Universidad Carlos III de Madrid
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COURSE: OPTICAL SENSOR NETWORKS (3 ECTS)		
MASTER: Master in Photonics Engineering	**YEAR: 2017-2018**	**TERM:**

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	Optical fiber sensor basics.	x			Why these technologies can make the difference	1,5	4
2	Optical sensor network basics: building blocks	x			Previous reading and revision of class materials. Decision about the topics of the works.	1,5	
3	Optical sensor network basics: architectures and multiplexing techniques.	x			Previous reading and revision of class materials.	1,5	10
4	Optical point sensors and self-reference sensor networks: Self-reference techniques in intensity sensors	x			Previous reading and revision of class materials.	1,5	
5	Optical point sensors and self-reference sensor networks. Case of study	x			Previous reading and revision of class materials. Exercises	1,5	
6	Optical quasi-distributed sensor networks		x		Exercises, using a numerical tool, to simulate the optical response of nanoparticles.	1,5	20

	(FBG)						
7	Optical quasi-distributed sensor networks (FBG). Case of study	x			Previous reading and revision of class materials. Exercises	1,5	
8	Optical amplification in fiber-optic sensor networks	X			Previous reading and revision of class materials.	1,5	
9	Sensor networks in the lab (VPI or MATLAB simulation)	x			Design	1,5	
10	Power over fiber (PoF) basics and evolution.				Previous reading and revision of class materials.	1,5	
11	Sensor networks in the lab		x		Design and evaluation of an amplified fiber-optic sensor network or PoF sensor network	1,5	
12	Students work and lab presentation I	x			Working in groups of 2. Be able to defend the work in public	1,5	
13	Students work and lab presentation II		x		Working in groups of 2 Be able to defend the work in public	1,5	
14	Application in harsh environments. Case of study		x		PoF in sensor networks, high T measurments…	1,5	
					Subtotal 1	**21**	**34**
					Total 1 *(Hours of class plus student homework hours between weeks 1-7)*	**55**	

	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**