary knowledge to devise, model and design of complex software applications using databases
Skills	• The graduate proves advance programming skills which will allow to learn and comprehend modern technologies • The graduate can apply advanced databases systems knowledge starting from a high level of abstraction and being able to offer implementation solutions for complex software system
Responsibility and autonomy:	• The graduate proves the capacity to reflect over own learning resources • The graduate uses efficient strategies, methods and techniques for lifelong education, in order to self educate and self develop his/her personal and professional skills

[1] One can choose either competences or learning outcomes, or both. If only one option is chosen, the row related to the other option will be deleted, and the kept one will be numbered 6.

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

7.1 General objective of the discipline	• Acquire responsive design principles and build accessible, cross-browser compatible websites. • Develop skills to optimize website performance, SEO, and accessibility (WCAG) • Adapt to evolving web standards
7.2 Specific objective of the discipline	• Build semantic and accessible HTML5 structures using <main>, <nav>, and ARIA, and validate markup with W3C standards. • Write scalable CSS with: Layout systems (Flexbox/Grid), Methodologies (BEM/OOCSS), Preprocessors (SASS variables/mixins) • Implement responsive design through: Fluid grids & media queries, Mobile-first progressive enhancement • Optimize cross-device UX with: Web fonts & typography hierarchy, Color theory (contrast ratios, HSL)

8. Content

8.1 Course	Teaching methods	Remarks
1-3 Understanding the standards	Exposure: description, explanation, examples, discussion of case studies	
4-9 The site development process; · Planning and site · Interface design · Site design · Page design · Typography · Graphics · Multimedia · Tracking, evaluation and maintenance	Exposure: description, explanation, examples, discussion of case studies	
10-14 Website optimization · Speed optimization · Search engine optimization · Web analytics	Exposure: description, explanation, examples, discussion of case studies	

Bibliography

1. Duckett, J., HTML and CSS: Design and Build Websites, John Wiley & Sons, USA, 2011.
2. Gardner, L.D., Jason Grigsby, Head First Mobile Web, O'Reilly Media, 2011
3. Gustafson, A., Adaptive Web Design. Crafting Rich Experiences with Progressive Enhancement, Easy Readers, ISBN: 978-0-9835895-2-5, 2011,
4. Krug, S., Don't Make Me Think. A Common Sense Approach to Web Usability, New Riders, 2nd Edition, ISBN: 0-321-34475-8, 2006,
5. Krug, S., Rocket Surgery Made Easy. The Do-It-Yourself Guide to Finding and Fixing Usability Problems, New Riders, ISBN:978-0321657299, 2010
6. Lynch, P.J., Horton, S., Web Style Guide: Basic Design Principles for Creating Web Sites, Yale University Press, 3rd edition, ISBN-13: 978-0300137378, 2009, https://www.webstyleguide.com/
7. Marcotte, E., Responsive Web Design, A Book Apart, ISBN: 978-0984442577, 2011
8. Purewal, S., Learning Web App Development, O'Reilly Media, USA, 2014.
9. Robbins J.N., Learning Web Design: A Beginner's Guide to HTML, CSS JavaScript, and Web Graphics, 4th Edition, O'Reilly Media, USA, 2012.
10. Sebesta, R.W., Programming the World Wide Web, 7th Edition, Pearson Education Limited, USA, 2014.
11. Warren, T., ASP.NET For Beginners: The Simple Guide to Learning ASP.NET Web Programming FAST!, 2015.
12. Watrall, E., Siarto, J., Head First Web Design, O'Reilly Media, ISBN: 978-0-596-52030- 4, 2008, https://itbook.store/books/9780596520304
13. https://www.w3.org/standards/

8.2 Seminar	Teaching methods	Remarks
1. Usability Test Demo by Steve Krug	Dialogue, case studies, examples	
2. Card Sorting		
3. The layout and using the grid; creating a wireframe		
4. Brainstorming on the concept of … (e.g., DESING)		
5. Hosting the website on the faculty web server and necessary settings		
6. Revision		
7. Defending projects		

Bibliography

1. Gustafson, A., Adaptive Web Design. Crafting Rich Experiences with Progressive Enhancement, Easy Readers, ISBN: 978-0-9835895-2-5, 2011,
2. Krug, S., Don't Make Me Think. A Common Sense Approach to Web Usability, New Riders, 2nd Edition, ISBN: 0-321-34475-8, 2006,
3. Lynch, P.J., Horton, S., Web Style Guide: Basic Design Principles for Creating Web Sites, Yale University Press, 3rd edition, ISBN-13: 978-0300137378, 2009, https://www.webstyleguide.com/
4. Watrall, E., Siarto, J., Head First Web Design, O'Reilly Media, ISBN: 978-0-596-52030- 4, 2008, http://it-ebooks.info/book/378/
5. https://www.w3.org/standards/

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

- This course exists in the study program of all major universities in Romania and abroad.
- The course content aligns with industry standards for foundational programming proficiency, encompassing essential skills that software development companies value.

10. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course	research	assignments (during the semester)	20%
10.5 Seminar/ laboratory	project	defence (at the end of the semester)	80%
10.6 Minimum standard of performance			
• At least grade 5 (from a scale of 1 to 10) for all types of examination.			

11. Labels ODD (Sustainable Development Goals)[2]

Not applicable.

Date:	Signature of course coordinator	Signature of seminar coordinator
15.04.2025	Assoc. prof. phd. Sanda-Maria AVRAM	Assoc. prof. phd. Sanda-Maria AVRAM

Date of approval:
...

Signature of the head of department

Assoc. prof. phd. Adrian STERCA

[2] Keep only the labels that, according to the *Procedure for applying ODD labels in the academic process*, suit the discipline and delete the others, including the general one for *Sustainable Development* – if not applicable. If no label describes the discipline, delete them all and write „*Not applicable.*".