



<b>COURSE: Advanced Topics in Medical Imaging (15562)</b>		
<b>DEGREE: BIOMEDICAL ENGINEERING</b>	<b>YEAR: 2020/21</b>	<b>TERM: 2nd</b>

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						1,6	7
1	2	Image processing with ImageJ				X		1,6	
2	3	DICOM information model and functionality						1,6	7
2	4	Practical session: DICOM network services.				X		1,6	
3	5	3D Visualization						1,6	7
3	6	Practical session: 3D Visualization				X		1,6	
4	7	Advanced segmentation I: Hough transform and Canny filter						1,6	7
4	8	Practical session on advanced segmentation I				X		1,6	
5	9	Wavelets						1,6	7

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

**Subtotal 1**      **46,4**      **94,6**

<b>Total 1 (Hours of class plus student homework hours between weeks 1-14)</b>	<b>141</b>
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15		Tutorials, handing in, etc						2	
16		Assessment						3	8
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18									

**Subtotal 2**      **5**      **8**

<b>Total 2 (Hours of class plus student homework hours between weeks 15-18)</b>	<b>13</b>
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<b>TOTAL A</b> (Total 1 + Total 2)	<b>154</b>
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<b>LABORATORIES CLASSES PROGRAMMING (*)</b>						
<b>WEEK</b>	<b>SESSION</b>	<b>DESCRIPTION</b>	<b>LABORATORY</b>	<b>WEEKLY PROGRAMMING FOR STUDENT</b>		
				<b>DESCRIPTION</b>	<b>CLASS HOURS</b>	<b>HOMEWORK HOURS (Max. 7h week)</b>
	1	Image processing with ImageJ			1,6	1
	2	DICOM Network services			1,6	1
	3	Wavelets			1,6	1
	4	Advanced segmentation			1,6	1
	5	Neuroimaging and Image registration			1,6	1
	6	Adaptive filters			1,6	1
	7	Image classification			1,6	1
	8	Machine learning in Med. Img.			1,6	1
	9	Syngo academy	External activity		1,6	1
	10	3D visualization			1,6	1
<b>Subtotal 3</b>					<b>16</b>	<b>10</b>
<b>Total 3</b> (Hours of class plus student homework hours of ten sessions laboratories)					<b>26</b>	

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