



<b>COURSE: DEVICES AND OPTICAL TRANSMISSION MEDIA</b>		<b>Academic Year: 2019-20</b>	
<b>DEGREE: TELEMATICS ENGINEERING &amp; COMMUNICATION SYSTEM ENGINEERING</b>		<b>YEAR: 3º</b>	<b>TERM: 2º</b>

*The course has 29 sessions distributed over 14 weeks. The laboratory sessions are set in 4 of these sessions and the Continuous Evaluation assessments are made in 2 of these sessions.*

WEEKLY PROGRAMMING									
WEEK	SESSION	CONTENT DESCRIPTION	GROUP (mark X)		SPECIAL ROOM FOR SESSION (computer class room, audio-visual class room,...)	Indicate YES/NO it is a 2 teachers session	WEEKLY SCHEDULE FOR STUDENTS		
			LECTURE	SEMINAR			DESCRIPTION	CLASS HOURS	HOMEWORK (Max. 7h per week)
1	1	INTRODUCTION (goals, skills, methodology, evaluation, DyMTO schedule,...). INTRODUCTION TO OPTICAL COMMUNICATIONS. M1: OPTICAL SOURCES (EMITTERS). BASIS AND DRIVER CIRCUITS.	X			NO	<ul style="list-style-type: none"> <li>BASIC CONCEPTS OF LIGHT AND OPTICAL COMMUNICATIONS.</li> <li>GUIDELINES FOR DESIGNING BIASING CIRCUITS FOR OPTICAL EMITTERS.</li> <li>OPTICAL AND ELECTRICAL CHARACTERISTICS AND APPLICATIONS OF LEDS.</li> </ul>	1,66	5
1	2	M1: OPTICAL SOURCES: EXERCISES (I).		X		NO		1,66	
2	3	M1: OPTICAL SOURCES: LASER.	X			NO	<ul style="list-style-type: none"> <li>OPTICAL AND ELECTRICAL CHARACTERISTICS AND APPLICATIONS OF LASERS.</li> </ul>	1,66	5
2	4	M1: OPTICAL SOURCES: EXERCISES (II).		X		NO		1,66	

3	5	M2: LIGHT PROPAGATION THROUGH OPTICAL FIBERS: PHYSICS, BASIC PARAMETERS AND OPTICAL ATTENUATION.	X			NO	<ul style="list-style-type: none"> <li>• UNDERSTANDING OF BASIC OPTICAL FIBER PARAMETERS AND EFFECT OF OPTICAL FIBER ATTENUATION. IDENTIFY THOSE PARAMETERS IN STANDARDS REPORTS.</li> </ul>	1,66	5
3	6	M2: EXERCISES ABOUT BASIC OPTICAL FIBER PARAMETERS (NUMERICAL APERTURE, ACCEPTANCE ANGLE, NORMALIZED FREQUENCY, NUMBER OF MODES).		X		NO		1,66	
4	7	M2: LIGHT PROPAGATION THROUGH OPTICAL FIBERS: ATTENUATION AND DISPERSION. DISPERSION TYPES: MODAL DISPERSION.	X			NO	<ul style="list-style-type: none"> <li>• UNDERSTANDING FIBER OPTICS: ATTENUATION (CAUSES ANS EFFECT ON OPTICAL LINK). DISPERSION (TYPES AND EFFECT ON DEPENDING ON OPTICAL FIBER). MODAL DISPERSION.</li> </ul>	1,66	7
4	8	M2: EXERCISES: ATTENUATION AND MODAL DISPERSION.		X		NO		1,66	
5	9	M2: LIGHT PROPAGATION THROUGH OPTICAL FIBERS: CHROMATIC DISPERSION and POLARIZATION DISPERSION (PMD). DISPERSION EFFECTS IN OPTICAL LINKS.	X			NO	<ul style="list-style-type: none"> <li>• UNDERSTANDING FIBER OPTICS: DISPERSION (TYPES AND EFFECT ON DEPENDING ON OPTICAL FIBER). CHROMATIC DISPERSION.</li> </ul>	1,66	5
5	10	M2: EXERCISES: DISPERSION IN SMF AND MMF OPTICAL FIBERS.		X		NO		1,66	
6	11	M3: OPTICAL DETECTORS (I).	X			NO	<ul style="list-style-type: none"> <li>• STUDYING OPTICAL DETECTORS.</li> <li>• <b>STUDYING FOR MIDTERM I.</b></li> </ul>	1,66	7
6	12	M3: OPTICAL DETECTORS AND CONDITIONING CIRCUIT EXERCISES. <b>PRACTICE 1 PREPARATION.</b>		X		NO		1,66	
7	13	<b>CONTINUOUS ASSESSMENT: 1<sup>ST</sup> EV. EXAM:</b> M1: OPTICAL SOURCES. M2: LIGHT PROPAGATION THROUGH OPTICAL FIBERS.	X			NO	<ul style="list-style-type: none"> <li>• STUDYING OPTICAL DETECTORS</li> <li>• <b>STUDYING FOR MIDTERM I.</b></li> <li>• <b>WORKING ON THEORETICAL REPORT OF PRACTICE 1.</b></li> </ul>	1,66	6
7	14	<b>PRACTICE 1: EMITTER CHARACTERIZATION, DETECTOR AND OPTICAL FIBER (SESSION I).</b> <b>PRACTICE 1 THEORETICAL REPORT SUBMISSION.</b>		X	LAB.	YES		1,66	
8	15	M3: OPTICAL DETECTORS (II).	X			NO	<ul style="list-style-type: none"> <li>• STUDYING OPTICAL DETECTORS.</li> <li>• <b>WORKING ON EXPERIMENTAL REPORT OF PRACTICE 1.</b></li> </ul>	1,66	6
8	16	<b>PRACTICE 1: EMITTER CHARACTERIZATION, DETECTOR AND OPTICAL FIBER (SESSION II).</b>		X		NO		1,66	
9	17	M3: OPTICAL DETECTORS EXERCISES (II).	X			NO	<ul style="list-style-type: none"> <li>• STUDYING PASSIVE OPTICAL DEVICES.</li> <li>• <b>WORKING ON EXPERIMENTAL REPORT OF PRACTICE 1.</b></li> </ul>	1,66	6
9	18	M4: PASSIVE OPTICAL DEVICES AND OPTICAL AMPLIFIERS (I). <b>PRACTICE 1 EXPERIMENTAL REPORT SUBMISSION.</b>		X	LAB.	YES		1,66	

10	19	M4: PASSIVE OPTICAL DEVICES AND OPTICAL AMPLIFIERS EXERCISES (I).	X			NO	<ul style="list-style-type: none"> <li>STUDYING PASSIVE OPTICAL COMPONENTS AND OPTICAL AMPLIFIERS.</li> <li><b>WORKING ON THEORETICAL REPORT OF PRACTICE 2.</b></li> </ul>	1,66	5
10	20	M4: PASSIVE OPTICAL DEVICES AND OPTICAL AMPLIFIERS (II). <b>PRACTICE 2 PREPARATION.</b>		X		NO		1,66	
11	21	M4: PASSIVE OPTICAL DEVICES AND OPTICAL AMPLIFIERS EXERCISES (II).	X			NO	<ul style="list-style-type: none"> <li>STUDYING OPTICAL PASSIVE COMPONENTS AND OPTICAL AMPLIFIERS.</li> <li><b>STUDYING FOR MIDTERM II.</b></li> <li><b>WORKING ON EXPERIMENTAL REPORT OF PRACTICE 2.</b></li> </ul>	1,66	7
11	22	<b>PRACTICE 2: OPTICAL PASSIVE COMPONENTS CHARACTERIZATION AND CATV FIBER NETWORK.</b> <b>PRACTICE 2 THEORETICAL REPORT SUBMISSION.</b>		X	LAB	YES		1,66	
12	23	<b>CONTINUOUS ASSESSMENT: 2<sup>ND</sup> EV. EXAM:</b> M3: OPTICAL DETECTORS. M4: PASSIVE OPTICAL COMPONENTS AND AMPLIFIERS.	X			NO	<ul style="list-style-type: none"> <li>STUDYING OPTICAL FIBER LINKS.</li> <li><b>STUDYING FOR MIDTERM II.</b></li> </ul>	1,66	6
12	24	M5: OPTICAL COMMUNICATIONS LINKS. OPTICAL FIBER CABLES AND JOINTS. POWER BUDGET AND DISPERSION ANALYSIS. <b>PRACTICE 2 EXPERIMENTAL REPORT SUBMISSION.</b>		X		NO		1,66	
13	25	M5: POWER BUDGET AND DISPERSION EXERCISES. <b>PRACTICE 3 PREPARATION.</b>	X			NO	<ul style="list-style-type: none"> <li>STUDYING MULTIPLEXING TECHNIQUES.</li> <li><b>WORKING ON THEORETICAL REPORT OF PRACTICE 3.</b></li> </ul>	1,66	6
13	26	M6: MULTIPLEXING TECHNIQUES.		X	LAB.	YES		1,66	
14	27	<b>PRACTICE 3: 10 MBPS LINK.</b> <b>PRACTICE 3 THEORETICAL REPORT SUBMISSION.</b>	X			NO	<ul style="list-style-type: none"> <li>STUDYING MULTIPLEXING TECHNIQUES.</li> <li><b>WORKING ON EXPERIMENTAL REPORT OF PRACTICE 3.</b></li> </ul>	1,66	6
14	28	M6: MULTIPLEXING TECHNIQUES EXERCISES. <b>PRACTICE 3 EXPERIMENTAL REPORT SUBMISSION.</b>		X		NO		1,66	
15	29	<b>PROBLEMS AND EXERCISES UPON DEMAND. QUESTIONS.</b>							

\* EXTRA SESSION SCHEDULE ON SEMINAR TIME

								<b>Subtotal 1</b>	<b>48,14</b>	<b>82</b>
<b>Total 1 (Student homework and seminars in weeks 1-14)</b>									<b>130,14</b>	
15		Recovery, tutorial classes, etc		X				1,66		
16		Discussion and grading						3.2		
17										
18										
								<b>Subtotal 2</b>	<b>3.2</b>	<b>15</b>

<b>Total 2</b> ( <i>Student homework and seminars in weeks 15-18</i> )	19,86
<b>TOTAL</b> ( <i>Total 1 + Total 2. <u>Maximum 180 hours</u></i> )	<b>150</b>