

COURSE: Applied Thermal Engineering		
DEGREE: Grade in Industrial Technologies Engineering	YEAR: 4	TERM: 1

WEEKLY PLANNING								
WEEK	SESSION	DESCRIPTION	TEACHING (mark X)		SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)	WEEKLY PROGRAMMING FOR STUDENT		
			L E C T U R E S	S E M I N A R S		DESCRIPTION	CLASS HOURS (1,66=50+50 min)	HOMEWORK HOURS (Max. Estim. 3,25h)
1	1	Introducingo to the course. Topic 1: Gas cycles. 1.1. Previous concepts of gas cycles: simple cycle of gas turbine. 1.2. Gas turbine cycles with regeneration. 1.3. Gas turbine cycles with post-combustion. 1.4. gas turbine cycles with inter-cooling.	X			Review notes and recommended bibliography	1,66	3,25
2	2	Resolution of exercises on topic 1: Gas cycles.		X		Examples of gas cycles exercises	1,66	3,25
3	3	Topic 2: Steam cycles. 2.1. Previous concepts of steam cycles: simple Rankine cycle. 2.2. Rankine cycles with regeneration. 2.3. Rankine cycles with reheating.	X			Review notes and recommended bibliography	1,66	3,25
4	4	Resolution of exercises on topic 2: Steam cycles.		X		Examples of steam cycles exercises	1,66	3,25
5	5	Topic 3: Combined cycles. 3.1. Definition of combined cycle. 3.2. Working principle. 3.3. Description of main elements..	X			Review notes and recommended bibliography	1,66	3,25
6	6	Resolution of exercises on topic 3: Combined cycles.		X		Examples of combined cycles exercises	1,66	3,25
7	7	3.4. HRSG Design. 3.5. Improvements in HRSG: different pressure levels.	X			Review notes and recommended bibliography	1,66	3,25
8	8	Lab 1: Solve an applied exercise using numerical tools			X	Design and solve using computer software tools	1,66	3,25

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9	9	Topic 4: Refrigeration cycles. 4.1 Previous concepts of refrigeration: simple cycle. 4.2. Cascade cycle. 4.3. Double compression cycle	X			Review notes and recommended bibliography	1,66	3,25
10	10	Resolution of exercises on topic 4: Refrigeration cycles.		X		Examples of refrigeration cycles exercises	1,66	3,25
11	11	Topic 5: Exergetic analysis. 5.1 Introduction to exergy. 5.2. Application to power generation cycles.	X			Review notes and recommended bibliography	1,66	3,25
12	12	Lab 2: Solve an applied exercise using numerical tools			X	Design and solve using computer software tools	1,66	3,25
13	13	Resolution of exercises on topic 5: Exergetic analysis.	X			Examples of exergetic analysis	1,66	3,25
14	14	Topic 6. New trends in power cycles. 6.1 Fuels. 6.2. Supercritical and ultracritical cycles. 6.3. Optimization of design parameters.		X		Review notes and recommended bibliography	1,66	3,25
	15	Additional session					1,66	3,25
Subtotal 1							25	49
Total 1 (Hours of class plus student homework)							74	
15		Tutorials, handing in, etc					1,8	-
16		Assessment					4	4
17								
18								
Subtotal 2							6	4
Total 2 (Hours of class plus student homework)							10	
TOTAL (<i>Maximun 83 horas</i>)							83	