



COURSE: Introduction to Biomedical Engineering		
DEGREE: Biomedical Engineering	YEAR: 2020/2021	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 15SEP, 15:00	Course presentation & Biomedical engineering EXTRA	X				Online Professor: Mónica Abella / Manuel Desco / Beatriz Salinas	1,6	
1	2 16&18SEP	Basics on Digital Image I (ONLINE)		X	X	X	ONLINE Professor: Mónica Abella / Alessandro Piol	1,6	
1	3 17SEP	Medical Image Systems I	X				Online Professor: Mónica Abella	1,6	
2	4 23&25SEP	Basics on Digital Image II (ONLINE)		X	X	X	ONLINE Professor: Mónica Abella / Alessandro Piol	1,6	
2	5 24SEP	Medical Image Systems II	X				Online Professor: Mónica Abella	1,6	
3	6 30SEP&2OCT	Medical Image Systems III		X			Room 7.1.J06 (G49), and Room 7.1.J07 (G48) Professor: Mónica Abella	1,6	
3	7 1OCT	TEST on imaging sessions 2-5 (15 minutes) EXAMPLE: PET/CT	X				Online Professor: Manuel Desco	1,6	

4	8 7&9OCT	Biomedical signals and its instrumentation (I)		X			Room 7.1.J06 (G49), and Room 7.1.J07 (G48) Professor: Beatriz Salinas	1,6
4	9 8OCT	Biomedical signals and its instrumentation (II)	X				Online Professor: Beatriz Salinas	1,6
5	10 14&16OCT	Practical issues in instrumentation: SNR, dB, amplifier, filter		X			Room 7.1.J06 (G49), and Room 7.1.J07 (G48) Professor: Cristóbal Martínez	1,6
5	11 15OCT	Instrumentation examples: EMG, ECG,...	X				Online Professor: Cristóbal Martínez	1,6
6	12 21&23OCT	TEST on sessions 6-9 (15 minutes) EXAMPLE: Nanotechnology and nanomedicine		X			Room 7.1.J06 (G49), and Room 7.1.J07 (G48) Professor: Beatriz Salinas	1,6
6	13 22OCT	EXAMPLE: Molecular imaging in oncology	X				Online Professor: Beatriz Salinas	1,6
7	14 28&30OCT	EXAMPLE: Nanotechnology		X	X	X	BiiG laboratories (1.0.G14 / 1.0.G15) Professor: Beatriz Salinas	1,6
7	15 29OCT	TEST on sessions 10-15 (15 minutes) Bio-Molecular Principles: DNA structure	X				Online Professor: José Luis Jorcano	1,6
8	16 4&6NOV	Bio-Molecular Principles: DNA replication and repair		X			Room 7.1.J06 (G49), and Room 7.1.J07 (G48) Professor: José Luis Jorcano	1,6
8	17 5NOV	Bio-Molecular Principles: DNA transcription (RNA synthesis)	X				Online Professor: José Luis Jorcano	1,6
9	18 11&13NOV	Bio-molecular principles: Protein synthesis and structure		X			Room 7.1.J06 (G49), and Room 7.1.J07 (G48) Professor: José Luis Jorcano	1,6
9	19 12NOV	TEST on Bio-Molecular Principles sessions 16-19 (15 minutes) Introduction to Cells I	X				Online Professor: Marcela Del Río	1,6
10	20 18&20NOV	Introduction To Cells II		X			Room 7.1.J06 (G49), and Room 7.1.J07 (G48) Professor: Marcela Del Río	1,6
10	21 19NOV	Introduction to Tissue and Organs	X				Online Professor: Marcela Del Río	1,6
11	22 25&27NOV	Introduction to Tissue Engineering		X			Room 7.1.J06 (G49), and Room 7.1.J07 (G48) Professor: Marcela Del Río	1,6
11	23 26NOV	TEST on cells and tissue engineering sessions 20-23 (15 minutes) Innovation (technology transfer examples)	X				Online de 9 a 11:00 Professor: Manuel Desco	1,6
12	24 2&4DEC	EXAMPLE: BioMEMs - Flow cytometry		X	X	X	BiiG laboratories (1.0.G14 / 1.0.G15) Professor: Beatriz Salinas	1,6
12	25 3DEC	EXAMPLE: Respirators	X				Online de 9 a 11:00 Professor: Manuel Desco	1,6
13	26 9&11DEC	EXAMPLE: Optical imaging: milk experiment (ONLINE)		X	X	X	ONLINE Professor: Nikolaos Sakaltras	1,6

13	27 10DEC	EXAMPLE: Deep brain stimulation – preclinical research	X				Online Professor: Maria Luisa Soto		
14	28 16&18DEC	EXAMPLE: Neuroimaging: discovering the brain of pregnant women		X			Room 7.1.J06 (G49), and Room 7.1.J07 (G48) Professor: Magdalena Martín		
14	29 17DEC	Bio-effects of Radiation and E/M Fields	X				Online de 9 a 11:00 Professor: Manuel Desco	1,6	

Subtotal 1 **41,6**

Total 1 (Hours of class plus student homework hours between weeks 1-14)

15									
15									
16									
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). This visit will depend on the sanitary situation due to COVID19. If necessary, it will be substituted by a practical session with videos and discussion.	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). This visit will depend on the sanitary situation due to COVID19. If necessary, it will be substituted by a practical session with videos and discussion.	1,6+1.6	
Subtotal 3					4.8	
Total 3 (<i>Hours of class plus student homework hours of ten sessions laboratories</i>)						
TOTAL B (<i>Total 3</i>)						
TOTAL (<i>Total A + Total B. Maximum 180 hours</i>)						