Universidad Carlos III de Madrid
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COURSE: Introduction to Biomedical Engineering		
DEGREE: Biomedical Engineering	**YEAR: 2017/2018**	**TERM: 1st**

WEEKLY PLANNING

WEEK	SESSION	DESCRIPTION	GROUPS (mark X)		SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)	Indicate YES/NO If the session needs 2 teachers	WEEKLY PROGRAMMING FOR STUDENT		
			LECTURES	SEMINARS			DESCRIPTION	CLASS HOURS	HOMEWORK HOURS (Max. 7h week)
1	1 6SEP	**Course presentation & Biomedical engineering**	X				Room: 7.0.J06 Professor: Mónica Abella /Manuel Desco **(Time change, 13:00-15:00)**	1,6	
1	2 7SEP	Basics on Digital Image I		X	X	X	Room: INF J.0.J02 DUAL & INF J.0.J04 DUAL Professor: Mónica Abella / Claudia de Molina	1,6	
2	3 13SEP	Medical Image Systems I	X				Room: 7.0.J06 Professor: Mónica Abella	1,6	
2	4 14SEP	Basics on Digital Image II		X	X	X	Room: INF J.0.J04 DUAL & INF J.0.J04 DUAL Professor: Mónica Abella / Cristóbal Martínez	1,6	
3	5 20SEP	Medical Image Systems II	X				Room: 7.0.J06 Professor: Alejandro Liberos	1,6	
3	6 21SEP	Practical issues in instrumentation: SNR, dB, amplifier, filter (II)		X			Room: 7.2.J04 (G49) and 7.2.J08 (G48) Professor: Alejandro Liberos	1,6	
4	7 27SEP	**TEST on imaging sessions 2-4 (15 minutes)** Biomedical signals and its instrumentation (I)	X				Room: 7.0.J06 Professor: Juan José Vaquero	1,6	
4	8 28SEP	Biomedical signals and its instrumentation (II)		X			Room: 7.2.J04 (G49) and 7.2.J08 (G48) Professor: Juan José Vaquero	1,6	
5	9	Bio-effects of Radiation and E/M Fields	X				Room: 7.0.J06 Professor: Manuel Desco	1,6	

	4OCT								
5	10 5OCT	EXAMPLE: Nanotechnology - Molecular imaging in oncology		X			Room: 7.2.J04 (G49) and 7.2.J08 (G48) Professor: Beatriz Salinas	1,6	
6	11 18OCT	**TEST on sessions 5-10 (15 minutes)** EXAMPLE: PET/CT	X				Room: 7.0.J06 Professor: Manuel Desco	1,6	
7	12 19OCT	EXAMPLE: Cardiorespiratory instrumentation: ECG, pulse oximetry, spirometry)		X	X	X	BiiG laboratories (1.0.G14 / 1.0.G15) Professor: Juan José Vaquero / Alejandro Liberos	1,6	
7	13 25OCT	EXAMPLE: Deep brain stimulation – preclinical research	X				Room: 7.0.J06 Professor: Maria Luisa Soto	1,6	
8	14 26OCT	EXAMPLE: Optical imaging: milk experiment EXAMPLE: BioMEMs - Flow cytometry		X	X	X	BiiG laboratories (1.0.G14 / 1.0.G15) Professor: Claudia de Molina / Arrate Muñoz	1,6	
8	15 2NOV	EXAMPLE: Optical imaging: milk experiment EXAMPLE: BioMEMs - Flow cytometry		X	X	X	BiiG laboratories (1.0.G14 / 1.0.G15) Professor: Claudia de Molina / Arrate Muñoz	1,6	
9	16 8NOV	**TEST on sessions 9-15 (15 minutes)** Bio-Molecular Principles: DNA structure	X				Room: 7.0.J06 Professor: José Luis Jorcano	1,6	
9	17 9NOV	Bio-Molecular Principles: DNA replication and repair		X			Room: 7.2.J04 (G49) and 7.2.J08 (G48) Professor: José Luis Jorcano	1,6	
10	18 15NOV	Bio-Molecular Principles: DNA transcription (RNA synthesis)	X				Room: 7.0.J06 Professor: José Luis Jorcano	1,6	
10	19 16NOV	Bio-molecular principles: Protein synthesis and structure		X			Room: 7.2.J04 (G49) and 7.2.J08 (G48) Professor: José Luis Jorcano	1,6	
11	20 22NOV	**TEST on Bio-Molecular Principles sessions 16-19 (15 minutes)** Introduction to Cells I	X				Room: 7.0.J06 Professor: Marcela del Río	1,6	
11	21 23NOV	Introduction To Cells II		X			Room: 7.2.J04 (G49) and 7.2.J08 (G48) Professor: Marcela del Río	1,6	
12	22 29NOV	Introduction to Tissue and Organs	X				Room: 7.0.J06 Professor: Marcela del Río	1,6	
12	23 30NOV	Introduction to Tissue Engineering		X			Room: 7.2.J04 (G49) and 7.2.J08 (G48) Professor: Marcela del Río	1,6	
13	24 13DEC	**TEST on cells and tissue engineering sessions 20-23 (15 minutes)** Innovation (technology transfer examples)	X				Room: 7.0.J06 Professor: Manuel Desco	1,6	
13	25 14DEC	TUTORSHIP		X			Room: 7.2.J04 (G49) and 7.2.J08 (G48)	1,6	
14	26 20DEC	TUTORSHIP	X				Room: 7.0.J06	1.6	
								1.6	
							Subtotal 1	**41,6**	
		Total 1 *(Hours of class plus student homework hours between weeks 1-14)*							

15		Tutorials, handing in, etc							
16		Assessment						3	
17									
18									
							Subtotal 2	**3**	
							Total 2 *(Hours of class plus student homework hours between weeks 15-18)*		
							TOTAL A *(Total 1 + Total 2)*		

LABORATORIES CLASSES PROGRAMMING						
WEEK	**SESSION**	**DESCRIPTION**	**LABORATORY**	**WEEKLY PROGRAMMING FOR STUDENT**		
				DESCRIPTION	CLASS HOURS	HOMEWORK HOURS (Max. 7h week)
	1	Visit to a research center: CIEMAT	CIEMAT	The visit will be in four groups (1 day). October 24th	1,6	
	2	Visit to a hospital: HGGM. Radiotherapy, Radiology, Nuclear and Experimental Services. Flow cytometry, auto-analyzer. Small animal.	HGGM	The visit will be in six groups (3 days). November 6th, 7th, 8th.	1,6+1.6	
				Subtotal 3	**4.8**	
				Total 3 *(Hours of class plus student homework hours of ten sessions laboratories)*		
				TOTAL B *(Total 3)*		

TOTAL *(Total A + Total B. Maximum 180 hours)*	