

Syllabus MSc Electrical Energy Systems – MSc EES

SEMESTER	MODULES	ECTS	Format of the course (Lecture L, tutored work TW, personal work PW, visits V)
First year M1 Semester 1 (Sep – Jan) 30 ECTS credits	Soft & Human Skills	6	87 TW
	Power Electronics : design of static converters	6	19,25 L + 35 TW
	Electrical Networks	6	29.75L + 28 TW
	Automatics of linear systems	6	8.75L + 22.75TW
	Electrical Machines	6	42L + 15.75TW
First year M1 Semester 2 (Feb – June) Mechatronics Systems option 30 ECTS credits	Soft & Human Skills	5	21L + 63TW
	Automatics & Nonlinear Systems	5	28L + 33.25TW
	Digital Control	5	14.75L + 42TW
	Architecture & Control of Electrical Systems	5	36.75L + 21TW
	Materials	5	40.25L + 22TW
	Mechatronics	5	38.5L + 22.75
First year M1 Semester 2 (Feb – June) Electrical systems of the future option 30 ECTS credits	Soft & Human Skills	5	21L + 63TW
	Automatics & Nonlinear Systems	5	28L + 33.25TW
	Digital Control	5	14.75L + 42TW
	Architecture & control of Electrical Systems	5	36.75L + 21TW
	Switching Cell Implementation & Control	5	15.75L + 36.75TW
	Renewable Energies & FACTS	5	21L + 22.75TW

Second year M2 Semester 3 (Sept – Jan) Advanced Power Electronics option 30 ECTS credits	Harmonization period, from 1 st of September, to mid-September	0	60L
	System Control & Diagnosis	3	25L + 7TW
	System Optimization	4	44L + 14TW
	Control and Observation of Actuators	5	24L + 24.5TW
	Power Converters Design	5	34L + 31.5TW
	Electrical Networks	3	10.5L + 14TW
	X Levels static converters, PWM control and EMC/EMI	3	25.5L + 7TW
	Engineering work	7	15.7L + 21TW + 51PW
Second year M2 Semester 3 (Sept – Jan) Electrodynamics and Mechatronics option 30 ECTS credits	Harmonization period, from 1 st of September, to mid-September	0	60L
	Control & Diagnosis of the Systems	3	16.75L + 17.5TW
	Optimal Control of the Systems	4	35.5L + 12TW
	Control and Observation of Actuators	5	28.5L + 31.5TW
	Physics of Electromagnetic Devices	4	39L + 7TW
	Electromechanical conversion & Mechatronic Systems	7	53L + 26.5TW
	Engineering work	7	15.7L + 21TW + 51PW
Second year M2 Semester 3 (Sept – Jan) New Technologies of Energy 30 ECTS credits	Harmonization period, from 1 st of September to mid-September	0	80L
	Systemic Design	8	40L + 10.5TW
	Hybrid Systems, Smart Grids and Electrochemical Storage	8	71.3L + 10.5TW
	Renewable Energies	8	59.4L + 12TW
	Engineering work	6	49L + 21PW
Second year M2 Semester 4 (Feb – Sept) 30 ECTS credits	Long Project, form end of January to mid-March – subjects provided by research labs or industry partners	8	Full time PW, at ENSEEIHT, with progress meetings
	5 to 6-month internship in enterprise or research Lab, from mid-March to mid-September Oral defense second week of September	22	Full time