Universidad Carlos III de Madrid
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COURSE: Introduction to Biomedical Engineering		
DEGREE: Biomedical Engineering	**YEAR: 2018/2019**	**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 5SEP	**Course presentation & Biomedical engineering**	X				Room: 7.0.J06 Professor: Mónica Abella /Manuel Desco **(Time change, 13:00-15:00)**	1,6	
1	2 6SEP	Basics on Digital Image I		X	X	X	Computer room: 7.0.J02 Professor: Mónica Abella / Cristóbal Martinez	1,6	
2	3 12SEP	Medical Image Systems I	X				Room: 7.0.J06 Professor: Mónica Abella	1,6	
2	4 13SEP	Basics on Digital Image II		X	X	X	Computer room: 7.0.J02 Professor: Mónica Abella / Cristóbal Martínez	1,6	
3	5 19SEP	Medical Image Systems II	X				Room: 7.0.J06 Professor: Mónica Abella / Beatriz Salinas (sondas)	1,6	
3	6 20SEP	Biomedical signals and its instrumentation (I)		X			Room: 7.2.J04 (G49) and 7.2.J08 (G48) Professor: Juan José Vaquero	1,6	
4	7 26SEP	**TEST on imaging sessions 2-5 (15 minutes)** Biomedical signals and its instrumentation (II)	X				Room: 7.0.J06 Professor: Juan José Vaquero	1,6	

4	8 27SEP	Practical issues in instrumentation: SNR, dB, amplifier, filter		X			Room: 7.2.J04 (G49) and 7.2.J08 (G48) Professor: Juan José Vaquero	1,6	
5	9 3OCT	Bio-effects of Radiation and E/M Fields	X				Room: 7.0.J06 Professor: Manuel Desco	1,6	
5	10 4OCT	EXAMPLE: Optical imaging: milk experiment EXAMPLE: BioMEMs - Flow cytometry		X	X	X	BiiG laboratories (1.0.G14 / 1.0.G15) Professor: Cristóbal Martínez / Arrate Muñoz	1,6	
6	11 10OCT	**TEST on sessions 6-9 (15 minutes)** EXAMPLE: PET/CT	X				Room: 7.0.J06 Professor: Manuel Desco	1,6	
6	**11 OCT**	**Holiday**		X					
7	12 17OCT	EXAMPLE: Deep brain stimulation – preclinical research	X				Room: 7.0.J06 Professor: Maria Luisa Soto	1,6	
7	13 18OCT	EXAMPLE: Optical imaging: milk experiment EXAMPLE: BioMEMs - Flow cytometry		X	X	X	BiiG laboratories (1.0.G14 / 1.0.G15) Professor: Cristóbal Martínez / Arrate Muñoz	1,6	
8	14 24OCT	EXAMPLE: Nanotechnology - Molecular imaging in oncology	X				Room: 7.0.J06 Professor: Beatriz Salinas	1,6	
8	15 25OCT	EXAMPLE: ECG / Nanotechnology		X	X	X	BiiG laboratories (1.0.G14 / 1.0.G15) Professor: Cristóbal Martínez / Beatriz Salinas	1,6	
9	16 31OCT	**TEST on sessions 10-15 (15 minutes)** Bio-Molecular Principles: DNA structure	X				Room: 7.0.J06 Professor: José Luis Jorcano	1,6	
9	**1NOV**	**Holiday**		X					
10	17 7NOV	Bio-Molecular Principles: DNA replication and repair	X				Room: 7.0.J06 Professor: José Luis Jorcano	1,6	
10	18 8NOV	Bio-Molecular Principles: DNA transcription (RNA synthesis)		X			Room: 7.2.J04 (G49) and 7.2.J08 (G48) Professor: José Luis Jorcano	1,6	
11	19 14NOV	Bio-molecular principles: Protein synthesis and structure	X				Room: 7.0.J06 Professor: José Luis Jorcano	1,6	
11	20 15NOV	Introduction to Cells I		X			Room: 7.2.J04 (G49) and 7.2.J08 (G48) Professor: Marcela del Río	1,6	
12	21 21NOV	**TEST on Bio-Molecular Principles sessions 16-19 (15 minutes)** Introduction To Cells II	X				Room: 7.0.J06 Professor: Marcela del Río	1,6	
12	22 22NOV	Introduction to Tissue and Organs		X			Room: 7.2.J04 (G49) and 7.2.J08 (G48) Professor: Marcela del Río	1,6	
13	23 28NOV	Introduction to Tissue Engineering	X				Room: 7.0.J06 Professor: Marcela del Río	1,6	
13	24	Innovation (technology transfer examples)		X			Room: 7.2.J04 (G49) and 7.2.J08 (G48) Professor: Manuel Desco	1,6	

	29NOV								
14	25 5DEC	**TEST on cells and tissue engineering sessions 20-23 (15 minutes)** TUTORSHIP	X				Room: 7.0.J06	1,6	
14	**6DEC**	**Holiday**						**1.6**	
							Subtotal 1	**41,6**	
							Total 1 *(Hours of class plus student homework hours between weeks 1-14)*		

15	26 12DEC	TUTORSHIP						1.6	
15									
16		Assessment						3	
16									
							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 23th.	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 5th, 6th and 7th.	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)*	