

Semester 1 Master: Electrical Networks

Teaching unit	Materials	Credits		Hourly volume weekly Hourly Volume			Biannual (15 weeks)	Work Complementary in consultation (15 weeks)	Assessment method	
	Titled			Course	TD	TP			Control Continuous	Exam
Fundamental EU Code: UEF 1.1.1 Credits: 10 Coefficients: 5	Electric power transmission and distribution networks	4 2	1h30	1h30			45h00	55h00	40%	60%
	Advanced power electronics	4 2	1h30	1h30			45h00	55h00		
	μ-processors and μ-controllers	2 1	1h30				10:30 p.m.	27:30		100%
Fundamental EU Code: UEF 1.1.2 Credits: 8 Coefficients: 4	In-depth electrical machines	4 2	1h30	1h30			45h00	55h00	40%	60%
	Applied numerical methods and optimization	4 2	1h30	1h30			45h00	55h00	40%	60%
Methodological EU Code: UEM 1.1 Credits: 9 Coefficients: 5	Practical work: - μ-processors and μ-controllers	1	1			1 hour	3:00 p.m.	10:00 a.m.	100%	
	Practical work: - Electrical energy transport and distribution networks	2 1				1h30	10:30 p.m.	27:30	100%	
	Practical work: - Advanced power electronics	2 1				1h30	10:30 p.m.	27:30	100%	
	Practical work: Applied numerical methods and optimization	2 1				1h30	10:30 p.m.	27:30	100%	
	Practical work: - in-depth electrical machines	2 1				1h30	10:30 p.m.	27:30	100%	
EU Discovery Code: UED 1.1 Credits: 2 Coefficients: 2	Basket of your choice	1	1	1h30			10:30 p.m.	2:30 a.m.		100%
	Basket of your choice	1	1	1h30			10:30 p.m.	2:30 a.m.		100%
Transversal EU Code: UET 1.1 Credits: 1 Coefficients: 1	Technical English and Terminology	1	1	1h30			10:30 p.m.	2:30 a.m.		100%
Total semester 1		30 17	12:00	6:00	7:00		375 hours	375 hours		

Semester 2 Master: Electrical Networks

Unit teaching	Materials	Credits	Hours	Hourly volume weekly			Volume Hourly Biannual (15 weeks)	Work Complementary in consultation (15 weeks)	Assessment method	
	Titled			Course	TD	TP			Control Continuous	Exam
Fundamental EU Code: UEF 1.2.1 Credits: 10 Coefficients: 5	Modeling and optimization of electrical networks 4 2 1h30 1h30						45h00	55h00	40% 60%	
	Electrical power quality	4 2	1h30	1h30			45h00	55h00	40% 60%	
	Centralized and decentralized production	2 1	1h30				10:30 p.m.	27:30		100%
Fundamental EU Code: UEF 1.2.2 Credits: 8 Coefficients: 4	Planning of electrical networks	4 2	1h30	1h30			45h00	55h00	40% 60%	
	Control of electro-energetic systems	4 2	1h30	1h30			45h00	55h00	40% 60%	
Methodological EU Code: UEM 1.2 Credits: 9 Coefficients: 5	Electrical network protection techniques	3 2	1h30			1 hour	37h30	37h30	40% 60%	
	Practical work: Modeling and optimization of electrical networks	2 1				1h30	10:30 p.m.	27:30	100%	
	Practical work: Quality of electrical energy	2 1				1h30	10:30 p.m.	27:30	100%	
	Practical work: Control of electro-energy systems	2 1				1h30	10:30 p.m.	27:30	100%	
EU Discovery Code: UED 1.2 Credits: 2 Coefficients: 2	Basket of your choice	1 1	1h30				10:30 p.m.	2:30 a.m.		100%
	Basket of your choice	1 1	1h30				10:30 p.m.	2:30 a.m.		100%
Transversal EU Code: UET 1.2 Credits: 1 Coefficients: 1	Ethics, professional conduct and intellectual property	1 1	1h30				10:30 p.m.	2:30 a.m.		100%
Total semester 2		30	17 1:30	30 p.m.	6:00 a.m.	5:30 a.m.	375 p.m.	375 hours		

Semester 3 Master: Electrical Networks

Unit teaching	Materials	Credits	Cours	Hourly volume weekly			Volume Hourly Biannual (15 weeks)	Work Complementary in consultation (15 weeks)	Assessment method	
	Titled			Course	TD	TP			Control Continuous	Exam
Fundamental EU Code: UEF 1.3.1 Credits: 10 Coefficients: 5	Management of electrical networks	4	2	1h30	1h30		45h00	55h00	40% 60%	
	Stability and dynamics of electrical networks	4	2	1h30	1h30		45h00	55h00	40% 60%	
	Smart grids	2	1	1h30			10:30 p.m.	27:30		100%
Fundamental EU Code: UEF 1.3.2 Credits: 8 Coefficients: 4	Integration of renewable resources into electricity networks	4	2	1h30	1h30		45h00	55h00	40% 60%	
	Industrial electrical networks	4	2	1h30	1h30		45h00	55h00	40% 60%	
Methodological EU Code: UEM 1.3 Credits: 9 Coefficients: 5	High voltage techniques	5	3	1h30	1h30	1h00		60h00	65h00	50% 50%
	Practical work: Stability and dynamics of electrical networks	2	1			1h30	10:30 p.m.	27:30	100%	
	Practical work: Industrial electrical networks	2	1			1h30	10:30 p.m.	27:30	100%	
EU Discovery Code: UED 1.3 Credits: 2 Coefficients: 2	Basket of your choice	1	1	1h30			10:30 p.m.	2:30 a.m.		100%
	Basket of your choice	1	1	1h30			10:30 p.m.	2:30 a.m.		100%
Transversal EU Code: UET 1.3 Credits: 1 Coefficients: 1	Documentary research and dissertation design	1	1	1h30			10:30 p.m.	2:30 a.m.		100%
Total semester 3		30	17	1:30 p.m.	7:30 a.m.	4:00 a.m.	375 p.m.	375 hours		

Discovery EU (S1, S2 and S3)

- 1- Renewable energies
- 2- Industrial computing
- 3- Electromagnetic compatibility
- 4- Maintenance and Operational Safety
- 5- Implementation of real-time digital control
- 6- Electrotechnical materials and their applications
- 7- Artificial intelligence techniques
- 8- Propagation of electric waves on the energy network
- 9- Introduction to software engineering
- 10-Industrial Ecology and Sustainable Development
- 11- Others...

Semester 4

Internship in a company leading to a dissertation and a defense.

	VHS	Coefficient	Credits
Personal Work	550	09	18
Internship in a company	100	04	06
Seminars	50	02	03
Other (Supervision)	50	02	03
Total Semester 4	750	17	30

This table is given for information purposes only.

Evaluation of the End of Master's Cycle Project

- Scientific value (Jury assessment) /6
- Writing the Dissertation (Jury's Assessment) /4
- Presentation and answer to questions (Jury assessment) /4
- Assessment of the supervisor /3
- Presentation of the internship report (Jury assessment) /3