



DENOMINACIÓN ASIGNATURA: INSTRUMENTACIÓN ELECTRÓNICA I		
GRADO: INGENIERÍA EN TECNOLOGÍAS INDUSTRIALES	CURSO: 3º	CUATRIMESTRE: 1

La asignatura tiene 29 sesiones que se distribuyen a lo largo de 14 semanas. Los laboratorios pueden situarse en cualquiera de ellas. Semanalmente el alumno tendrá dos sesiones, excepto en un caso que serán tres.

PLANIFICACIÓN SEMANAL DE LA ASIGNATURA									
SEMANA	SESIÓN	DESCRIPCIÓN DEL CONTENIDO DE LA SESIÓN	GRUPO (marcar X)		Indicar espacio distinto de aula (aula informática, audiovisual, etc.)	Indicar SI/NO es una sesión con 2 profesores	TRABAJO SEMANAL DEL ALUMNO		
			GRANDE	PEQUEÑO			DESCRIPCIÓN	HORAS PRESENCIALES	HORAS TRABAJO (Max. 7h semana)
1	1	Introduction to the Electronic Instrumentation		X		NO	Review theoretical concepts. Problem resolution.	1,66	3
2	2	Characteristics of instrumentations systems. Error.	X			NO	Review theoretical concepts. Problem resolution.	1,66	3
2	3	Problem: calibration curve.		X		NO	Review theoretical concepts. Problem resolution.	1,66	3
3	4	Analog signal processing: amplification of instrumentation signals with Op Amps. Circuits with Op Amps	X			NO	Review theoretical concepts. Problem resolution.	1,66	3

3	5	Exercises of conditioning circuits with Op Amps		X		NO	Review theoretical concepts. Problem resolution.	1,66	3,5
4	6	Analog signal processing: frequency response of electronic circuits.	X			NO	Review theoretical concepts. Problem resolution.	1,66	3,5
4	7	Exercises: frequency response.		X		NO	Review theoretical concepts. Problem resolution.	1,66	3,5
5	8	Analog signal processing: filtering and filter implementation	X			NO	Review theoretical concepts. Problem resolution.	1,66	3,5
5	9	Exercises: filters.		X		NO	Review theoretical concepts. Problem resolution.	1,66	3
6	10	Sensors and conditioning Circuits: resistive sensors.	X			NO	Review theoretical concepts. Problem resolution.	1,66	3
6	11	Exercises of resistive sensors		X		NO	Review theoretical concepts. Problem resolution.	1,66	3
7	12	Sensors and conditioning circuits: capacitive and inductive sensors.	X			NO	Review theoretical concepts. Problem resolution.	1,66	3
7	13	Exercises capacitive and inductive sensor.		X		NO	Review theoretical concepts. Problem resolution.	1,66	3
8	14	Sensors and conditioning circuits: thermocouples, optoelectronic and other sensors.	X			NO	Review theoretical concepts. Problem resolution.	1,66	3
8	15	Exercises thermocouples and optoelectronic sensors.		X		NO	Review theoretical concepts. Problem resolution.	1,66	3
9	16	Review	X			NO	Review theoretical concepts. Lab preparation.	1,66	2
9	17	Lab 1: Temperature sensor		X	LAB	SI	Review theoretical concepts. Lab post-processing.	1,66	4
10	18	Midterm Exam	X			NO	Review theoretical concepts. Problem resolution.	1,66	3
10	19	Lab 2: photodiode		X	LAB	SI	Review theoretical concepts. Lab post-processing.	1,66	4
11	20	Introduction to the Design Project. Exam results review. Time measurement (timer 555)	X			NO	Review theoretical concepts. Problem resolution.	1,66	3
11	21	Lab 3: Design Project I		X	LAB	SI	Review theoretical concepts. Design project.	1,66	3

12	22	A/D and D/A sensors: fundamentals, Nyquist theorem, static and dynamic characteristics, errors. Architectures, selection criteria.	X			NO	Review theoretical concepts. Problem resolution.	1,66	4
12	23	Lab 4: Design Project II		X	LAB	SI	Review theoretical concepts. Design project.	1,66	4
13	24	Digital signal processing. Introduction to digital systems applied to instrumentation systems (DSPs, microcontrollers, FPGA)	X			NO	Review theoretical concepts. Problem resolution.	1,66	3
13	25	Design Project III		X	LAB	NO	Review theoretical concepts. Design project.	1,66	3
14	26	Exercices digital signal processing.	X			NO	Review theoretical concepts. Problem resolution.	1,66	4
14	27	Design Project IV		X	LAB	NO	Review theoretical concepts. Design project.	1,66	3
15	28	Remote sensing. Voltage and current loop, noise modeling, interferences.	X			NO	Review theoretical concepts. Problem resolution.	1,66	4
		Examen Proyectos		X	LAB		Documentation.		5
12	29	Exercices A/D-D/A	X			NO	Review theoretical concepts. Problem resolution.	1,66	2
Subtotal 1								48,14	84
Total 1 (Horas presenciales y de trabajo del alumno entre las semanas 1-14)								132,14	
15		Recuperaciones, tutorías, entrega de trabajos, etc						12	
16		Preparación de evaluación y evaluación						4	
17								30	
18								30	
Subtotal 2								38	
Total 2 (Horas presenciales y de trabajo del alumno entre las semanas 15-18)								178,14	
TOTAL (Total 1 + Total 2. Máximo 180 horas)									