COURSE: OPTICAL COMMUNICATIONS SYSTEMS (3 ECTS)		
MASTER: Master in Photonics Engineering	**YEAR: 2018-2019**	**TERM: 2nd**

WEEKLY PLANNING

SESSION	DESCRIPTION	GROUPS (mark X)		Special room for session (computer classroom, audio-visual classroom…)	WEEKLY PROGRAMMING FOR STUDENT		
		LECTURES	SEMINARS/ LAB[1]		DESCRIPTION	CLASS HOURS	HOMEWORK HOURS
1	**Introduction of the subject** Reminder of the basics of the optical networks and systems. Overview of the course	x			Introduction to the subject.	1,5	4
2	**Optical signal generation** Optical Modulators	x			Previous reading and revision of class materials.	1,5	
3	**Optical signal generation** Modulation formats	x			Previous reading and revision of class materials.	1,5	10
4	**Optical signal generation** Multicarrier signal generation	x			Previous reading and revision of class materials.	1,5	
5	**Optical emitters I** Spectral characterization of LED, multimode laser and single mode laser		x		Laboratory session. Introduction to optical fibers, and to spectral analyzer. Including test for checking student preparation	1,5	

6	**Optical emitters II** The electro-optical response of a laser (The P(I)-graph)		x		Laboratory session. Illustration of the concept of emission threshold current	1,5	20
7	**Signal recovery and noise sources** Types of noise	x			Previous reading and revision of class materials.	1,5	
8	**Signal recovery and noise sources.** Receiver parameters (S/N, B.E.R. & Q)	X			Previous reading and revision of class materials.	1,5	
9	**Signal recovery and noise sources** Power budget and Penalties	x			Previous reading and revision of class materials.	1,5	
10	**Signal recovery and noise sources** Coherent detection	x			Previous reading and revision of class materials.	1,5	
11	**Emulated FTTH link** Bidirectional link spanning two communications windows, simulating the FTTH connection		x		Laboratory session. WDM link assessment. Including test for checking student preparation	1,5	
12	**Advanced systems** Optical super channels	x			Previous reading and revision of class materials.	1,5	
13	**Advanced systems** Optical-Orthogonal Frequency Division Multiplexing (-OFDM) systems	x			Previous reading and revision of class materials.	1,5	
14	**Advanced systems** MIMO (Multiple Input-Mutiple Output) in optical communications	x			Previous reading and revision of class materials.	1,5	
					Subtotal 1	**21**	**34**
					Total 1 *(Hours of class plus student homework hours between weeks 1-7)*	**55**	

[1] **A maximum of 1-2 lab sessions**

	Tutorials, handing in, etc				Solving any remaining question	10	
15	Assessment				Studying the documentation for the final assessment.	3	7
					Subtotal 2	**3**	**17**
					Total 2 *(Hours of class plus student homework hours at week 8)*	**20**	

TOTAL *(Total 1 + Total 2)*	**75**