



COURSE: Advanced Topics in Medical Imaging (15562)		
DEGREE: BIOMEDICAL ENGINEERING	YEAR: 2019/20	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			DATE	CLASS HOURS	HOMEWORK HOURS (Max. 7h week)
1	1	Review of basic concepts learnt on image processing					Jan 27	1,6	7
1	2	Image processing with ImageJ			1.0.G14	X	Jan 30	1,6	
2	3	DICOM information model and functionality					Feb 3	1,6	7
2	4	Practical session: DICOM network services.			1.1.G.02	X	Feb 6	1,6	
3	5	3D Visualization					Feb 10	1,6	7
3	6	Practical session: 3D Visualization			1.0.G14	X	Feb 13	1,6	
4	7	Advanced segmentation I: Hough transform and Canny filter					Feb 17	1,6	7
4	8	Practical session on advanced segmentation I			1.1.G.02	X	Feb 20	1,6	
5	9	Wavelets					Feb 24	1,6	7

5	10	Practical session: wavelets			1.1.G.02	X	Feb 27	1,6	
6	11	Advanced segmentation II: Adaptive filters					Mar 2	1,6	
6	12	Practical session advanced segmentation II			1.1.G.02	X	Mar 5	1,6	7
7	13	Feature-based registration					Mar 9	1,6	
7	14	Intensity Based registration.					Mar 12	1,6	7
8	15	A complete workflow: Neuroimage analysis			1.1.G.02	X	Mar 16	1,6	
8	16	Practical session image registration			1.1.G.01	X	Mar 19	1,6	7
9	17	Postprocessing segmentation results and measuring error					Mar 23	1,6	
9	18	Practical session on mathematical morphology and measuring error in segmentation			1.1.G.02	X	Mar 26	1,6	7
10	19	Feature extraction and statistical classification I					Mar 30	1,6	
10	20	Feature extraction and statistical classification II					Apr 2	1,6	7
11	21	Preparing group presentations					Apr 16	1,6	
11	22	Practical session on classification I			1.1.G.02	X	Apr 20	1,6	7
12	23	Practical session on classification II			1.1.G.02	X	Apr 23	1,6	
12	24	Artificial Intelligence in Medical Image Analysis					Apr 27	1,6	7
13	25	Group presentations I					Apr 30	1,6	
13	26	Group presentations II					May 4	1,6	7
14	27	Group presentations III					May 7	1,6	
14	28	Syngo Academy / Visit to radiology department					TBD	1,6	2
15	29	Tutorial					TBD	1,6	1,4

Subtotal 1

46,4

94,6

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

141

15		Tutorials, handing in, etc						2	
16		Assessment						3	8
17									
18									

Subtotal 2

5

8

Total 2 (Hours of class plus student homework hours between weeks 15-18)

13

TOTAL A (Total 1 + Total 2)	154
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LABORATORIES CLASSES PROGRAMMING (*)						
WEEK	SESSION	DESCRIPTION	LABORATORY	WEEKLY PROGRAMMING FOR STUDENT		
				DESCRIPTION	CLASS HOURS	HOMEWORK HOURS (Max. 7h week)
	1	Image processing with ImageJ	1.0.G14		1,6	1
	2	DICOM Network services	1.1.G.02		1,6	1
	3	Wavelets	1.1.G.02		1,6	1
	4	Advanced segmentation	1.1.G.02		1,6	1
	5	Neuroimaging and Image registration	1.1.G.02 - 1.1.G.01		1,6	1
	6	Adaptive filters	1.1.G.02		1,6	1
	7	Image classification	1.1.G.02		1,6	1
	8	Machine learning in Med. Img.	1.1.G.02		1,6	1
	9	Syngo academy	External activity		1,6	1
	10	3D visualization	1.0.G14		1,6	1
Subtotal 3					16	10
Total 3 (Hours of class plus student homework hours of ten sessions laboratories)					26	

TOTAL B (Total 3)	26
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TOTAL (Total A + Total B. <u>Maximum 180 hours</u>)	180
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(*) In EPS are given an additional 16 hours of laboratory practices along ten sessions.