



COURSE: Introduction to Biomedical Engineering		
DEGREE: Biomedical Engineering	YEAR: 2019/2020	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 4SEP	Course presentation & Biomedical engineering	X				Room: 4.2.E04 Professor: Mónica Abella / Manuel Desco / Beatriz Salinas (Time change, 13:00-15:00)	1,6	
1	2 5SEP	Basics on Digital Image I		X	X	X	Computer room: 7.0.J02 (G49 & G48) Professor: Mónica Abella / Alessandro Piol	1,6	
2	3 11SEP	Medical Image Systems I: X-ray + MN	X				Room: 7.0.J01 Professor: Mónica Abella	1,6	
2	4 12SEP	Basics on Digital Image II		X	X	X	Computer room: 7.0.J02 (G49 & G48) Professor: Mónica Abella / Alessandro Piol	1,6	
3	5 18SEP	Medical Image Systems II: US + MRI	X				Room: 7.0.J01 Professor: Mónica Abella	1,6	
3	6 19SEP	Biomedical signals and its instrumentation (I)		X			Room: 7.1.J08 / 7.2.J08 Professor: Beatriz Salinas	1,6	
4	7 25SEP	TEST on imaging sessions 2-5 (15 minutes) Biomedical signals and its instrumentation (II)	X				Room: 7.0.J01 Professor: Beatriz Salinas	1,6	

4	8 26SEP	Practical issues in instrumentation: SNR, dB, amplifier, filter		X			Room: 7.1.J08 / 7.2.J08 Professor: Beatriz Salinas	1,6	
5	9 20CT	Bio-effects of Radiation and E/M Fields	X				Room: 7.0.J01 Professor: Manuel Desco	1,6	
5	10 30CT	EXAMPLE: Optical imaging: milk experiment EXAMPLE: BioMEMs - Flow cytometry		X	X	X	BiiG laboratories (1.0.G14 / 1.0.G15) Professor: Beatriz Salinas / Nikolaos Sakaltras	1,6	
6	11 9OCT	TEST on sessions 6-9 (15 minutes) EXAMPLE: Nanotechnology - Molecular imaging in oncology	X				Room: 7.0.J01 Professor: Beatriz Salinas	1,6	
6	12 10OCT	EXAMPLE: Optical imaging: milk experiment EXAMPLE: BioMEMs - Flow cytometry		X	X	X	BiiG laboratories (1.0.G14 / 1.0.G15) Professor: Beatriz Salinas / Nikolaos Sakaltras	1,6	
7	13 16OCT	EXAMPLE: PET/CT	X				Room: 7.0.J01 Professor: Manuel Desco	1,6	
7	14 17OCT	EXAMPLE: ECG EXAMPLE: Nanotechnology		X	X	X	BiiG laboratories (1.0.G14 / 1.0.G15) Professor: Beatriz Salinas / Nikolaos Sakaltras	1,6	
8	15 23OCT	Innovation (technology transfer examples)	X				Room: 7.0.J01 Professor: Manuel Desco	1,6	
8	16 24OCT	EXAMPLE: ECG EXAMPLE: Nanotechnology		X	X	X	BiiG laboratories (1.0.G14 / 1.0.G15) Professor: Beatriz Salinas / Nikolaos Sakaltras	1,6	
9	17 30OCT	TEST on sessions 10-15 (15 minutes) Introduction to Cells I	X				Room: 7.0.J01 Professor: Carlos León	1,6	
9	18 31OCT	Introduction To Cells II		X			Room: 7.1.J08 / 7.2.J08 Professor Carlos León	1,6	
10	19 6NOV	Introduction to Tissue and Organs	X				Room: 7.0.J01 Professor: Sara Guerrero	1,6	
10	20 7NOV	TEST on cells and tissue engineering sessions 17-20 (15 minutes) Introduction to Tissue Engineering		X			Room: 7.1.J08 / 7.2.J08 Professor: Sara Guerrero	1,6	
11	21 13NOV	Bio-Molecular Principles: DNA structure	X				Room: 7.0.J01 Professor: José Luis Jorcano	1,6	
11	22 14NOV	Bio-Molecular Principles: DNA replication and repair		X			Room: 7.1.J08 / 7.2.J08 Professor: José Luis Jorcano	1,6	
12	23 20NOV	Bio-Molecular Principles: DNA transcription (RNA synthesis)	X				Room: 7.0.J01 Professor: José Luis Jorcano	1,6	
12	24 21NOV	Bio-molecular principles: Protein synthesis and structure		X			Room: 7.1.J08 / 7.2.J08 Professor: José Luis Jorcano	1,6	
13	25 27NOV	TEST on Bio-Molecular Principles sessions 21-24 (15 minutes) EXAMPLE: Neuroimaging: discovering the brain of pregnant women	X				Room: 7.0.J01 Professor: Magdalena Martín	1,6	

13	26 28NOV	NO SESSION							
14	27 4DEC	EXAMPLE: Deep brain stimulation – preclinical research	X				Room: 7.0.J01 Professor: Maria Luisa Soto		
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)								
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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 dos groups (1 day). 28 Oct, 3pm-7pm	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). 2, 3, 4 Dec, 2pm-7pm	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)