



COURSE: Multimedia Networks

Degree: Bachelor's Degree in Sound and Image Engineering

YEAR: 3

SEMESTER: 1

WEEK	SESSION	DESCRIPTION	GROUP (Mark X)		WEEKLY PLANNING FOR STUDENT		
			LECTURES	SEMINARS	DESCRIPTION	CLASS HOURS	HOMEWORK HOURS (Max. 7h week)
1	1	<u>Session 1: Introduction</u> Presentation and introduction to the course. Planning. Introduction to multimedia networks. Network protocol stack.		X	Introduction to the course. Review of basic concepts of related previous courses. Review of tools used in the laboratory and the Linux OS. Reiew of the protocols stack.	1,66	6.5
1	2	<u>Session 2: Multimedia networks</u> - Classification of multimedia applications - Network factors and requirements for multimedia applications - The Internet and its evolution.	X		Review of the concepts acquired in session 2. Review of the content of related previous courses. Review of the performance metrics for networking.	1,66	
2	3	<u>Session 2: Multimedia applications</u> The "best effort" model.		X	Analysis of existing application and validation of the performance and requirements of the applications as well as of the network. Computation of theoretical values.	1,66	6.5
2	4	<u>Session 4: Multimedia applications</u> Streaming applications	X		Review of the concepts acquired in session 4. Search for some real examples for streaming applications. Solve the proposed exercise for the performance evaluation of multimedia networks.	1,66	
3	5	<u>Laboratory work:</u> Laboratory session 1. Performance analysis of the network for multimedia applications.		X	Analysis of the performance of multimedia applications and evaluation of their behavior as a function of the service provided by network. Preparation of the results of the exercise to be delivered.	1,66	6.5
3	6	<u>Session 5: Multimedia applications</u> Interactive applications	X		Review of the concepts acquired in session 6. Analysis of the performance of interactive applications.	1,66	
4	7	<u>Laboratory work:</u> Laboratory session 2. Performance analysis of the network for multimedia applications.		X	Analysis of existing application and validation of the performance and requirements of the applications as well as of the network. Computation of theoretical values.	1,66	6.5
4	8	<u>Session 6: Multimedia applications</u> Techniques for adjusting the sending rate.	X		Review of the concepts acquired in session 8. Solving the exercises on the delay and packet losses of the algorithms used by interactive applications.	1,66	
5	9	<u>Laboratory work:</u> Laboratory session 3. Algorithms to recover from losses and programming of multimedia applications in Java.		X	Perform the theoretical computations and design an algorithm to recover from losses.	1,66	6.5

5	10	Session 7: Multimedia applications Bandwidth sharing in the Internet.	X		Review of the concepts acquired in session 10. Analysis of existing application that employ the mechanisms studied to recover from losses.	1,66	
6	11	Laboratory work: Laboratory session 4. Algorithms to recover from losses and programming of multimedia applications in Java.		X	Implementation and evaluation of a mechanism to recover from losses.	1,66	6.5
6	12	Session 8: Multimedia applications Techniques that adjust the sending rate according to the given bandwidth sharing criterion.	X		Review of the concepts acquired in session 12. Analysis of the techniques for bandwidth sharing.	1,66	
7	13	Laboratory work: Laboratory session 4. Configuration of the applications and services of video streaming and video on demand in different Access networks		X	Analysis and configuration of a video on demand service in different environments and Access networks.	1,66	6.5
7	14	Exercises work: Exercises session 1.	X		Review of the concepts acquired so far. Solve the proposed exercises.	1,66	
8	15	Laboratory work: Laboratory session 5. Configuration of the applications and services of video streaming and video on demand in different Access networks		X	Analysis and configuration of a video on demand service in different environments and Access networks.	1,66	6.5
8	16	Session 9: Content distribution Techniques to reach multiple receivers	X		Review of the concepts acquired in session 16. Preparation of the corresponding exercises.	1,66	
9	17	Exam		X	Review of the concepts acquired so far.	1,66	6.5
9	18	Session 10: Content distribution Congestion control	X		Review of the concepts acquired in session 16. Preparation of the corresponding exercises.	1,66	
10	19	Laboratory work: Laboratory session 6. Configuration of the applications and services of video streaming and video on demand in different Access networks		X	Implementación y evaluación de los algoritmos	1,66	6.5
	20	Session 11: Content distribution Error control techniques.	X		Review of the concepts acquired in session 20. Preparation of the corresponding exercises.	1,66	
11	21	Laboratory work: Laboratory session 7. Configuration of the applications and services of video streaming and video on demand in different Access networks		X	Implementation and evaluation of the algorithms.	1,66	6.5
	22	Session 12: Content distribution Video on demand.	X		Review of the concepts acquired in session 22. Comparison of the algorithms for video on demand.	1,66	
12	23	Laboratory work: Laboratory session 9.		X	Preparation of the laboratory session.	1,66	6.5
12	24	Exercises work: Exercises session 2.	X		Review of the concepts acquired so far. Solve the proposed exercises.	1,66	
13	25	Laboratory work: Laboratory session 10.		X	Implementation of the mechanisms.	1,66	6.5
13	26	Session 13: Multimedia applications in NGI Differentiated Services architecture.	X		Review of the concepts acquired in session 26. Qualitative evaluation of the architecture.	1,66	
14	27	Laboratory work: Laboratory session 10.		X	Evaluation of the performance of the mechanisms implemented.	1,66	6.5
14	28	Session 13: Multimedia applications in NGI Configuration of the DiffServ architecture.	X		Review of the concepts acquired in session 28. Performance analysis of the architecture.	1,66	
14	29	Exercises work: Exercises session 3.		X	Review of the concepts acquired so far. Solve the proposed exercises.	1,66	
Subtotal 1						48	91

			Total 1 (<i>Hours of class plus student homework hours between weeks 1-14</i>)			139		
15		Tutorials, handing in, etc				3		
16		Assessment				3	5	
17								
18								
						Subtotal 1	3	8
			Total 2 (<i>Hours of class plus student homework hours between weeks 15-18</i>)			11		
TOTAL (<i>Total 1 + Total 2. <u>Maximum 180 hours</u></i>)						150		