



**COURSE: Medical Instrumentation and Devices**

**DEGREE: Biomedical Engineering**

**YEAR: 2016/2017**

**TERM: First semester**

**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			Instructor	CLASS HOURS	HOMEWORK HOURS (Max. 7h week)
08SEP	1	Introduction to the design of medical devices	M1				JJV	1,6	3
13SEP	2	Cardiology applications: the ECG	M2				JJV	1,6	6,5
15SEP	3	Signal processing: ECG data analysis		S1	1.0G.15		RC	1,6	
20SEP	4	Pulse oximetry	M3				JJV	1,6	6,5
22SEP	5	ECG processing with Matlab: I/O, COMM, RT		S2	1.0G.15		RC	1,6	
27SEP	6	Radiation detectors	M4				JJV	1,6	6,5
29SEP	7	Semiconductor light detectors	M5				JJV	1,6	
04OCT	8	Photonic detectors in laboratory instrumentation		S3			JJV	1,6	6,5
06OCT	9	Radiation detectors signal processing (histograms)		S4	1.0G.15		RC	1,6	
13OCT	10	Point of Care (PoC) devices	M6				JJV	1,6	6,5
18OCT	11	Neurological applications: the EEG	M7				AMB	1,6	6,5
20OCT	12	EEG signal processing		S5	1.0G.15		AMB	1,6	
25OCT	13	Neurological applications: Hearing aids	M8				JJV	1,6	6,5
27OCT	14	Neuro-prosthesis: Cochlear implants	M9				JJV	1,6	
03NOV	15	<b>PARTIAL EXAM</b>	<b>E1</b>				AMB	1,6	6,5
08NOV	16	Speech signal processing with Matlab (spectrogram)		S6			RC	1,6	6,5
10NOV	17	Image Guided Interventions. Tacking Systems		S7	1.0G.14		JP	1,6	
15NOV	18	Image Guided Interventions. Patient to image registration. Practical Applications	M10				JP	1,6	6,5
17NOV	19	Navigation and therapy planning: Step-by-step applications (I)		S8	1.0G.14		JP	1,6	
22NOV	20	Navigation and therapy planning: Step-by-step applications (II)	M11				JP	1,6	6,5
24NOV	21	Radiation Therapy Devices	M12				VG	1,6	6,5
29NOV	22	Surgical Robots	M13				AMB	1,6	
01DIC	23	Feedback and control loops: Medical respirators		S9			JJV	1,6	6,5
13DIC	24	Introduction to physiological processes modelling		S10			JJV	1,6	6,5
15DIC	25	Wearables and self quantification	M14				JJV	1,6	6,5
							<b>Subtotal 1</b>	<b>40</b>	<b>94</b>

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

15		Tutorials, handing in, etc.				JJV		3,5
16		Assessment				JJV	3	6
17								
18								
<b>Total 2 (Hours of class plus student homework hours between weeks 15-18)</b>								12,5
<b>TOTAL A (Total 1 + Total 2)</b>								<b>146,5</b>

### LABORATORIES CLASSES PROGRAMMING (\*)

WEEK	SESSION	DESCRIPTION	LABORATORY	WEEKLY PROGRAMMING FOR STUDENT		
				DESCRIPTION	CLASS HOURS	HOMEWORK HOURS (Max. 7h week)
23SEP	1-2	ECG data acquisition and analysis	1.0G.15	09:00 - 13:00	3,2	2,8
07OCT	3-4	Radiation Detector	1.0G.15	09:00 - 13:00	3,2	2,8
14OCT	5-6	PO signal processing	1.0G.15	09:00 - 13:00	3,2	2,8
21OCT	7-8	Individual work	1.0G.15	09:00 - 13:00	3,2	2,8
18NOV	9-10	Image Guided Surgery	1.0G.14	09:00 - 13:00	3,2	2,8
25NOV	11-12	Individual work	1.0G.15	09:00 - 13:00	3,2	2,8
<b>Subtotal 3</b>					<b>19,2</b>	<b>16,8</b>
<b>Total 3 (Hours of class plus student homework hours of ten sessions laboratories)</b>						<b>36</b>
<b>TOTAL B (Total 3)</b>						<b>36</b>
<b>TOTAL (Total A + Total B. Maximum 180 hours)</b>						<b>182,5</b>

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