



COURSE: BIOMEDICAL MICRODEVICES									
DEGREE: BIOMEDICAL ENGINEERING						YEAR: 2019/2020		TERM: 2 nd	
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 (27/01)	1	Introduction to the microscale		X			Course introduction & student activity	1,6	6
1 (29/01)	2	Seminar: Biomedical applications of graphene		X			Seminar	1,6	
2 (03/02)	3	BioMEMS materials and microfabrication: Photolithography	M1				Reading of proposed topics & student activity	1,6	6
2 (05/02)	4	Microfabrication: Micromachining	M2				Reading of proposed topics & student activity	1,6	
3 (10/02)	5	Microfabrication: Micropatterning	M3				Reading of proposed topics & student activity	1,6	6
3 (12/02)	6	Imaging and characterizing the microscale: light microscope	M4				Reading of proposed topics & student activity	1,6	
4 (17/02)	7	Imaging and characterizing the microscale: SEM/TEM	M5				Reading of proposed topics & student activity	1,6	6
4 (19/02)	8	Microfluidics: Physical principles	M6				Reading of proposed topics & student activity	1,6	

5 (24/02)	9	PDMS I&II Lab		X		Practice	1,6	6
5 (26/02)	10	Microfluidics: Fabrication and operation of microfluidic channels	M6			Reading of proposed topics & student activity	1,6	
6 (02/03)	11	PDMS III Lab		X		Practice	1,6	6
6 (04/03)	12	BioMEMS as miniaturized sensors: Biomechanical and optical transducers	M7			Reading of proposed topics & student activity	1,6	
7 (09/03)	13	BioMEMS as miniaturized sensors: Electrical-electrochemical transducers	M8			Reading of proposed topics & student activity	1,6	6
7 (11/03)	14	Microfluidics: Fluids in electrical and acoustic fields	M9			Reading of proposed topics & student activity	1,6	
8 (16/03)	15	Midterm Exam I. Seminar: Low-cost microfluidics		X		Exam & Seminar	1,6	6
8 (18/03)	16	Microfluidics: Fabrication and operation of microfluidic channels	M10			Reading of proposed topics & student activity	1,6	
9 (23/03)	17	Microfluidics I & II Lab		X		Practice	1,6	6
9 (25/03)	18	Cell based chips: Microfluidic flow cytometers	M11			Reading of proposed topics & student activity	1,6	
10 (30/03)	19	Flow cytometry data analysis		X		Computer Exercise	1,6	6
10 (01/04)	20	Cell based chips: Cell sorting & trapping	M12			Reading of proposed topics & student activity	1,6	
11 (06/04)	21	Easter						
11 (08/04)	22	Easter						
12 (13/04)	23	Easter						
12 (15/04)	24	BioMEMS for analysis and diagnosis: Microfluidic immunoassays & chips for genomics and proteomics	M13			Reading of proposed topics & student activity	1,6	3
13 (20/04)	25	Glucometer I & II		X		Practice	1,6	6
13 (22/04)	26	BioMEMS workshop I		X		Scientific Papers 8-14	1,6	
14 (27/04)	27	Glucometer III & IV		X		Practice	1,6	6
14 (29/04)	29	BioMEMS workshop II	3	X		Scientific Papers 1-7	1,6	
15 (04/05)	30	Flexible technologies	M14			Reading of proposed topics & student activity	1,6	6
15 (06/05)	31	Flexible technologies lab I & II		X		Reading of proposed topics & student activity	1,6	

Subtotal 1	44,8	84
	128,8	

16 (11/05)	27	BioMEMS Outdoor Class					Revision	1,6	
16 (13/05)	28	Tutorials, handling in, etc					Examples and exercises	1,6	
17		Assessment						6	
17									
18									
Subtotal 2								9,2	
Total 2 (<i>Hours of class plus student homework hours between weeks 16-19</i>)								9,2	
TOTAL A (<i>Total 1 + Total 2</i>)								138,0	

LABORATORIES CLASSES PROGRAMMING (*)							
WEEK	SESSION	DESCRIPTION	LABORATORY	WEEKLY PROGRAMMING FOR STUDENT			
				DESCRIPTION	CLASS HOURS	HOMEWORK HOURS (Max. 7h week)	
7 (24/02)	1	PDMS I & II	Lab 1.0.G15 (Bioengineering)		1,6	3	
9 (23/03)	2	Microfluidics I & II	Lab 1.0.G15 (Bioengineering)		1,6	3	
13 (20/04)	3	Glucometer I & II	Lab 1.0.G15 (Bioengineering)		1,6	3	
14 (27/04)	4	Glucometer III & IV	Lab 1.0.G15 (Bioengineering)		1,6	3	
15 (06/05)	5	Flexible technologies I & II	Lab 1.0.G15 (Bioengineering)		1,6	3	
					Subtotal 3	8,0	15,0
					Total 3 (<i>Hours of class plus student homework hours of ten sessions laboratories</i>)		23,0
					TOTAL B (<i>Total 3</i>)		23,0

TOTAL (<i>Total A + Total B. <u>Maximum 180 hours</u></i>)	161,0
---	--------------

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