



COURSE: BIOMEDICAL MICRODEVICES									
DEGREE: BIOMEDICAL ENGINEERING						YEAR: 2018/2019		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 (29/01)	1	Introduction to the microscale		X			Course introduction & student activity	1,6	6
1 (01/02)	2	BioMEMS materials and microfabrication: Photolithography	M1				Reading of proposed topics & student activity	1,6	
2 (05/02)	3	Microfabrication: Micromachining	M2				Reading of proposed topics & student activity	1,6	6
2 (08/02)	4	Microfabrication: Micropatterning	M3				Reading of proposed topics & student activity	1,6	
3 (12/02)	5	Imaging and characterizing the microscale: AFM, TEM/SEM, light microscope		X			Reading of proposed topics & student activity	1,6	6
3 (15/02)	6	Microfluidics: Physical principles	M4				Reading of proposed topics & student activity	1,6	
4 (19/02)	7	PDMS I&II Lab		X			Practice	1,6	6
4 (22/02)	8	Microfluidics: Fluids in electrical and acoustic fields	M5				Reading of proposed topics & student activity	1,6	

5 (26/02)	9	PDMS III Lab		X		Practice	1,6	6
5 (01/03)	10	Microfluidics: Fabrication and operation of microfluidic channels	M6			Reading of proposed topics & student activity	1,6	
6 (05/03)	11	Microfluidics I & II Lab		X		Practice	1,6	6
6 (08/03)	12	BioMEMS as miniaturized sensors: Biomechanical and optical transducers	M7			Reading of proposed topics & student activity	1,6	
7 (12/03)	13	BioMEMS as miniaturized sensors: Electrical-electrochemical transducers	M8			Reading of proposed topics & student activity	1,6	6
7 (15/03)	14	BioFETS & Paper transistors	M9			Reading of proposed topics & student activity	1,6	
8 (19/03)	15	Midterm Exam I. Seminar: Optical sensors		X		Exam & Seminar	1,6	6
8 (22/03)	16	Cell based chips: Microfluidic flow cytometers	M10			Reading of proposed topics & student activity	1,6	
9 (26/03)	17	Flow cytometry data analysis		X		Computer Exercise	1,6	6
9 (29/03)	18	Cell based chips: Cell sorting & trapping Seminar: Non-Invasive White Cell Counts at the Tip of your Finger	M11			Reading of proposed topics & student activity & seminar	1,6	
10 (02/04)	19	Scientific Paper Presentations 1-8		X		Scientific Papers 1-7	1,6	6
10 (05/04)	20	Scientific Paper Presentations 9-16		X		Scientific Papers 8-13	1,6	
11 (09/04)	21	Glucometer I & II		X		Practice	1,6	6
11 (12/04)	22	Glucometer III		X		Practice	1,6	
12 (16/04)		Easter						
12 (19/04)		Easter						
13 (23/04)	23	Glucometer IV		X		Practice	1,6	6
13 (26/04)	24	Graphene: Introduction & biomedical applications	M12			Reading of proposed topics & student activity	1,6	
14 (30/04)	25	Graphene I & II Lab		X		Practice	1,6	3
14 (03/05)	26	Labor Day Holiday						
15 (07/05)	27	BioMEMS for analysis and diagnosis: Microfluidic immunoassays & chips for genomics and proteomics	M13			Reading of proposed topics & student activity	1,6	6
15 (10/05)	28	Hybrid technologies for cell biology	M14			Reading of proposed topics & student activity	1,6	
Subtotal 1							43,2	81

	124,2
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16 (14/05)		BioMEMS Outdoor Class					Revision AMB/NFG	1,6	
16 (17/05)		Tutorials, handing in, etc					Examples and exercises	1,6	
17		Assessment						6	
17									
18									
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)								133,4	

LABORATORIES CLASSES PROGRAMMING (*)						
WEEK	SESSION	DESCRIPTION	LABORATORY	WEEKLY PROGRAMMING FOR STUDENT		
				DESCRIPTION	CLASS HOURS	HOMEWORK HOURS (Max. 7h week)
7 (19/02)	1	PDMS I & II	Lab 1.0.G15 (Bioengineering)		1,6	3
9 (05/03)	2	Microfluidics I & II	Lab 1.0.G15 (Bioengineering)		1,6	3
10 (09/04)	3	Glucometer I & II	Lab 1.0.G15 (Bioengineering)		1,6	3
11 (30/04)	4	Graphene I&II	Lab 1.0.G15 (Bioengineering)		1,6	3
Subtotal 3					6,4	12
Total 3 (Hours of class plus student homework hours of ten sessions laboratories)					18,4	
TOTAL B (Total 3)					18,4	

TOTAL (<i>Total A + Total B. Maximum 180 hours</i>)	151,8
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() In EPS are given an additional 16 hours of laboratory practices along ten sessions.*