



COURSE: BIOMEDICAL MICRODEVICES

DEGREE: BIOMEDICAL ENGINEERING

YEAR: 2020/2021

TERM: 2nd

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 14SEP20	1	Introduction to the microscale		X			Course introduction & student activity	1,6	6
1 16SEP20	2	BioMEMS materials and microfabrication: Photolithography	M1				Reading of proposed topics & student activity	1,6	
2 21SEP20	3	Imaging and characterizing the microscale: Light microscope Microfabrication: Micromachining	M2				Reading of proposed topics & student activity	1,6	6
2 23SEP20	4	Imaging and characterizing the microscale: SEM/TEM Microfabrication: Micropatterning	M3				Reading of proposed topics & student activity	1,6	
3 28SEP20	6	Microfluidics: Physical principles	M4				Reading of proposed topics & student activity	1,6	6
3 30SEP20	7	Microfluidics: Fluids in electrical and acoustic fields	M5				Reading of proposed topics & student activity	1,6	
4 5OCT20	9	Microfluidics: Fabrication and operation of microfluidic channels	M6				Reading of proposed topics & student activity	1,6	6

4 7OCT20	10	Microfabrication: Micromachining	M7				Reading of proposed topics & student activity	1,6	
5 12OCT20		Bank Holiday							
5 14OCT20	12	Microfabrication: Micropatterning	M8				Reading of proposed topics & student activity	1,6	
5 15OCT20	13	The Alphabet Game I		X				1,6	6
6 19OCT20	14	BioMEMS as miniaturized sensors: Biomechanical and optical transducers	M9				Reading of proposed topics & student activity	1,6	6
6 21OCT20	15	BioMEMS as miniaturized sensors: Electrical-electromechanical transducers	M10				Reading of proposed topics & student activity	1,6	
7 26OCT20	17	Glucometer II Lab		X				1,6	6
7 29OCT20	18	Accelerometers	M11				Reading of proposed topics & student activity	1,6	
8 2NOV20		Bank holiday							3
8 4NOV20	20	Flexible technologies	M12				Reading of proposed topics & student activity	1,6	
9 9NOV20	22	Flow cytometry data analysis		X				1,6	6
9 11NOV20	23	Cell based chips: Microfluidics flow cytometers	M13				Reading of proposed topics & student activity	1,6	
10 16NOV20	24	Low-cost microfluidics (Diego Megías, CNIO)		X			Seminar	1,6	6
10 18NOV20	25	Cell based chips: Cell sorting & trapping	M14				Reading of proposed topics & student activity	1,6	
11 23NOV20	26	The Alphabet Game II		X				1,6	6
11 25NOV20	27	BioMEMS for analysis and diagnosis: Molecular biology on a chip	M15				Reading of proposed topics & student activity	1,6	
12 30NOV20	28	BioMEMS workshop I		X				1,6	6
12 2DEC20	29	BioMEMS for analysis and diagnosis: Microfluidic immunoassays & chips for genomics and proteomics	M16				Reading of proposed topics & student activity	1,6	
13		Bank Holiday							

7DEC20									
13 9DEC20		Bank Holiday							
14 14DEC20	30	BioMEMS workshop II			X			1,6	3
15 16DEC20	31	BioMEMS workshop III			X			1,6	3
								Subtotal 1	40
									75
									115
15	32	Tutorials, handling in, etc						Examples and exercises	1,6
15	33	Tutorials, handling in, etc						Examples and exercises	1,6
16		Assessment							6
16									
17									
								Subtotal 2	9,2
				Total 2 (Hours of class plus student homework hours between weeks 16-19)					9,2
				TOTAL A (Total 1 + Total 2)					124,2

LABORATORIES CLASSES PROGRAMMING (*)						
WEEK	SESSION	DESCRIPTION	LABORATORY	WEEKLY PROGRAMMING FOR STUDENT		
				DESCRIPTION	CLASS HOURS	HOMEWORK HOURS (Max. 7h week)
2 24SEP20	5	PDMS I Lab	1.0.G15		1,6	3
4 05OCT20	11	Microfluidics Lab	Remote		1,6	3
4 8OCT20	16	PDMS II Lab	1.0.G15		1,6	3

8 22OCT20	21	Glucometer I lab	1.0.G15		1,6	3
3 5NOV20	8	Flexible technologies lab	1.0.G15		1,6	3
Subtotal 3					9,6	18,0
Total 3 (<i>Hours of class plus student homework hours of ten sessions laboratories</i>)					27,6	
TOTAL B (<i>Total 3</i>)					27,6	
TOTAL (<i>Total A + Total B. Maximum 180 hours</i>)					151,8	

() In EPS are given an additional 16 hours of laboratory practices along ten sessions.*