



SUBJECT DENOMINATION: Electric power stations II

GRADE: Electrical Engineering

CURSO: 4

CUATRIMESTRE: 2

There are 28 sessions for the subject, which are distributed in 14 weeks. Every week there are two sessions.

WEEKLY SCHEDULE OF THE SUBJECT

WEEK	SESSION	BREVE DESCRIPTION OF THE SESSION CONTENT	GROUP (X)		Different place from usual classroom	2 professor session? YES/NO	WEEKLY HOMEWORK FOR STUDENTS		
			BIG	SMALL			DESCRIPTION	Face to face hours	HOMEWORK (Maximum 7h/week)
1	1	Subject presentation. Schedules. Work plan. Evaluation.		X		NO		2	3
2	2	Kind of generation power plants. History. Characteristics.	X			NO		2	4
2	3	Coverage of the load curve. Cost analysis, fix and variable costs.		X		NO		2	
3	4	LCOE method for generation cost assessment.	X			NO		2	4
3	5	LCOE calculation for Nuclear, Coal and Combined Cycle power plants.		X		NO		2	
4	6	Generation power plant Project. Different stages of the project.	X			NO		2	7
4	7	Study of one line and three line diagrams of a generation power plant.		X		NO		2	
5	8	Synchronous Generator. Structure of the electrical machine and windings.	X			NO		2	7
5	9	Power plant grounding. High resistance grounding calculations.		X		NO		2	
6	10	Pumping power plants. Types and characteristics. New trends.	X			NO		2	7
6	11	Isolated phase busbar. Generator circuit breaker. Main power transformer.		X		NO		2	
7	12	Group presentations 1 st part	X			NO		2	7
7	13	Selection criteria for generator circuit breaker. Zero missing phenomena.		X		NO		2	
8	14	FIRST TEST for continuous assessment	X					2	7

8	15	Auxiliary services for generator power plants. Loads and voltage level.		X		NO		2	
9	16	Selection criteria for Auxiliary services power transformer. Voltage drop assessment.	X			NO		2	3
9	17	Selection criteria for Auxiliary services power transformer. Short circuit current and circuit breaker selection.		X		NO		2	7
10	18	Protection relay introduction. Faults and abnormal condition in generators.		X		NO		2	
10	19	Short circuit calculation from generator side. Relay setting.	X			NO		2	7
11	20	Specific protection relays for Generators. Protection philosophy and Relay setting.		X		NO		2	
11	21	Short circuit calculation from network side. Relay setting.	X			NO		2	7
12	22	Generator regulation. Voltage and velocity regulation. F-P regulator.		X		NO		2	
13	23	Control system. Introduction to IEC-61850.	X			NO		2	7
13	24	Group presentations 2 nd part		X		NO		2	
14	25	Future increasing in the demand. International connections. DC Technologies (HVDC).		X		NO		2	3,5
15	26	SECOND TEST for continuous assessment	X				Study sessions 19-25	2	3,5
Subtotal 1								52	84
Total 1 (Face to face hours plus home study for weeks 1 to 15)								136	
15	27	Recoups, tutorials ...etc.						15	
16	28	Preparation for the final test						2	15
Subtotal 2								2	30
Total 2 (Face to face hours plus home study for weeks 15 to 18)								32	
TOTAL (Total 1 + Total 2. Maximum 180 hours)								168	