uc3m Universidad Carlos III de Madrid

Vicerrectorado de Estudios Apoyo a la docencia y gestión del grado

COURSE:

DEGREE: YEAR: TERM:

WEEKLY PLANNING									
	S	DESCRIPTION	TEACHING (mark X)		CDECIAL DOGGA	WEEKLY PROGRAMMING FOR STUDENT			
W E E K	E S S I O N		L E C T U R E S	S E M I N A R	SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)	DESCRIPTION	CLASS HOURS (1,66=50+50 min)	HOMEWORK HOURS (Max. Estim. 3,25h)	
1	1	Course Presentation Contents Block 1 Introduction. 1.1 Definition of Virtual Reality (VR), Augmented Reality (AR) and Mixed Reality (MR). 1.2 Playback devices.				Readings to be determined. Study of the concepts shown in the theoretical classes. Exercises to be determined.	1,66	3,25	
2	2	Acoustics basics				Readings to be determined. Study of the concepts shown in the theoretical classes. Exercises to be determined.	1,66	3,25	
3	3	1.3 Fundamentals of human auditory system.1.4 Immersive spatial audio.				Readings to be determined. Study of the concepts shown in the theoretical classes. Exercises to be determined.	1,66	3,25	

	WEEKLY PLANNING							
	S	DESCRIPTION	TEACHING (mark X)		SPECIAL ROOM	WEEKLY PROGRAMMING FOR STUDENT		
W E E K	E S S I O N		L E C T U R E S	S E M I N A R	FOR SESSION (Computer class room, audio-visual class room)		CLASS HOURS (1,66=50+50 min)	HOMEWORK HOURS (Max. Estim. 3,25h)
4	4	Contents Block 2 Binaural 3D audio for virtual reality. 2.1 3D audio reproduction formats. - Channel-based audio. - Object-based audio. - Scene-based audio. - Ambisonics y wave-field synthesis				Readings to be determined. Study of the concepts shown in the theoretical classes. Exercises to be determined.	1,66	3,25
5	5	 2.2 Binaural Rendering: Introduction. Auralization concept.Sound source modelling: I - Sound power and directivity. Acoustic propagation modelling. I- Reverberation time and room impulse response. 				Readings to be determined. Study of the concepts shown in the theoretical classes. Exercises to be determined.	1,66	3,25
6	6	II - Acoustic theories for indoor acoustic propagation: a) Statistical theory. Acoustic absorption. Rendering Techniques and Simulation Softwares				Readings to be determined. Study of the concepts shown in the theoretical classes. Exercises to be determined.	1,66	3,25
7	7	b) Geometric theory. Echogram. Rendering Techniques and Simulation Softwares				Readings to be determined. Study of the concepts shown in the theoretical classes. Exercises to be determined.	1,66	3,25
8	8	c) Undulatory theory. Room modes. Rendering Techniques and Simulation Softwares				Readings to be determined. Study of the concepts shown in the theoretical classes. Exercises to be determined.	1,66	3,25

TEACHING (mark X) SPECIAL ROOM (Compusion of a specific room and desing of an auralization 14 14 Lab 2: Project: Room simulation of a specific room and desing of an auralization TEACHING (mark X) SPECIAL ROOM (Compusion of a specific room and desing of an auralization (cont.) TEACHING (mark X) SPECIAL ROOM (Compusion of a specific room and desing of an auralization (cont.) TEACHING (mark X) SPECIAL ROOM (Compusion of E & E & E & E & E & E & E & E & E & E	WEEKLY PLANNING									
DESCRIPTION The state of the project Room simulation of a specific room and desing of an auralization Lab 3: Project: Room simulation of a specific room and desing of an auralization Lab 3: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and desing of an auralization Lab 4: Project: Room simulation of a specific room and d					(mark X)			S		
9 9 I - HRTF (head-related transfer function). II - Individualized Binaural Rendering. III - Movement tracking. 10 10 Lab 1: Binaural room impulse response simulation 2.3. 3D Audio reproduction systems: examples of systems and their equalization. 2.3. 3D Audio reproduction systems: examples of systems and their equalization. 2.4 Lab: Project: Room simulation of a specific room and desing of an auralization 13 13 Lab 2: Project: Room simulation of a specific room and desing of an auralization 14 14 Lab 3: Project: Room simulation of a specific room and desing of an auralization 15 Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 16 2 15 Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 17 Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 18 Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 19 Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 20 Continue with the project desing and write a final report. 30 Subtotal 1 40 Lab 3: Project: Room simulation of a specific room and desing of an auralization (cont.) 40 Lab 5: Project: Room simulation of a specific room and desing of an auralization (cont.) 40 Lab 6: Continue with the project desing and write a final report. 50 Subtotal 1	HOMEWORK HOURS (Max. Estim. 3,25h)	(1,66=50+50	DESCRIPTION	FOR SESSION (Computer class room, audio-visual	S E M I N A	C T U R	DESCRIPTION	S S I O	E E	
2.3. 3D Audio reproduction systems: examples of systems and their equalization. 11	3,25	1,66	Study of the concepts shown in the theoretical classes.				I - HRTF (head-related transfer function). II - Individualized Binaural Rendering.	9	9	
11 11 2.3. 3D Audio reproduction systems: examples of systems and their equalization. 12 Lab: Project: Room simulation of a specific room and desing of an auralization 13 Lab 2: Project: Room simulation of a specific room and desing of an auralization 14 Lab 3: Project: Room simulation of a specific room and desing of an auralization 15 Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 16 Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 17 Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 18 Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 19 Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 10 Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 11 Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 12 Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 13 Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 14 Lab 5: Project: Room simulation of a specific room and desing of an auralization (cont.) 15 Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 16 Lab 6: Project: Room simulation of a specific room and desing of an auralization (cont.) 17 Lab 6: Project: Room simulation of a specific room and desing of an auralization (cont.) 18 Lab 6: Project: Room simulation of a specific room and desing of an auralization (cont.) 19 Lab 6: Project: Room simulation of a specific room and desing of an auralization (cont.) 20 Lab 6: Project: Room simulation of a specific room and desing of an auralization (cont.) 21 Lab 6: Project: Room simulation of a specific room and desing of an auralization (cont.) 22 Lab 6: Project: Room simulation of a specific room and desing of an auralization (cont.)	3,25	1,66	_				Lab 1: Binaural room impulse response simulation	10	10	
auralization Lab 2: Project: Room simulation of a specific room and desing of an auralization Lab 3: Project: Room simulation of a specific room and desing of an auralization (cont.) Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) Lob 4: Project: Room simulation of a specific room and desing of an auralization (cont.) Lob 4: Project: Room simulation of a specific room and desing of an auralization (cont.) Lob 4: Project: Room simulation of a specific room and desing of an auralization (cont.) Lob 4: Project: Room simulation of a specific room and desing of an auralization (cont.) Lob 4: Project: Room simulation of a specific room and desing of an auralization (cont.) Lob 4: Project: Room simulation of a specific room and desing of an auralization (cont.) Lob 4: Project: Room simulation of a specific room and desing of an auralization (cont.) Lob 4: Project: Room simulation of a specific room and desing of an auralization (cont.) Lob 4: Project: Room simulation of a specific room and desing of an auralization (cont.)	3,25	1,66	Study of the concepts shown in the theoretical classes.					11	11	
13 13 an auralization 14 14 Lab 3: Project: Room simulation of a specific room and desing of an auralization (cont.) 15 Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 16 Continue with the project desing. 1,66 4.0.B.01 Continue with the project desing. 1,66 4.0.B.01 Continue with the project desing and write a final report. Subtotal 1	3,25	1,66	Start with the project desing.					12	12	
an auralization (cont.) Lab 4: Project: Room simulation of a specific room and desing of an auralization (cont.) 4.0.B.01 Continue with the project desing. 4.0.B.01 Continue with the project desing and write a final report. Subtotal 1 25	3,25	1,66	Continue with the project desing.	4.0.B.01				13	13	
an auralization (cont.) 4.0.8.01 final report. Subtotal 1 25	3,25	1,66	Continue with the project desing.	4.0.B.01			· · · · · · · · · · · · · · · · · · ·	14	14	
	3,25	1,66	· · ·	4.0.B.01				15		
Total 1 (Hours of class plus student homework)	49									
(74	7/	Total 1 (Hours of class plus student homework)							

15	Tutorials, handing in, etc
16	
17	Assessment
18	

1,8	-
4	4

	WEEKLY PLANNING								
	S	DESCRIPTION	TEACHING (mark X)		CDECIAL DOOM	WEEKLY PROGRAMMING FOR STUDENT			
W E E K	E S I O N		L E C T U R E S	S E M I N A R	FPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)	DESCRIPTION	CLASS HOURS (1,66=50+50 min)	HOMEWORK HOURS (Max. Estim. 3,25h)	
						Subtotal 2	6	4	
						Total 2 (Hours of class plus student homework)	1	0	

TOTAL (Maximun 83 horas)