

SYLLABUS

1. Information regarding the programme

1.1 Higher education institution	Babe -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	Multimedia Applications over the Web						
2.2 Course coordinator	Lect. PhD. Claudiu Cobârzan						
2.3 Seminar coordinator	Lect. PhD. Claudiu Cobârzan						
2.4. Year of study	3	2.5 Semester	6	2.6. Type of evaluation	C	2.7 Type of discipline	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	1 lab
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					20
Additional documentation (in libraries, on electronic platforms, field documentation)					15
Preparation for seminars/labs, homework, papers, portfolios and essays					30
Tutorship					4
Evaluations					20
Other activities:					-
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	<ul style="list-style-type: none"> • Web Programming; Computer Networks
4.2. competencies	<ul style="list-style-type: none"> • Average programming skills in a high level programming language

5. Conditions (if necessary)

5.1. for the course	<ul style="list-style-type: none"> • Course room with video projector
5.2. for the seminar /lab activities	<ul style="list-style-type: none"> • Laboratory with computers (Windows/Linux); Internet and LAN connectivity; high level programming language environment (.NET,

6. Specific competencies acquired

Professional competencies	<ul style="list-style-type: none"> • Knowledge, understanding and use of basic concepts on multimedia and multimedia on the web • Ability to work independently and/or in a team in order to design, implement and document a web application with massive multimedia content • Good web programming skills and programming skills in high-level languages
Transversal competencies	<ul style="list-style-type: none"> • Ability to decide when, how and to what extent multimedia and multimedia support can be added to applications in order to add value and improve user experience • Improved programming skills • Improved analyses, synthesis and communication skills both individually and as part of a team

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

7.1 General objective of the discipline	<ul style="list-style-type: none"> • Provide an introduction to multimedia and multimedia support on the web. Familiarize the students with the main audio-video formats and codecs.
7.2 Specific objective of the discipline	<ul style="list-style-type: none"> • Provide basic information on multimedia streaming. • Introduce W3C standards intended to provide multimedia support on the web. • Introduce new HTML5 features intended for multimedia support. • Present main APIs in high-level programming languages supporting multimedia applications development. • Provide information on the use of multimedia metadata and on the management and protection of intellectual property rights.

8. Content

8.1 Course	Teaching methods	Remarks
1. Introduction to multimedia	Exposure: description, explanation, examples, discussion of case studies	
2. Web and networking prerequisites	Exposure: description, explanation, examples, discussion of case studies	
3. Audio-video formats, video codecs	Exposure: description, explanation, examples, debate, dialogue	
4. Streaming and signaling protocols	Exposure: description, explanation, examples, discussion of case studies	
5. Audio-Video Players	Exposure: description, explanation, examples, proofs	
6. W3C standards for multimedia support	Exposure: description, explanation, examples, proofs, debate, dialogue	
7. HTML5 features for multimedia support	Exposure: description,	

	explanation, examples, dialogue	
8. Multimedia presentations on the web	Exposure: description, explanation, examples, discussion of case studies	
9. Multimedia Metadata - MPEG-7	Exposure: description, explanation, examples	
10. Multimedia Proxy-Caches	Exposure: description, explanation, examples, discussion of case studies	
11. Multimedia support in high-level programming languages	Exposure: description, explanation, examples, debate	
12. IPMP (Intellectual Propriety Management and Protection, MPEG-21)	Exposure: description, explanation, examples, discussion of case studies	

Bibliography

1. Dick C.A. Bulterman, Lloyd W. Rutledge, SMIL 3.0: Flexible Multimedia for Web, Mobile Devices and Daisy Talking Books, 2nd Edition, Springer, 2009, ISBN: 978-3-540-78546-0
2. Ian S. Burnett (Editor), Fernando Pereira (Editor), Rik Van de Walle (Editor), Rob Koenen (Editor), The MPEG-21 Book, Wiley, 2006, ISBN: 978-0-470-01011-2
3. Matthew David, HTML5: Designing Rich internet Applications, Focal Pres, 2010, ISBN: 978-0-240-81328-8
4. Mohammed Ghanbari, Standard Codecs: Image Compression to Advanced Video Coding, IEE, 2003, ISBN: 0-85296-710-1, 978-0-85296-710-2
5. Harald Kosch , Distributed Multimedia Database Technologies Supported by MPEG-7 and MPEG-21, CRC Press, ISBN: 978-0-8493-1854-2, 978-0-203-00933-8
6. B. S. Manjunath (Editor), Philippe Salembier (Editor), Thomas Sikora (Editor), Introduction to MPEG-7: Multimedia Content Description Interface, Wiley, 2002, ISBN: 978-0-471-48678-7
7. Fernando C. Pereira, Touradj Ebrahimi, The MPEG-4 Book, Prentice Hall PTR, 2002, ISBN:0130616214
8. Colin Perkins, RTP - Audio and Video for the Internet, Addison-Wesley, 2003, ISBN: 0-672-32249-8
9. Iain Richardson, Video Codec Design: Developing Image and Video Compression Systems, Wiley, 2002, ISBN: 978-0-471-48553-7
10. Eric Freeman , Elisabeth Robson, Head First HTML5 Programming: Building Web Apps with JavaScript, 2011, O'Reilly Media, ISBN: 1449390544
11. Silvia Pfeiffer, The Definitive Guide to HTML5 Video, Apress, 2010, ISBN: 1430230908
12. ***, World Wide Web Consortium (www.w3c.org)
13. ***, MPEG home page (www.chiariglione.org/mpeg/)

8.3 Laboratory	Teaching methods	Remarks
1. Discussions regarding the project and white paper theme	Explanation, dialogue, debate, case studies, examples	The laboratory is structured as 2 hours classes every second week
2. Discussions regarding the project and white paper theme	Explanation, dialogue, debate, case studies, examples	
3. Discussions regarding the project and white paper theme	Explanation, dialogue, debate, case studies, examples	
4. Discussions regarding the project and white paper theme	Explanation, dialogue, debate, case studies, examples	
5. Project and white paper presentations	Dialogue, debate, case studies, examples	
6. Project and white paper presentations	Dialogue, debate, case	

	studies, examples	
Bibliography		
1. Articles on ACM Digital Library and IEEE Xplore		
2. Projects on www.sourceforge.net		

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 provides a basic introduction in multimedia and multimedia streaming and consumption in web contexts;
- The course offers basic prerequisites on multimedia for future web developers

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the grade (%)
10.4 Course	- basic knowledge on multimedia in web contexts	Written exam	25%
10.5 Seminar/lab activities	- implement a web based multimedia application	- practical examination - documentation - portfolio - continuous observations	75%
10.6 Minimum performance standards			
<ul style="list-style-type: none"> • At least grade 5 (from a scale of 1 to 10) at both written exam and lab project. 			

Date
.....
Signature of course coordinator
Lect. PhD. Claudiu COBÂRZAN

Signature of seminar coordinator
Lect. PhD. Claudiu COBÂRZAN

Date of approval
.....

Signature of the head of department
Prof. PhD. Bazil Parv